MOTHERS AND INFANTS,

NURSES AND NURSING.

Translation from the French

OF A

TREATISE ON NURSING, WEANING, AND THE GENERAL TREATMENT OF YOUNG CHILDREN.

BY

DR. AL. DONNÉ,

LATE HEAD OF THE CLINICAL DEPARTMENT OF THE FACULTY OF PARIS, INSPECTOR GENERAL OF THE SCHOOLS OF MEDICINE, COUNSELLOR OF THE UNIVERSITY, PRIVATE PROFESSOR OF MICROSCOPY, ETC. ETC.

THIRD EDITION.

BOSTON:

BROWN, TAGGARD & CHASE.

1860.

Stereotyped by
HOBART & ROBBINS,
New England Type and Stereotype Foundry.
BOSTON.

RIVERSIDE, CAMBRIDGE:
PRINTED BY H. O. HOUGHTON AND COMPANY.

TRANSLATOR'S PREFACE.

POPULAR medical works, or works on domestic medicine, are justly held in slight estimation, not only by the medical profession, but by the more sensible portion of the community. Were the present a work of this nature, its translation would not have been attempted by the writer of this; but, finding that the author does not profess to give any directions for curing diseases in children, and that, when sickness comes, he has too much respect for his profession to recommend to half-instructed or ignorant persons the care of the sick child, — that he always stops short in his advice where disease begins, and that his only aim is to show how to bring up children without medicine, — to avoid disease not to treat it; finding, also, by actual experience, that the work was of inappreciable value to one young mother, and knowing of no English or American work which could supply its place, — the translator has thought he was rendering a useful service to present this translation to the American public.

In France the work enjoys a wide-spread popularity, being accepted by the medical profession, con-

sulted even, and recommended by them to their patients. It is manifestly impossible for a physician to watch over every step taken in a child's rearing, and to be always at hand with advice for all young mothers. It is, besides, somewhat out of the province of ordinary physicians, for whom it is far easier to refer mothers to some judicious and minute treatise on the subject. The translator ventures to hope that, when the medical profession in America shall understand the character of this work, they will make the same use of it that French physicians do.

Its author, it may be well to say, has made of the subject of which his work treats a speciality in medicine. Being entrusted by Louis Philippe with the choice of a nurse for the infant Count of Paris, at a time when several nurses had been tried without success, he devoted himself to a series of severe studies upon the microscopic appearances of the milk. The results at which he arrived, and the success attending their application in practice, gained for him at a very early age the Decoration of the Legion of Honor, and the office of Inspector General of the Schools of Medicine in Paris. These results, with the author's views upon the general treatment of children, have been embodied in this work. In his own family, Dr. Donné has given ample evidence, if any were needed, of being a wise guide for us in matters of this nature, unless we suppose that difference of country makes an essential difference in the mode

of treatment of children. Fortunately, however, the greater part of his work is, as will be seen, universal in its nature, and applicable to children in all countries and climates.

A few pages, devoted to the subject of bureaus for nurses in Paris, and having no practical interest in this country, have been omitted in the translation; but, on the other hand, faithful copies of plates representing the microscopical appearance of milk, taken from the same author's atlas of microscopy, and which are not to be found in the original work, have been added. Every one may thus, if disposed, carry out the author's suggestions as to the best method of determining the quality of a nurse's or cow's milk, with more certainty of success than if provided with the French edition only. To the medical reader, in particular, this portion of the work will, it is thought, prove of inestimable value. How often do we not see infants, who have previously presented every appearance of health, suddenly begin to dwindle and become puny, or be troubled with constipation, diarrhœa, or other evils, indicating a nourishment in some way unsuited to them! All that the physician unacquainted with the microscopic appearance of the milk, can then say, is, that the child's food does not *agree* with him, and that some other milk must be tried. How much more satisfactory, and how much simpler it would be for him, could he, by microscopic examination, ascertain in what way the milk is injurious!

He would then be able to advise a change sure to correct the defect of the former nourishment, while, without such examination, the new milk he recommends may be still more deficient in the very principles the other wanted. To this chapter, then, we would invite particular attention.

To the author's excellent remarks upon air and exercise for children we have nothing to add. Americans are fully alive, at least in theory, to the importance of both of them; and they will need no further advice than what the work contains. With regard to food, however, the case is different. As a nation, we think too little of the quality or quantity of the food we eat. We neglect the simplest principles of diet, and either, in health, eat at all hours everything which is eatable, or, when our digestive powers are impaired, reduce our diet beyond what is sufficient to maintain our strength. All this is bad enough for adults, and we hope the day is not far distant when the stomach will be respected by us as a delicate organ, which, well cared for, will do more for us than any one other in building up our strength and rendering us, what we are not now, a healthful, robust and ruddy nation. But, for children and infants, it is particularly important to begin early. As the author justly says, we have, at most, but several years in which to lay the foundation of the future constitution. Infancy offers innumerable resources; but this period once past, the future constitution of the being is determined, at least

for a long period. We should hasten, then, to profit by these few years of infancy, and in every way endeavor to render our infants not only healthy, in the ordinary acceptation of the term, — that is to say, free from all marked affections, — but we should not rest easy, so long as their cheeks are pale, their natures torpid, or their flesh wanting in firmness, as those of how many children are. The healthy infant should be firm in flesh, ruddy in color, strong and very active; and mothers, who find that their children are not so, however interesting they may seem from the apparent delicacy of their organization, ought to leave no means untried to secure for them all these characteristics. At this age, air, exercise and appropriate food are everything. With unremitting and judicious attention to all of them, a weakly child may become a strong one; without them, the strongest will, before he is a year old, already begin to lose his strength, plumpness, and color. If we fail in any of them, it is, as we have said, in the food. Children are kept too long on a weak and unvaried diet, while the stomach, like the mind, requires variety in order to the proper performance of its functions.

If we would see our children improving day by day in physical strength, which is no more than nature intends, we must give them a nourishment calculated to fortify their constitution; and variety in the food, for which the author gives so minute directions, seems to us likely to secure this end, so much

more easily assimilated is a diet which never palls upon the appetite. This chapter, then, also merits particular attention with us.

With regard to the translation, it may be said, that no pains have been spared to render it perfect; and, though some liberties have been taken with the style of the original, it may be relied on as accurate in every respect, not only in the popular but in the scientific parts of the work.

CONTENTS.

CHAPTER III.

OF PROFESSIONAL NURSES.

CHAPTER IV.

OF ARTIFICIAL NURSING, OR OF BRINGING UP CHILDREN BY HAND, 138.

CHAPTER V.

OF THE GENERAL REGIMEN OF CHILDREN.

CHAPTER VI.

OF THE INTELLECTUAL DEVELOPMENT AND MORAL EDUCATION OF CHILDREN IN THEIR CONNECTION WITH PHYSICAL EDUCATION.

CHAPTER VII.

OF THE CARES DEMANDED BY THE MOST COMMON ACCIDENTS TO WHICH CHILDREN ARE EXPOSED.

APPENDIX.

OF THE REGIMEN EMPLOYED AS TREATMENT IN CERTAIN DISEASES OF CHILDREN, AND IN PARTICULAR OF A STAY IN THE COUNTRY, AND THE MILK-REGIMEN.

INTRODUCTION.

THE subject which I undertake to treat presents great difficulties, and the observation and experience of a whole life would not be too much for its thorough accomplishment. I cannot expect, therefore, to be able to go over the whole ground, and to leave nothing to be desired in the counsels which I shall give to mothers upon the manner of bringing up their children. It is a first attempt, and it is my hope to render it, at some future time, less imperfect, by a continued devotion to the examination of the questions which are connected with it, and which have made the subject of my studies for the last few years. This subject is neither less fertile nor less interesting than that to which Madame Necker has consecrated her meditations; and a good treatise on the physical education of children would be, as it

were, the complement of her work on moral education. These two subjects are intimately connected, particularly as regards infancy. It is as necessary, in directing the hygiene of infants, to be guided by well-established principles, as it is in forming their minds and hearts. The moral education depends, to a certain degree, on the physical, just as the latter may be favored or impeded by the former.

The moral education, however, is not the object I have in view in this work. I do not at all purpose to write a treatise on moral philosophy, but to confine myself to the sphere of the physician and physiologist. I propose, before all, to treat of the physical condition and the health of infants; to inquire into the conditions most favorable for maintaining and developing the forces of the constitution; and I shall treat of their moral education only for the purpose of showing the reciprocal influence of the two.

It is impossible, however little one may look around him among the families of his friends, not to be struck with the embarrassment and difficulties which young mothers encounter at every step in taking care of their children in their earliest

infancy, in regulating their diet, and providing against the most simple accidents which occur. Most of them have evidently no rule in respect to this; they are at the mercy of chance and the maternal instinct more or less developed. The most skilful manage pretty well; the others are continually in uncertainty and doubt. Fearing always to do too much or too little, entirely ignorant of the nature of infancy, the extent of its forces, and the limits of its powers of resistance, they become powerless at the least obstacle, are sometimes alarmed beyond measure, or they neglect on the other hand the most essential conditions.

Whence arises this ignorance? Certainly not that treatises, instructions, and advice of all kinds, are wanting upon this subject. The number of works of this kind at present published is not inconsiderable; but a single glance at all this literature is enough to convince one that it presents only vague principles, systematic and absolute plans of education, or, finally, ridiculous declamations upon the *laws of nature*.

Some of these works were not without their use, at the time of their appearance, in combat-

ing usages evidently at variance with the well-being and interest of children; but not one of them lays down rules drawn from observation of the facts and ideas of science. It is precisely this which I have aimed at accomplishing, laying particular stress upon the recent progress in medicine and hygiene, and upon my own individual investigations. The reader will find in this book scientific details, which I have been careful to render intelligible to every mind, and which seem to me likely to disseminate useful ideas.

Far from not doing enough of themselves, many young mothers undertake, through excess of zeal, and without real profit to their children, more than the other duties they have to fulfil will allow them; they seem to be ignorant that, constituted as society now is, it is not so much a question how to do for themselves, as to direct intelligently the persons who serve them. That is the true problem to be resolved in the education of infants, as it is in the management of household affairs. In the world, as it now exists (for it is of this that we are speaking, and not of an ideal world in which all the complica-

tion of social duties is forgotten), women cannot sacrifice themselves entirely to the care of their infants; they cannot withdraw themselves either from their family obligations or their relations to society, nor even give up every species of distraction and amusement. This sacrifice, when they impose it upon themselves from a sort of exaltation of the maternal sentiment, soon proves to be beyond their strength and will; they do not keep it up to the end, and a thousand circumstances happen to turn them away from it. At this point the infant suffers from this capricious management which disturbs the regularity of his life. It is impossible, or at any rate very rare, for a mother to give all her time to her children; but the hygiene of children requires constant and assiduous care. For this reason, the principal duty of a lady is superintendence, not execution. This is a point they ought to bear constantly in mind from the very outset, and throughout the whole course of the education of their children.

Young women are also, for the most part, ignorant of the employment they ought to make of authority in the manner of training their chil-

dren. They complicate education, by appealing from the earliest infancy to other sentiments than that of obedience, — the most simple, the best adapted to the comprehension of infants, and the most in conformity with their nature. Now it seems to me that the best means of giving to mothers a portion of the calm and firmness that are so necessary in the functions they fulfil, is to enlighten them; that when they fully understand how they should conduct themselves in the principal circumstances in which they may be placed, — when they have clear ideas as to the manner of regulating nursing and feeding, clothing and sleep, — when they entirely appreciate the advantage to be derived from establishing good habits in the new-born infant, — that they will beyond doubt find in themselves the force necessary to enable them to conform to wise and moderate principles. What our age wants, I say it once more, is neither zeal, goodwill, nor maternal devotion, but a good direction.

I shall give, in an appendix at the end of this work, my ideas upon the employment of regimen and the application of medical means in the most common diseases of infancy. This subject makes

no part of education, but it has seemed to me that I ought to lay down the principal rules of the hygiene of sick children, in order to provide against some abuses of medicine.

The reader will find in the course of this book many repetitions, which I should have avoided had I aimed only at elegance of style and a logical sequence of ideas; but I have striven particularly to render the work clear, and have had in my mind the point of view from which young mothers, for whom the work is particularly designed, will be likely to regard the subject.

CHAPTER I.

QUESTIONS TO BE SETTLED BEFORE THE BIRTH OF THE CHILD.

THE care which an infant demands should begin, so to speak, before its birth. I shall not treat of the precautions which the condition of pregnancy requires; — that point does not concern me. If this question were not without the limits of my subject, I might, perhaps, have a few words to say upon the prevalent abuse of repose, to which many pregnant young women are condemned at the slightest fright or the most insignificant accident; as if no ill-effects were to be apprehended for the mother, and consequently for the child, from the deprivation of air and exercise for a longer or shorter period. A confinement for several months, or even for a fortnight, in the house, in a bed, or even on a

sofa, is equivalent, for certain temperaments, to a real sickness, and produces the same result both upon the strength and the constitution. These precautions are, doubtless, necessary under certain circumstances, and it is the only means for some women to arrive safely at their term; but it must not be supposed that this treatment is wholly harmless, and that it may be adopted without exception in all cases and for everybody. It is not one of those indifferent precautions which we may take without reflection when no necessity for it exists, and of which it may be said that, if it does no good, it at least does no harm. We have seen it produce most deplorable results, and, in our opinion, it ought to be used with great discretion. Exercise and walking, like all good things, may have injurious effects; but, to enervate one's self and become weak and sickly, — to paralyze the muscular action, and deprive one's self of air and sunlight, when one has so strong an interest to preserve and keep up one's strength, — are not less injurious. How can the child be born in good condition, or, at any rate, how many chances do we not create against ourselves, when the mother passes the

whole period of her pregnancy in a sort of convalescence and inertia?*

I come now to the subject which is particularly to engage my attention.

Can it be determined beforehand whether a woman will be in a condition to nurse her child?—The first question to be settled before the birth of the child, is, who shall be its nurse, and whether the mother herself shall undertake to nurse it.

I shall take it for granted, in the first place, that no particular reason exists, no obstacle originating in the state of the health, the constitution or the will, to prevent the child's being nursed by its mother. I shall revert to these questions hereafter; but for the present the question is, "Is it possible to know beforehand what will be the character of the milk after delivery,—whether it will be of good quality, whether

* I am so persuaded of this, that I have not hesitated to prescribe horseback exercise, during the first months of pregnancy, to young women weakened by long repose and a protracted confinement to the house. This exercise, taken with moderation, has not been long in rallying the strength, with no less advantage to the future infant than to the mother.

in sufficient quantity; in one word, whether the mother will be a good or a bad nurse?"

This question is often asked by people; it has been put to me several times, and nobody had seriously occupied himself with its solution before I undertook its investigation.

It is in the case of women who have never borne children, and of those who have never nursed them, that it is important to be able to determine the conditions which they present relative to nursing. Now, it is not in any external characteristics, as is often urged, such as the appearance of the body, the form and development of the breasts, the color of the hair, and the complexion, &c., that it is possible to find indications which are decisive. I have in vain endeavored to detect a connection between signs of this nature and the conditions which render a woman a good nurse. The only circumstance connected with the external appearance of the body, upon which we may, from my observations and experience, rely, is a certain condition of plumpness, without which nurses are rarely good. Not that it is necessary to be what we call fat to have good milk and in sufficient quantity, and to

nurse successfully; but it is beyond doubt that a certain degree of leanness does not agree with the ordinary qualities and conditions of a good nurse.

The secretion of the mammary gland during pregnancy, furnishes useful indications for deciding beforehand as to the quality of the milk after delivery.—The nature of the secretion which takes place in the mammary gland itself, during the time of pregnancy, furnishes more direct and surer means of arriving at the solution of the problem, than signs drawn from the external appearance.

We know that at a more or less advanced period of pregnancy, often even from the very time conception takes place, there goes on in the mammary gland a preparatory action, the result of which is a certain quantity of viscous, yellowish matter, which can be extracted by moderate pressure applied with caution to the organ. It is to this milk as yet imperfect that the name of *colostrum* has been given in medicine. This fluid is sometimes so abundant, that it oozes out naturally and of itself from the nipple.

Now, I have verified the existence of a pretty

constant connection between the nature of this liquid secreted during pregnancy, and the character of the milk after delivery; in other words, the examination of the *colostrum* and its principal characteristics enables us to foretell what will be the lacteal secretion, what will be the essential quality of the milk, and how abundant it will be. This is not at all surprising; for it is the same organ which produces both the milk and the colostrum, and it is very natural to find a relation between these two fluids.

This law is so general that I have met with but two or three exceptions in sixty cases, taken among women of different conditions of age, temperament, &c. I of course leave out of the account the accidents which may occur after delivery, such as general or local disease, which may chance to derange the order of the functions, and in particular the secretion of the milk.

Of the properties of the colostrum, and the differences which women present in regard to it. — By what characteristics can we recognize in the colostrum the future properties of the milk which is to succeed it? I divide women, in respect to the secretion of the colostrum, into

three categories. Under the first are to be ranked those with whom the secretion of the colostrum, at whatever period of pregnancy the examination be made, is so scanty that it is with difficulty a drop or half a drop can be obtained by the most careful pressure upon the mammary gland and the nipple.* In this case, the milk, after delivery, will be, almost to a certainty, in small quantity, poor, and insufficient for the nourishment of the child.

The second category comprises the women who secrete an abundant colostrum, but thin, watery, flowing easily, resembling weak gum-water,† and *presenting no streaks of yellow, thick, and viscous matter.* Women presenting these characteristics may have milk in greater or less quantity, sometimes abundant, sometimes scanty; but their milk is always poor, watery, and with very little substance.

* If microscopic inspection be joined to this examination, we shall see that this colostrum contains very few, small and ill-formed milk-globules, and a very small number of the granular bodies peculiar to this fluid.

† This colostrum is equally poor in milk-globules proper, and in granular bodies, and it would seem to be mixed and diluted with water.

Finally, when the secretion of the colostrum, in the case, for example, of a woman in her eighth month of pregnancy, is pretty abundant, so that several drops of it may be easily obtained, particularly when this fluid contains a yellow matter, more or less dark-colored, and more or less thick, contrasting by its consistence and color with the rest of the liquid, in which it forms distinct streaks,* we may be almost certain that the woman, in this case, will have milk in sufficient quantity; that this milk will be rich in nutritive principles; and that it will possess, in one word, all the essential qualities.

All that is wanting, then, to make the examination in question, is to extract a certain quantity of colostrum, and to observe to which class it belongs, in accordance with the characteristics above mentioned. It is beyond doubt the best means we can have recourse to, to determine beforehand whether a woman will have, as regards her milk, the qualities essential for a good nurse;

* Microscopic observation demonstrates that this colostrum is rich in milk-globules already well-formed, of good size, without admixture of mucous globules, and that it also contains a greater or less number of granular bodies.

and whether she can undertake to nurse her child with any chance of success. This examination has an especial interest for women who are desirous of nursing their children themselves. It might be made at different periods of pregnancy; but it will be particularly valuable about the eighth month. There will then still remain time enough before delivery to come to some decision, according as the case may be.

It is well to know that some accidental causes, such as a cold, or a certain apprehension on the woman's part, may, for a time, disturb the results of the experiment.

CHAPTER II.

ON NURSING BY THE MOTHER.

Advantages of nursing by the mother; preference to be given to her. — Though I would restrict myself to the reasonable limits which prudence and experience prescribe, it will be seen that I am rather in favor of mothers undertaking to nurse their children themselves, than of their entrusting them to nurses, properly so called. This principle is not the result of a systematic doctrine, nor of an exaggeration of the sentiments of nature and maternal love. I have no other rule, and no other object in view, than the child's well-being, and that of the mother herself, — two things which cannot be separated.

There are, indeed, many mothers, whom I would not accept as nurses for other children than their own, whom I believe perfectly capable of nursing their own children, and often preferable even to the best hired nurses.

I willingly admit that, as regards calmness and a certain indifference, valuable, it is said, in rendering the milk salutary to the child, hired nurses offer some advantages; but, apart from these qualities, which are apt to be somewhat exaggerated, I do not insist upon the same appearance of strength, or the same abundance even of milk, in the mother, that I require in the nurse I select. Daily experience demonstrates that to have a great deal of milk, and of the best quality, is not all that is requisite, but that one must know how to furnish it judiciously—to regulate the times of the infant's nursing intelligently; and we should make a great mistake if we expected to be able in this respect to manage at will the majority of nurses. It will be seen how difficult to govern the greater part of them are.

Of the conditions which relate to the constitution and the health. — The question of nursing not depending entirely upon the quality of the milk, too great precautions cannot be taken to assure ourselves of the condition of the general health, whether in the case of the hired nurse or of the mother herself. Now, it is always easier for the physician to obtain precise information upon the

previous condition, the whole life, and the general constitution of the family of the child's mother, than of that of a hired nurse, always more or less interested in deceiving. To the same degree that it is necessary to subject nurses to the most scrupulous examination, to maintain with them a species of reserve, and almost of suspicion, to believe only what we can assure ourselves of, just in the same degree do the moral guaranties arising from the maternal relation, offer security.

It is difficult to define, in a precise manner, what conditions of health a mother should present who proposes to nurse her child, and what those are which absolutely preclude the idea of her doing it. It is less an external appearance of force, and a robust and invariable health, that we should demand, than a good constitution; that is to say, a constitution irreproachable as regards those hereditary affections which may injuriously affect the child, or which may assume, under the influence of nursing, a development and a degree of activity capable of injuring the mother.

If we were to allow the ability to nurse a

child only to mothers of as robust strength and health as we require in hired nurses, we might nearly abandon the idea that ladies can ever nurse their children; for it is very rarely that we meet with these conditions in women who inhabit large cities, and particularly among those of certain classes of society. But there are so many compensations for their inferiority in this respect to hired nurses, that it is well to limit, in some degree, our requirements, and not to push severity to excess. Nothing is more common, in fact, than to see, even in Paris, women of medium strength, whose health is not always exempt from a crowd of those little ills which seem inherent to a certain social position, possessing, nevertheless, the qualities essential for a nurse, and performing this office with the greatest success, without experiencing any deterioration in their own health. It would be cruel, indeed, both for the mother and the child, to oppose the inclination to nurse, which these women experience, and to deprive the child of his natural nurse; it would be falling, through excess of precaution, into another order of troubles, or, at least, depriving ourselves of real and precious

advantages. We ought also to avoid, in such matters, a spirit of exclusive system, whether in favor of, or opposed to, nursing by the mother; but we may say that the presumption ought to be in favor of the mother.

If, then, there does not exist, either in the family of the mother or in her own person, any cutaneous or scrofulous affection,— if no disposition to consumption is to be feared,— if the temperament is not exceedingly lymphatic,— if there is no tendency to any chronic disease, and the mother is of ordinary strength and plumpness,— if the appetite and the digestive functions are in good condition,— if the strength is properly restored by food and sleep, and the milk is of good quality, and in sufficient quantity,* — nursing by the mother may not only be allowed, but it ought to be advised and encouraged; and the best nurse in this case will be the mother herself.

But what deceives many young women, and

* I shall treat, in the chapter on nurses, the question of the milk in all its relations ; and what I shall say of it there will apply as well to mothers who nurse their infants themselves, as to professional nurses.

often misleads them as to the ability they think they possess, is the abundance of their milk during the first periods after delivery. They give themselves up with ardor to their desire to nurse their child, and they think themselves excellent nurses, because the milk in their breasts is, for the time, abundant. But this abundance, during the first periods of nursing, is not a great security for its continuance. Women the least favored produce, at the outset, milk in sufficient quantity; and it is rare that the secretion has not a certain activity, in the earlier periods, in the case of all women, whether well or ill formed, of good or of bad organization. And, besides, a weak and watery milk is pretty nearly sufficient for the child's first wants. For this reason the first nursing ordinarily presents no serious difficulty. All seems to be going on well, and no trouble occurs till after a certain time. It is not till the end of a month or six weeks that a diminution of the milk is observed; an effect which is invariably attributed to some accidental cause, some transient uneasiness, or passing emotion; and confidence is regained without reflecting that it is already a very bad

sign for a nurse to be affected by so slight circumstances. But the milk continuing to diminish, whilst the requirements of the child go on increasing, ill consequences are not long in presenting themselves, and a series of disturbances to which we shall have occasion to revert hereafter.

Of the inconsiderate zeal of young women who undertake to nurse, and of the caution they ought to use. — All women who nurse ought to be careful of themselves; but this is particularly necessary for women of a somewhat delicate constitution.

Many young mothers do themselves irreparable injury from mistaken zeal. Because they feel capable of nursing, because they have the permission of their physician, they conclude that there are no bounds, so to speak, to their strength. Desirous of doing their duty conscientiously, they treat themselves as robust nurses who make nursing their business. They spare themselves neither night nor day, and, by this course, many of them soon have the mortification of seeing their strength diminish, and their milk dry up. Instead of acting as strong

women, ladies, who are desirous of fulfilling the part of nurse as long as it may be necessary, ought to remember that they have neither an excess of strength nor a superabundance of milk to expend; they must, therefore, submit to certain precautions.

Let us lay down one general principle, from which naturally originate consequences easily comprehensible by everybody. It is indispensable that a nurse repair the drain upon her system which she makes each day; and it is from her food and sleep that she must derive the strength and sustenance necessary for the nourishment of her child. Every nurse, therefore, who has no appetite, and whose digestion is bad, is soon exhausted,—a warning which she must not neglect.

Of the necessity of sound sleep.—But what I say of food, I repeat with much more emphasis of sleep. Sleep, and one which is calm, deep, and sufficiently prolonged, is still more necessary for the reparation of the strength than food itself. We see *some* women, having little appetite, and eating but little, during the whole period of nursing, who are, notwithstanding, pretty

good nurses, — whose children thrive pretty well; but I do not fear to affirm that the want of sleep, or that an imperfect sleep, inevitably and rapidly brings on a loss both of strength and of milk, particularly with ladies of a constitution always more or less nervous. Herein lies, beyond all doubt, one of the most frequent causes of the derangements which oblige a great number of young mothers to give up nursing their children. We shall see, in fact, that the greater part of them are far from taking the best course, and that they undertake a task which is consequently beyond their strength.

In their ardor, urged by a sort of maternal vanity, young mothers wish to nurse their children at every moment, night and day, and they have themselves awakened through fear of letting them suffer. This indiscreet zeal cannot fail to be fatal; and it is not long in bearing its fruit.

Of nursing during the night. — The first rule for ladies who wish to nurse, is to give up doing so during the night. We write for the majority, and not for the few exceptional cases, very rare in cities, of women possessing all the force and

all the healthful vigor of the most robust country women. This precaution is essential not only for the mother, who would often ask for nothing better than to sacrifice herself, but also for the child; for the sacrifice of the mother soon reäcts in all its force upon the nursling, whilst, on the other hand, he profits by all which benefits the mother. It is, then, for the good of the child that I recommend, as a general thing, the suspension of nursing during the night.

It would be a great mistake to suppose that infants suffer by this treatment, or that they are at all the losers by it. So far from this, sleep is no less essential to them than to the mother, and it is, in all cases, a very good habit to give them, to teach them to sleep continuously, for a fixed time, and without awakening at too short intervals.

Is it necessary to say that we do not mean the whole night through, however long it may be, reckoning, whether in summer or in winter, from the moment the sun sets to that when it reäppears above the horizon? It is evident that such an interpretation would be absurd.

What I mean is, that the mother should have

at least six to seven hours of continuous, uninterrupted sleep, from eleven o'clock at night, or from midnight, for example, until six or seven o'clock in the morning. The mother can then nurse her child for the last time during the day a little shorter or longer time before going to sleep, and begin again early the next morning, without omitting, of course, to take additional sleep afterwards, if such is her habit, or if she feels the need of it.

Of the means for supplying the place of the mother's milk during the night. — But will the child wait, however young he may be, and from his earliest existence, during this long space of time, without taking anything? Of course not. Diluted cow's milk should be substituted for that of the mother every time he wakes up; and this will not happen more than two or three times during the night, if he is in good health. We shall see what course is to be pursued under accidental circumstances, and in case of indisposition or sickness. It will be foreseen that, in this plan, I have in view another condition.

Of the disadvantages of having the child sleep near the mother. — Far from approving the cus-

tom, adopted by many mothers full of devotion and tenderness, of making their children sleep by their side, I am so convinced of the necessity of husbanding their rest and sleep as much as possible during the night, that I cannot too strongly recommend, whenever it can be done, whenever one's means and habitation admit of it, to keep the child at a distance from the mother during the night. I know all the repugnance that is felt, often even in the richest and best served families, and in the most favorable conditions, to entrust to a strange woman, to a nurse, the child that they are unwilling should be out of sight for an instant; but there is also such a thing as exaggerating the fears one entertains on this score. The child will have to be entrusted, sooner or later, in a multitude of circumstances, to stranger hands, and the danger is not greater at this period of life than at any other. All that is important is to carefully select those who serve us, and to exercise a firm and constant supervision; and as, in fact, it is not possible for any mother to follow her child everywhere, however zealous and devoted she may be, nor, however little her position may call her into society,

to avoid the necessity of abandoning him for some moments, from time to time, to foreign hands, it is not a bad thing, from the very beginning, to lay the responsibility upon the nurse with whom the child is to pass a portion of his early years.

Of the fatigue of nursing. — The interest of the child must not alone occupy us in this chapter. The mother also has a claim to our advice; and this is why we shall caution young women who undertake to nurse, as well as their families, that nurses are divided into two classes. The first are good nurses only to their own injury; that is to say, they furnish to their child an abundant and substantial nourishment, on which he thrives at first pretty well; but this is done by exhausting their own powers. For such as these nursing is a fatigue, which does not always do injury to the child, but which may do serious harm to the mother; and these cases demand the greatest watchfulness. This disposition is sometimes so decided, that it ought to be enough to cause one to abandon nursing. Others, on the contrary, are good nurses every way. Far from feeling any fatigue or any inconvenience, this

function seems to be favorable to their health. These last are the only ones who really merit the name of good nurses. Mothers should learn to form a correct estimate of their own powers, and not allow themselves to be misled by what we have called maternal vanity. They should understand that they have other duties to fulfil towards their children than that of nursing them, among which the most important is to preserve themselves for them.

Importance of putting an immediate stop to nursing in certain cases. — There are cases in which we cannot too soon put a stop to nursing. I have had an opportunity to observe three remarkable ones, which prove that, even if compulsion must be used, no hesitation should be felt in like circumstances to transfer the child from the mother to a hired nurse.

A very light-complexioned young mother, in very good health, and of a good constitution, though somewhat delicate, was nursing for the third time, and, as regarded the child, successfully. All at once this young woman experienced a feeling of exhaustion. Her skin became constantly hot; there were cough, oppression

night-sweats; her strength visibly declined, and in less than a fortnight she presented the ordinary symptoms of consumption. The nursing was immediately abandoned, and, from the moment the secretion of milk had ceased, all the troubles disappeared, the mother's health was restored, and, since then, — a period of now three years, — it has not ceased to be excellent, and no suspicious symptoms have again manifested themselves.

A woman of forty years of age, a door-keeper in the house I inhabit, having lost one after another several children, all of whom she had put out to nurse, determined to nurse the last one herself, which was born at the age I have mentioned. This woman, being vigorous and well-built, was eager for the work, and, filled with devotion and spirit, she gave herself up to the nursing of her child with a sort of fury. At nine months she still nursed him from fifteen to twenty times a day.

Having become extremely emaciated, she fell all at once into a state of weakness, from which nothing could raise her, and two days after the poor woman died of exhaustion.

Finally, I have seen, with several distinguished physicians of Paris, a woman still young, who, after having given birth to five infants, and having nursed them all with the greatest success, was attacked, in nursing the sixth, with nervous paroxysms, fainting fits, and such general weakness, that it seemed several times as if she were going to sink under them. She immediately gave up nursing; but it was not till a long time afterwards, and with great rest and care, that she was able to recover her health and strength.

The determination to nurse must be voluntary and spontaneous. — All which precedes applies only to those mothers who have a real desire to nurse their children themselves; for such a determination should never be induced by compulsion or mere compliance; and women who do not feel either a liking or a calling for the vocation of nurse to their own children, should not attempt it. I would not at all advise the family, or even the husband, to try to exercise too great an influence with regard to this, — to obtain, by dint of solicitation, and by a species of moral constraint, what the woman, who is the

most directly interested in the question, has nc natural inclination for. There is no resolution which demands more free-will, more spontaneity, than this; for it is to be feared that what has not been voluntarily undertaken will be badly executed. We must not ignore the fact that there exist mothers—and very good ones—who feel no inclination for the cares which infancy demands, and particularly for nursing. It would be wrong to conclude from this that such mothers are necessarily unnatural ones, incapable of devotion and sincere love for their children. This would be an exaggerated application of principles, which would often lead to a wrong interpretation of the real sentiments of the heart, and to too severe a judgment of a disposition very insignificant in itself. I confess, even, that in many cases I should prefer a little less enthusiasm on the part of certain young mothers who, in a first moment of ardor, allow themselves to be carried away beyond what they are really capable of accomplishing, and whose zeal does not long continue equal to this first impulse.

Nursing creates less embarrassment when performed by the mother than when entrusted to a

hired nurse. — I shall, notwithstanding, allow myself to give some advice to those who have not fully made up their minds either one way or the other.

The embarrassments and the difficulties which nursing involves may contribute to the repugnance, which some women experience, to undertaking the nursing of their children. They think that they will be rid of this embarrassment and these difficulties the moment they have a nurse to take their place. Nothing appears more simple, at the first view, than to give a nurse to a child, and to devolve upon her almost all the care which he requires. The difficulty then seems to be reduced to making a good choice, and exercising a suitable oversight. But this is an error and a delusion which practice too often demonstrates; and it is necessary to warn young women that they cannot escape, whatever means they may take, the thousand inconveniences which the greater part of hired nurses create. It must be said that to have to do with a hired nurse is, in the majority of cases, a real calamity; and we must make up our minds, when it is once decided to have one, to vexations, anxi

ety and embarrassment, no less great than are to be encountered by assuming one's self the whole burden of nursing. The difficulties are the same in both cases; and it is so rare to find such a nurse as one desires, that I do not fear to assert that the best means of avoiding, as far as it is possible, the embarrassments of nursing, is to undertake it one's self. Considering the question, then, from this point of view alone, I do not hesitate to say that the mother who herself nurses her child escapes much trouble and vexation. A hired nurse is a necessary evil, which we should accept, but never prefer, unless some important reason renders it indispensable.

Of moral requisites in the nurse. — The physical conditions are not the most difficult to determine; the question becomes still more delicate when we are called upon to define the moral qualities which a good nurse ought to present. I cannot be expected to lay down any fixed and invariable rules upon this subject.

We may say, in general, that what young women, engaged in nursing, most frequently lack, in bringing up their children, is calmness and freedom from excitement. * * * * Let us

try, then, to enlighten them as to their true interest, and, above all, to that of their chil dren; for this is, in our opinion, the best means of making them fully comprehend their duty, and of enabling them to practise it.

We cannot too often repeat that the physical, like the moral education of children, demands constant sacrifices; but much less, however, as is commonly supposed, the sacrifice of one's repose, one's pleasures, one's liberty, or one's enjoyments, than that of one's tendencies, one's inclinations, and the first impulses of one's heart, so difficult to control in a loving nature and a nervous organization. It is quite as necessary to know how to regulate the care which a mother lavishes on her child, in order to procure for him a good temperament and good health, as it is to know how to direct his instincts and govern his temper, to form his character and develop his better nature. But, to do this, it is necessary to love him, first of all, for himself, through regard for his future more than his present well-being; and to carefully avoid manifesting, to his detriment, excessive sensibility of heart, yielding to weak nesses pleasant to gratify, but dangerous for the

child, or purchasing repose by an absence of all restraint, the fatal effects of which recoil upon the child himself.

These considerations, to which I will here only advert, present themselves already in respect to nursing as to all questions relative to the education of infancy. But this is not the place to dwell upon them now. Suffice it to say, that the mother must have system and calmness enough to introduce a little of these two qualities into the performance of her functions, and not alarm and disturb herself for the slightest untoward circumstances. Nursing requires to be conducted with a certain method. It must take place at intervals as well-regulated as possible;* the caprices which manifest themselves thus early must be wisely resisted, and bad habits must be avoided; and, when the mother is certain that her child has all which he needs, that he has nursed sufficiently, and that he does not suffer,† she must know how to divert his attention, and

* I shall point out the rules with regard to this in the chapter on the regimen and the food in general.

† A badly-placed pin, which pricks a child, is sometimes enough to occasion great disturbance.

even be able to bear his cries, without yielding to new importunities. This last point is so essential, that I do not fear to make of it a veritable axiom, in saying, that *every mother who cannot bear to hear her child cry, is incapable of bringing him up well.*

The cries of the child are, in the first place, one of his functions, as necessary to be exercised, from time to time, as every other; and, what is more, every mother may be assured that, from the moment she cannot command herself enough to bear them, when it is necessary, without impatience, trouble or fright,—without wishing to put a stop to them, at any cost, and by all possible means, such as giving him the breast when he cries for it without needing it, and, still later, by yielding to every demand of his,—that, from that instant, the control over him, that is so necessary to maintain, is lost. There is no further hope of regulating his physical any more than his moral education. It is no longer the mother who will govern the child; it is she who will be governed by him. I shall have occasion, more than once in the course of this work, to recur to this essential, fundamental proposition,

of which this treatise will be, so to speak, only the development and commentary. It is as impossible, often even as injurious, to try to console all the troubles of infancy, and to spare it all sorrows, as to pretend to avoid or cure immediately all indispositions, or all the little ills to which it is subject. Patience and caution are as necessary in the one case as in the other. We do a great deal of harm, without any real good, in wishing to resist this law of nature ; and, besides, the work we undertake is impossible. It is with the pains of infancy as with certain infirmities, more dangerous to attempt to cure than to bear them.

CHAPTER III.

OF PROFESSIONAL NURSES.

Choice of a nurse. — If the mother does not intend to nurse her child, it becomes necessary to choose a nurse. In making the selection, suitable precautions are not always taken; much less, doubtless, through indifference or negligence, than in consequence of the general ignorance of the essential conditions to be required in the nurse, and of the evils which are to be feared. Our duty is to enlighten families, by attacking their very general prejudices, their want of attention to what is really important, and their frequently capricious requirements, as well as the trickery of nurses themselves, their defects, and the dangers they present.

The choice of a good nurse is, in all cases, a very difficult matter, and nothing is more unusual than to encounter, in the women who pre-

sent themselves for the performance of this important function, the conditions and the guaranties which one has a right to demand. But the difficulty is also increased by the false ideas which the greater part of mothers entertain. They often attach more importance to the accessories than to the important and essential qualities. The choice of a nurse is with many of them a matter of taste, and the exterior appearance often takes precedence of real excellence. They willingly suffer themselves to be led away by good looks, a pleasant face, or even by the dress; and it is not unusual for a handsome bonnet to decide the choice in such cases.

I do not object to the desire of having a nurse of fine appearance and pleasing countenance. The essential qualities, good health and vigor of constitution, are not at variance with external characteristics; and it is well to have the nurse agreeable to the mother, in order that she may not become an object of antipathy. This is important in view of the good relation which ought to subsist, for the good even of the child, between the mother and the nurse. A mother willingly trusts her child to a woman whose face

is attractive; and the expression of the countenance is not without its value in judging of the character, any more than good looks in judging of the health; but it will not do to yield to one's prejudices, nor to make so many trifling requirements as to render it impossible for the physician one consults to satisfy them without sacrificing the principal conditions. I appreciate highly a nurse, not pretty,—this condition should never be sought for; it is more to be feared than desired, —but of an agreeable countenance, provided her constitution and health are irreproachable, and that she is well furnished with milk, and of good quality. I insist upon this point, for it would never be believed how easily satisfied and how negligent some persons are, as regards this fundamental point, with respect to nurses whose exterior is agreeable.

And in this I find no fault with ladies themselves. Not knowing in what the essential qualities of a nurse really consist, nor the differences which, in spite of appearances, may exist between one and another as to real value; not suspecting in most cases the serious disadvantages they have to dread, they willingly follow

their inclination, persuaded that it is a matter of no consequence to the child whether they choose one or another from nurses, all of whom they believe to be equally good. It is thus that an excellent nurse is often rejected from very slight motives,—a trifling external defect, a shade of complexion or hair wholly insignificant,—and another is preferred to her who may be more stylish and better suited to make a good appearance and satisfy one's self-love, without sufficient attention being paid to the constitution, the quality of the milk, and some important circumstances to be hereafter mentioned.

It will doubtless be said that the choice of the nurse is usually made in concurrence with the physician, in whom confidence is placed, and that families cannot do better than trust to his experience and advice. This is true; but care should be taken not to multiply uselessly the difficulties and embarrassments of the selection he is charged with, in itself no easy matter.

Is it exactly so, besides, that the advice of the physician is scrupulously followed? Practice every day demonstrates the contrary. So little idea—I say it once more—is entertained of the

care that must be employed in the choice of a nurse, of the information and attention that this choice, if well made, demands, that nurses are accepted from any one. And it is much more frequently some relation or other that determines the preference, — some recommendation, obtained through sources the most uncertain and least enlightened, than the serious examination and counsel of the physician.

Physicians themselves, it must be said, are not over-zealous to undertake this charge. Knowing the difficulty of such a choice, they do not willingly accept the responsibility of it. Families are, therefore, pretty nearly without a guide or any fixed principles to direct them in this matter. It is not unusual, then, to see the place of a mother, who has everything which is necessary to nurse her child satisfactorily, supplied by a nurse who is not so good as she in many respects. Suffice it to say, in terminating these general remarks, that it is with the organs which secrete the milk as with the others, placed, so to speak, without the human economy, and not playing an important part in the functions essential to life; the good conformation of these organs

not being necessarily connected with the general condition, the result is, that a woman of the best health and constitution may be very ill constituted as regards the mammary gland and the secretion of milk; exactly as one may have strength and health with sore eyes or a defective sense of smell. A bad stomach or delicate lungs, as may readily be conceived, destroy the equilibrium, whilst an imperfect secretion of milk is met with in the best constitutions, and with the most perfect health. Hence the absolute necessity of examining, with particular care, the state of this function and the quality of its production, in the case of nurses to whom we mean to entrust the suckling of children.

As to the general health and constitution, I shall show that the most scrupulous and rigid investigation cannot be carried too far. I cannot forget that after having, on an important occasion, selected a nurse, a model in appearance, coming from the country and from one of the healthiest families,—a nurse to whom one of the most celebrated physicians of Paris had entrusted one of his children, and who had nursed another in a good family,—after having received

the assurance that this woman had never been ill, that she did not have upon her body the slightest trace of any affection whatever, and that not even a pimple could be found on her; that, after having, in a word, received the best recommendations with regard to her, there were found, on examining her, three scrofulous scars on one of her limbs; and this is nothing in comparison with other examples much more to be dreaded.

Of the properties of the milk, and the means of determining them. — The first thing to be done, when called upon to select a nurse, is to make certain that she possesses a milk of good quality, rich in nutritive elements, pure in its composition, and sufficiently abundant.

From the earliest times great attention has been paid to this question, and different processes have been proposed to secure a good quality of milk; but these processes are too insignificant to merit any confidence on the part of physicians and enlightened persons. They have for this reason been abandoned, and classed among old women's notions. Who would, at this late day, give an opinion from the appear-

ance of a drop of milk placed on the finger-nail, or in a silver spoon, or from the way that this liquid supports ebullition? Nobody seriously undertakes these experiments, and if it happens that the milk is subjected to this test, it is to satisfy prejudices not yet entirely done away with, and to calm, by an appearance of examination, uneasiness and ill-founded fears.

I make no pretensions to solving this problem completely, and removing all difficulties. Where the question of organization and its products arises, it is hardly ever possible to arrive at an absolute result; living nature always escapes our analysis in some way or other, and we cannot hope to penetrate all its mysteries. There are, without doubt, numberless degrees of quality in milk which we are not able to appreciate, and it is possible that this liquid may contain at times principles that, like poisons, no means as yet known to science can make manifest. After a methodical and scrupulous examination, there will still remain doubtful points; and it will happen, for example, in some rare cases, that, of two specimens of milk equally good in appearance, one will not agree with a child, whilst the other

will, without our being able to account for the difference. It is none the less true, however, that in the greater number of cases we are enabled at the present time to decide the essential questions. The means of analysis which are at our disposition enable us to go further than formerly. These means are based on a more exact knowledge of the constituent parts of the milk, and the substances which may affect its purity, — on the progress of science, and the perfection of the processes which it employs. Can any one pretend that a thorough and searching examination of the composition of the milk and its properties is not preferable to a superficial and external examination?

Composition of the milk in its normal state.— It is necessary to give some idea of the composition of the milk, and to make known the principal elements of which it consists. I beg to be excused for entering into these details, which I should have wished to avoid, but they are indispensable to the complete understanding of what follows. I will render them as short and as clear as possible.

The milk is composed of several distinct parts.

Of these parts, some are in a dissolved state, as sugar exists in a state of solution in the water we have dissolved it in; other parts are in a solid state, and float in the liquid in the form of very fine atoms. The parts in solution are principally *caseine*, which is the basis of cheese, a particular kind of sugar, which is known by the name of sugar of milk, and a great number of saline substances necessary to the constitution of animals. The solid parts held in suspension have but one single nature; this is the fat or buttery part of the milk, — that which produces butter properly so called. We may obtain, then, a just idea of the constitution of this liquid, if we look upon it as a soft, liquid substance, a kind of *loch*,* in which caseine, sugar, &c., are dissolved, and in which the fatty or oily substance is distributed in small, rounded atoms.

These different parts, being mixed together, are not distinguishable by the naked eye; but, if we spread out a drop of milk upon a plate of

* Loch, or lohoch, is an Arabian name for a medicine of a consistence between an electuary and a sirup, and usually taken by licking. An electuary is a compound of powders or other ingredients, and some conserve, honey or sirup.

glass, and examine it by means of a microscope which magnifies objects about three hundred times, a multitude of round, transparent grains will be seen, like small pearls, swimming in a transparent liquid.* These little balls, of which it would often require more than a hundred, ranged side by side with each other like a string of beads, to form the length of a line (one twelfth of an inch), are what are called the milk-globules; and it is ascertained, by the aid of chemical agents, that they are formed of fatty or buttery matter. It is these, in fact, which by their union, effected by means of the operation of churning, form butter. In milk that is pure, and without mixture, these globules are absolutely the only matter discoverable; they are perfectly well defined, glistening, floating freely in the liquid, and of all dimensions, from the smallest point up to a considerable size. Were this the only fact to be determined, it would be important to ascertain it, since pure milk, obtained under the most favorable circumstances from the best nurses, never presents any admixture with other substances. It is, then, an unfavorable indication, and one which demands attention, when there

* See Plate I.

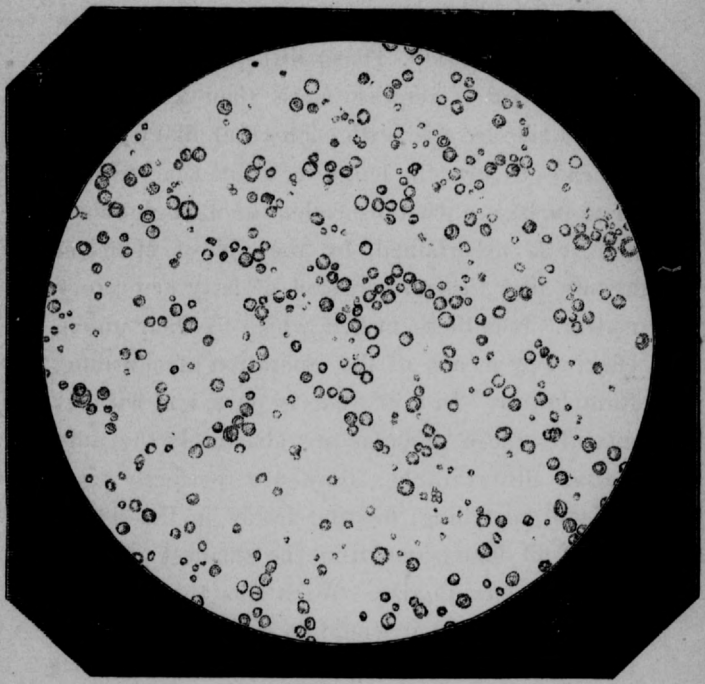

Plate I. WOMAN'S MILK OF AVERAGE QUALITY.

are found in the milk other atoms than the milk-globules properly so called, as happens under certain circumstances which we shall soon make known.

The composition of the milk, as that of all the liquids destined for the nourishment of new-born animals, is very remarkable. We find in it, in fact, as well as in the egg, all the elements necessary for the nutrition of the young being, all which enters into the structure of the different organs of the body. I shall show, further on, another very important analogy between the milk and the blood itself, to which the milk is so nearly allied that it represents its different constituents, and may be considered as a primary condition of this fluid, — a sort of blood as yet imperfect, to which there is wanting, so to speak, but one degree more of organization to become real blood. I shall cite some curious experiments, in which milk, injected into the veins, has been seen to circulate with the blood, to supply its place to a certain degree, and to be rapidly converted into a bloody fluid.

Richness and poverty of the milk. — After having determined the purity of the milk by the

examination of which I have just spoken, it becomes necessary to ascertain the richness of its elements, or, in other words, its nutritive properties.*

The number of the globules contained in this fluid represents pretty exactly its richness and its nutritive qualities; that is to say, the more of these globules a milk contains, the richer and more substantial it is, the caseine and the sugar

* If it were necessary to know exactly what proportions of butter, caseous matter, sugar, &c., the milk contains, in order to form an estimate of its nutritive properties, chemical analysis might alone furnish an answer to this question. But, fortunately, it is not indispensable to proceed with so much rigor for the application we speak of. Analysis would be impracticable; it is long and difficult, and it is absolutely impossible to occupy one's self with such investigations every time there is need of choosing a nurse. Medical practice demands simple, easy and prompt processes, and therein is the merit and advantage of microscopical observation. It is within the reach of all physicians who will apply themselves to it with a little care; it gives at once a sufficient solution of the questions which interest us, and, what is more, it is the only means of discovering organic alterations which entirely elude chemical processes. Chemistry, in fact, has no means of detecting the morbid alterations of the milk, the admixture of mucous and purulent substances which it sometimes presents, and which the microscope enables one to distinguish with the greatest facility.

being themselves in proportion to the quantity of milk-globules which represent the fatty or buttery part. We can understand, then, how microscopic investigation enables us to appreciate the greater or less degree of richness of the milk, from the greater or less number of globules discovered in it when submitted to the microscope; and there is so great a difference in different milks, that this method suffices, with a little practice, to enable us to class them, arrange them according to their relative richness, and choose those which present the most suitable qualities in this respect. The differences are sometimes so marked that they strike the least practised observer, — one milk presenting a prodigious number of globules, all regular, well formed, and of good size, whilst in another they are very small and infrequent, and present the appearance of a fine and light dust scattered throughout the liquid.*

* To convince myself of the certainty of this means of forming an estimate, I have compared the results obtained by microscopic inspection with those which chemical analysis, conducted by one of our most skilful chemists, afforded, and they were constantly found to agree. The latter process gave, it is true, absolute

Influence of a poor milk. — A milk that is poor in milk-globules, or in cream, is a watery milk, which, not containing in sufficient quantity the

numerical results, whilst the microscopic examination arrived only at a relative appreciation; but this is quite sufficient in practice, and one attains very quickly, with the habit of observing and comparing a great number of species and varieties of milk, the power of judging whether a milk contains a good proportion of globules, and whether it possesses, in consequence, suitable nutritive properties.

The quantity of cream which milk furnishes is also a good means of forming an approximate estimate of its richness; and this means may serve to control the results of the process which I have just described.

We know that, by letting milk stand during a certain time in a still place, a layer of cream, more or less thick, according to the consistency and richness of the milk, will soon be seen rising to its surface. This phenomenon is due to the union of the milk-globules, which, being lighter than the fluid in which they are plunged, rise to the highest part, as oil mixed with water does, and as all light substances do in denser liquids. This takes place in woman's milk the same as in all the other kinds, and it is only necessary to measure the layer of cream furnished by an ascertained quantity of milk, to ascertain pretty nearly the proportion of this element, and, consequently, the richness of this fluid. I have had made for this test small glass tubes, graduated to a hundred parts, in which the thickness of the layer of cream is very easily measured by the number of degrees which it occupies. I have thus assured myself that woman's milk of good quality

really nutritive elements, does not afford sufficient nourishment to the child, does not sustain his strength, nor furnish him with all that is necessary for his development. This is one of the most frequent causes of ill-success in nursing. The infant becomes pale, and ceases to grow for want of nourishment; and this circumstance the more readily escapes notice, that it occurs very often with a marked abundance of milk, and also when the external indications of milk are highly favorable. Poverty of the elements of the milk accompanies, it is true, in many cases, thinness of this fluid, but these two conditions are not necessarily connected one with another. Very abundant yet poor milk may be found, just as it may be in small quantity yet rich in nutritive principles. This last circumstance is less unfavorable to the constitution of the child

produces three per cent. of cream, ass's milk only one or two, and cow's milk from ten to fifteen per cent., and even twenty, when it is very rich. The same result may be obtained, but in a more precise manner, by using the instrument known by the name of *lactoscope*. This method of estimation by no means dispenses with microscopic investigation, which alone enables us to ascertain the state of the milk as to purity and quality.

than the first. With a milk not very abundant, but rich and of good quality, nutrition is only incomplete, whilst an abundant but poor milk occasions derangement of the digestive organs, fatigues them by gorging them with a great quantity of liquid, which the stomach and intestines are forced to digest, without benefit to the strength or to nutrition. I have many a time verified the coïncidence of diarrhœa, and even the development of *thrush*, with the poverty of the nurse's milk.

What we have just said of the influence of a milk that is poor and deprived of substantial principles will readily be admitted. It is perfectly conformable to what we knew before, and presents nothing new but the method of ascertaining the facts positively and at once. But what will appear, perhaps, surprising at the outset, is what we are going to add upon the disadvantages of a milk that is too rich, — a circumstance no less important, however, than the other, to the well-being of the child.

Influence of too rich milk. — Too great richness in the milk, its unsuitableness for the wants and the digestive powers of the child, is, if we may

so speak, a kind of deterioration in quality by nc means rare, and one which I have myself had an opportunity to observe several times. This circumstance has hardly been noticed by any one up to the present time. No one thinks of attributing to it the disturbances which interfere with the nursing, and derange the functions of the child. And yet, if we reflect one instant upon the manner in which the choice of nurses is made, it will be easy to conceive what must happen.

Those persons who take the most pains in the choice of their nurses, seek the strongest, most vigorous, and best-built country women. The more robust the form, the better are they pleased; the finest nurse, as every one thinks, being the one who, by the fulness of her corporeal frame, and the abundance and richness of her milk, represents best, so to speak, a fine Flemish cow. This is not wrong, and I do not find fault with such a way of proceeding, for the greater contains the less, and it is better in this respect to err through excess than through deficiency.

But this condition demands some precautions, the importance of which will be easily seen.

Children of the upper and middling classes in

society, those in great cities particularly, are for the most part of only medium strength; besides this, they live in the midst of circumstances not, as I have before shown, the most favorable to a large development. From this it results that, by giving them a milk of excessive richness and abundance, one that has reached its full strength, and dating ordinarily from four to five months, they are overfed by too strong a nourishment, which their as yet feeble organs cannot easily digest.

Nature has, it is true, provided for this inconvenience, by the faculty which she has conferred on many children of rejecting a part of the milk that they have taken in too great quantity. But all children are not equally endowed with this faculty, and all do not exercise it with the same facility, nor without fatiguing their stomachs; there are some, even, who never vomit.

I have had occasion to observe, among other cases, one remarkable example of what I advance, in a lady who nursed her child herself. This woman, who had nursed five children with the greatest success, furnished a milk so rich and substantial that it had almost the consistency of cream. At the time she nursed her second child

he did not thrive, but suffered from violent colics, and had, after each meal, all the ordinary results of bad digestion.

The mother and the family also were getting anxious. They thought that the milk was not of good quality—that it had some deleterious property; and they were thinking of providing another nurse for the child.

I examined the milk attentively, and, after having subjected it to all the means of investigation which could throw light on its composition and its qualities, I discovered no change in it, no mixture of organic, foreign, or morbid substances. In a word, this milk was perfectly pure; it presented no particular characteristic, except the condition of consistence and richness of which I have spoken above. I was persuaded, therefore, that I need look no further for the cause of the troubles from which the child was suffering, and that his poor digestion sprang from his taking nourishment too substantial and too strong for his stomach. Now, in such a case as this, the course to be pursued is plainly indicated; but, to fully comprehend the influence of the regimen to be prescribed, it is necessary to bear in mind

some peculiarities of the lacteal secretion, which we have not till now been able to speak of.

Effect of the milk's remaining a long time in the breasts. — A distinguished chemist, Mr. Péligot, has demonstrated, by a series of researches and careful experiments, a curious fact relative to the secretion of the milk, and one which meets with important application in practice. The result of his analyses is, that the longer the milk remains in the breasts the more transparent and watery it becomes. This is exactly the reverse of what takes place for all the other secretions of the human system, in which the liquids secreted are seen to become more consistent and thicker in proportion as they remain a longer time in their receptacles. Thus the bile and the urine become denser by a prolonged stay in the organs in which they accumulate; and it is the same for all the other fluids, those even which are accidentally effused in the cavities or in the tissues: the more liquid part is reäbsorbed, and there soon remain only the more solid elements.

Mr. Péligot has proved that if the product of one milking — that is to say, all the milk which a cow or an ass gives at one time — be divided into

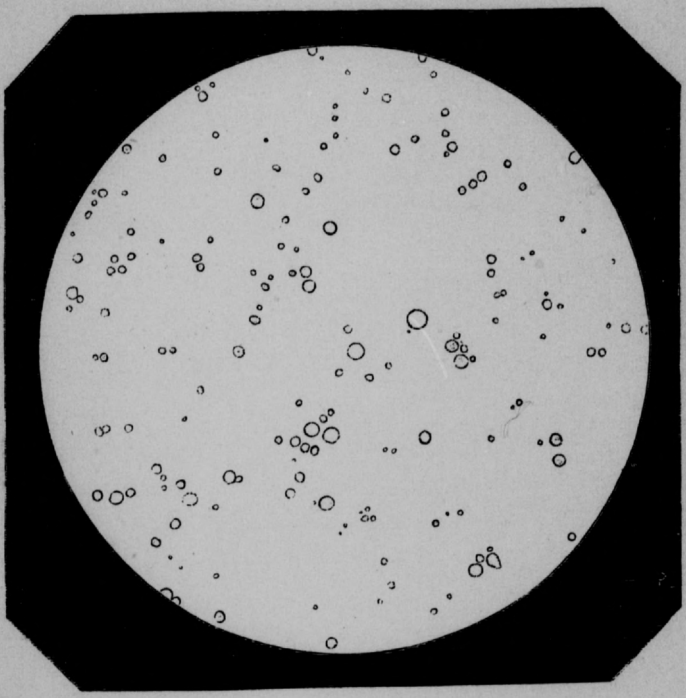

Plate II. COW'S MILK; FIRST PORTION EXTRACTED.

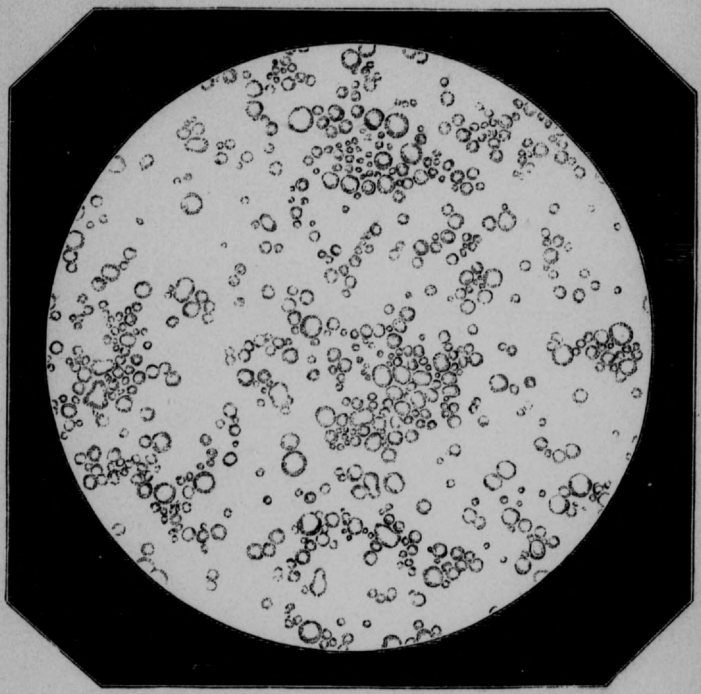

Plate III. COW'S MILK OF AVERAGE QUALITY.

three parts, in such a way as to collect it successively in three different vessels, the first milk is the most watery and thinnest,* the second is richer, and the third the most substantial of all.† This result is probably only a consequence of the preceding circumstance; for it is easy to conceive that the first portion of the milk which flows out in milking an animal, has been the longest secreted, — that which has remained the longest in the organ, — whilst the last is the most newly formed.

This circumstance was not entirely unknown, and nurses have in all times remarked, without understanding the cause of the phenomenon, that the first portion of the milk that flows from their breasts, when they have remained for a long time — a whole night, for example — without giving the breast, is clear and watery, whilst the portion that comes after resumes its ordinary character and consistence. Some of them even are in the habit of rejecting this first portion as bad, and of giving the child only what succeeds. At all events, the following fact is established by science: Milk becomes more watery by remaining in the organ which secretes it. Now, in

* See Plate II. † See Plate III.

practice, great advantage is derived from this property, in directing, in certain cases, and particularly in the one I have just mentioned, the nursing and the regulation of the food of the infant.

In fact, it is sufficient to nurse or feed the child less frequently, — that is to say, at longer intervals between each nursing, — in order to obtain a thinner milk, and less abundant in nutritive principles. If, then, it becomes necessary to diminish a little the strength of the child's nourishment, whether because his nurse's milk is too substantial, or because his digestion is too difficult, this result may be easily attained by the process we indicate; for, on the one hand, the child will have time to digest each meal more fully, and, on the other, the consistency and richness of the milk will be weakened by allowing it to remain a longer time in the organs. The end will thus be attained in two ways.

This is exactly the means I employed with the mother of whom I was just now speaking; and this simple precaution has succeeded in more than one analogous case in my practice. Instead of giving a milk the richness of which was con-

tinually increased by repeated nursings, the child had nothing but a light milk, and at intervals more remote. All the disturbances he experienced soon ceased of themselves, digestion was restored, and the nursing was continued with the greatest success.

Of the quantity of the milk. — Next, by what means can we make certain that the milk is abundant? Is there a way of ascertaining approximatively in what quantity it is furnished, and if there is sufficient for the wants of the child?

This question presents itself at every instant; and it would seem, at first sight, to be very easily answered. Is it not enough, in fact, to examine the breasts, to see whether they are very full of milk, and whether they are not too soon exhausted when the child nurses?

This examination is, without doubt, useful, and should not be neglected; but it is well to know that this question, simple as it appears, is nevertheless one of the most difficult to resolve. We very often remain in doubt, when called upon to determine directly and *a priori* whether the quantity of the milk is sufficient to nourish the infant sufficiently.

Varieties in the way in which the secretion of the milk takes place in different women. — The difficulty of which we are speaking depends upon the variety which is observed in the way in which the lacteal secretion in women is carried on. With some it goes on, so to speak, continually. The milk collects in the breasts in such a way that it is found accumulated in these organs, as in a reservoir, when the nurse has not suckled the child for several hours; and it is easy to make a considerable quantity of it spirt out at almost any moment. Nurses that present this disposition are the easiest to decide upon as regards the abundance of milk. The quantity they furnish can be approximatively measured by examining their breasts after the child has nursed. When the infant has taken a good amount of milk, it can be ascertained whether the source is completely exhausted, or if, on the other hand, it is still provided with a certain quantity of this liquid.

It is not the same with other women, who present quite different conditions, without, for this reason, being less excellent nurses. With them the greatest part of the milk comes up only by

degrees in the organ, and in proportion as its secretion is encouraged by the suction of the child; so that the breasts never appear well filled, and if they are pressed, to make the milk come out, only a moderate quantity is obtained. But, far from being inferior to the first-mentioned, these nurses are often excellent ones, as well by the quantity as by the quality of their milk. There is even some reason to believe that this disposition more often coïncides with a milk of good quality in all respects.

Of the means of ascertaining the quantity of milk. — In the absence of direct means, the question under consideration can be resolved in particular cases only by a union of considerations and observations, to which sufficient time is rarely given. The choice of a nurse is usually made with so much precipitation, — the parents are so little acquainted with the number of precautions and the amount of care that this examination, which they entrust to a physician, demands, that they bestow scarcely a few instants in deciding between several women, requiring the choice to be made at once, on the spot, and at first sight. It is the physician's duty, doubt-

less, to enlighten them, and to take suitable time to inform himself thoroughly; but what can a physician do, even if he has had experience in this matter, when his patients wait till the last moment before applying to him, and when barely a few days remain in which to seek a nurse, examine her recommendations, and make an examination of her milk, &c.?

In every case the choice of a nurse should only be made after reflection, and taking the necessary time to obtain all possible light; but the point we are treating now demands, of itself alone, an absence of all precipitation. It is only, in fact, by seeing the child in the act of nursing several different times, by examining the breasts before and after nursing, by making sure that the child gets a sufficient quantity of milk, that he is satisfied and calm after taking the breast, that he shows no eagerness for more, — in a word, that he is completely satiated and full-fed, — that we are enabled to appreciate the greater or less abundance of milk. The best way, therefore, to form a correct opinion, in this respect, about a nurse, is to see her at her work, and consequently to select her beforehand; and, whenever

it can be done, to keep her at one's house, with her own child, during a certain time previous to the birth of the child we intend to entrust to her. It is an excellent thing to live a short time with the nurse, to accustom her to one's self, and to get accustomed to her, to acclimate her, and habituate her to the new life she is about to lead, before making her actually set to work; but it is a sacrifice and inconvenience to which it is difficult to bring one's self, even in rich families.

Of the alterations, properly so called, of the milk. — After having passed in review what concerns the richness and the poverty of the milk, as well as its abundance, I arrive at the alterations, properly so called, of this liquid, by organic or morbid products of different nature, which may be found mixed with its natural elements. This question cannot be treated without having first traced the successive phases through which this fluid passes, from its origin in the organ which secretes it to its complete formation. The alterations of which this liquid is susceptible are, in fact, of two kinds: one resulting from its mixture with foreign, morbid matters; the other depending upon a sort of incomplete

development of its elements, or on its remaining in a certain degree imperfect in its formation.

Formation of the milk. Colostrum. — We have seen that the secretion of the milk begins to take place long before the period of delivery. It is known, also, that the breasts enlarge more or less during pregnancy, and that it is not rare at that time to see a certain quantity of liquid ooze out, either naturally or by slightly pressing the gland. I have before indicated the composition of this liquid, to which the name of *colostrum* is given. It contains milk-globules, more or less completely formed, bound together in small masses, by means of a mucous matter, and minute particles of a particular nature, which I have described under the name of granular bodies.*

The composition of this first milk does not change immediately after delivery, and the colostrum is not instantaneously transformed into perfect milk. This fluid becomes more abundant, and distends the breasts, but we still recognize for several days, by its yellow color and oily appearance, that it is not milk properly

* See Plate IV.

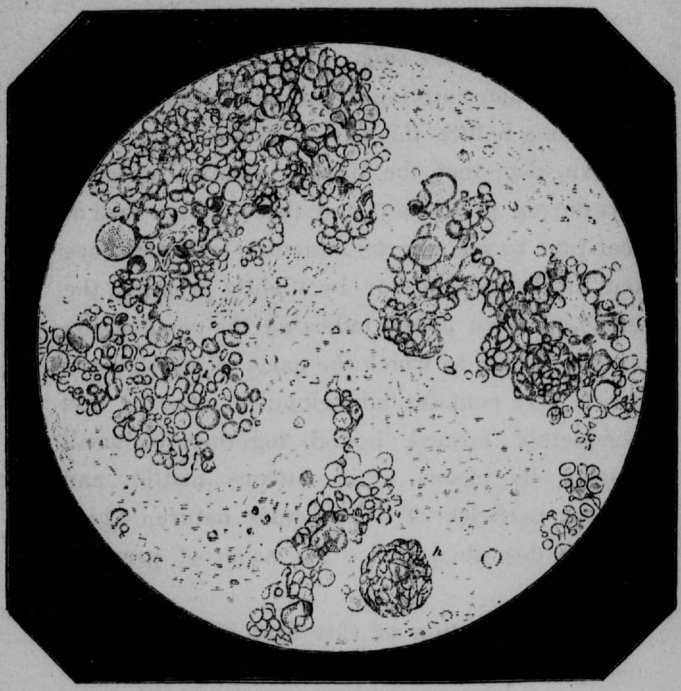

Plate IV. COLOSTRUM.

so called. The name of *colostrum* has, therefore, been retained for this particular liquid, the first that the child takes, and a sort of purgative effect on the new-born child is attributed to it. It is thought that it serves to free him from the matter which fills his intestines, where it has accumulated during his life within the womb. The evacuation of the *meconium** is thus probably favored by this quality in the milk that the child first draws from its mother's breast. Recourse has even sometimes been had to artificial means to supply this action, when the milk of the nurse provided for the child has attained a degree of perfect formation.

It is not till after the milk-fever, and when the child has already taken the breast several times, that the milk acquires the qualities which distinguish it, — that it gets rid of the oily substance

* The dark-green matter, of the consistence of pitch, which the child evacuates a short time after its birth, and which is designated by the name of *meconium*, is in great part formed of the intestinal mucus, of which we know the elements by means of microscopical analysis, and a certain portion of biliary matter, which presents the properties and undergoes the chemical reactions so characteristic of the bile itself.

and of the other foreign elements which consti tuted it at first, — that it loses its viscous consistency and its yellow color, to become more fluid and of a dull white, and to pass from the state of colostrum to that of real milk. But even then, when the eye can distinguish nothing particular in it, — when it appears externally to differ in nothing from pure milk, — if a drop of it be subjected to microscopical examination, there will still be found, in the midst of the numerous milk-globules floating in the fluid, a small quantity of granular bodies peculiar to the colostrum. The number of these bodies goes on successively diminishing, until, in most cases after six or eight days, no more are to be found.

This is what takes place in ordinary cases and with good nurses. It is not, however, very unusual to see some granular bodies still make their appearance at long intervals, even after a fortnight or three weeks, in the milk of faultless nurses ; but this seldom occurs except with those who nurse for the first time, and the number of these granular bodies is so small that they in no way affect the properties of the milk.

Alteration of the milk by the elements of the colostrum. — In the case of some women, on the contrary, these elements of the colostrum continue in some unexplained manner, and are to be seen in great numbers at the end of a month, six weeks, and even two months, to such a degree that the milk is never completely free from them, and never attains a state of perfect purity. This circumstance, which does not manifest itself outwardly by any particular appearance, and which the most practised eye cannot discover (milk mixed with granular bodies having absolutely the same look as the purest milk), constitutes the first kind of alteration in this liquid, occurring pretty frequently, and being one which, in the present state of science, the microscope alone enables us to detect.

Influence of this species of alteration. — What degree of importance has this species of alteration, what influence does it exercise upon the health of the child, and what is its value in the point of view from which we regard it?

I might almost dispense with the consideration of this question; for when it is a question of choosing a nurse to whom to entrust one's

child, it would be quite enough to know that this condition of the milk is not found in good nurses, to have no hesitation in rejecting those who give signs of colostrum. It is in such a case, above all, that, where one is in doubt, it is wise to abstain.

But doubt cannot even exist in presence of the facts which we have many times had occasion to observe, and which we still verify every day.

On the one hand, it is certain that the presence of the granular bodies in the milk, beyond the term which we have stated, is often an actual disease, or the result at least of a certain defect in the secretion. In fact, their production and multiplication can be witnessed under the influence of general or local maladies which affect the nurse. Thus it is only necessary that a nurse, perfectly good and unaffected till then, should become ill in one way or another, be attacked with fever, or, without experiencing any general disorder, have a local affection of the breast, or congestion of the mammary gland, to occasion the immediate appearance of the gran-

ular bodies, and their reproduction in milk that had lost all trace of them. And, on the other hand, the influence of this alteration of the milk upon the condition of the child, is easily established. It is incompatible with the health and integrity of the digestive functions; it produces all the evil effects of bad nutrition, and is the determining cause of many troubles which are seen to cease as soon as pure milk of good quality is substituted for this which is vitiated. I have never seen a case of this alteration, so common with nurses of an impaired constitution, without finding lean, puny, sickly children, subject to a more or less habitual diarrhœa. It would be easy to explain this result by admitting the laxative properties of the *colostrum;* but I will not theorize here, and I limit myself to the fact and to the observation itself. I can affirm that the circumstance of which I speak at this moment is one of the most common I meet with among women, pretty often sickly, and of a poor constitution, who come to lie in in the hospitals of Paris. I have very often an opportunity to observe it in the clinical examination of delivery,

of which Mr. Paul Dubois* is the distinguished professor; and the alteration of the milk, by its mixture with the elements of the colostrum, is one of the facts which most constantly coïncide with a bad state of health, and a dwindling of the child.

Alteration of the milk by its admixture with the blood.—I have had an opportunity of observing the injurious influence of the presence of blood in the milk, in the case of a young mother, whose nipple bled easily whenever she nursed. Each time that this circumstance presented itself, and that the child swallowed a certain quantity of blood, he had a real indigestion.

Alteration of the milk by purulent matter.—Another much more serious alteration of the milk is produced, in certain cases, by the mixture of purulent matter with this liquid; pus may, in fact, be found mixed with the milk, and coming out with it under circumstances easily conceived.

Of these circumstances, some are appreciable at a glance by everybody, by the single consid-

* Accoucheur of the Empress Eugénie.

eration of the health of the nurse, and the state of her breasts; and the alteration we speak of cannot escape the observation of any one. For instance, when there exists an abscess upon one of the breasts, when it is situated in the midst of the tissue of the gland, and is in active suppuration, it is easy to suspect the presence of a certain quantity of pus in the milk. Not unfrequently even, this morbid liquid oozes out through the orifices of the nipple, in sufficient quantity to be distinguishable by its color and consistence from the milk with which it is not intimately mixed. The yellowish or slightly greenish streaks which it presents, form a contrast with the white color of the milk. Nobody would hesitate, under such circumstances, to withdraw the child from the influence of a milk thus vitiated; and, if any doubt were still entertained of the evils of such a nourishment, the facts which we shall by and by offer would suffice to settle the question. As to the abscesses situated on the bosom, but outside of the gland itself, and which do not open into the proper milk-vessels, they do not alter this fluid by the admixture of the products of their secretion, and they act on

the nature of the milk only by the rëaction that a morbid condition of this kind exercises upon the neighboring organ.

But deep-seated abscesses of the bosom are not always so apparent that we can verify their existence from the beginning of their formation. It is not rare that suppuration exists in some points of the gland without our perceiving it, no purulent collection appearing externally. I have found pus mixed with the milk, without remarking any sign of abscess or of suppuration, and without the milk's presenting to the sight alone any particular appearance. I may, among others, cite the case of a woman at service with Mr. Paul Dubois, in whom I discovered evident traces of pus in the milk furnished by one of her breasts that had no appearance of disease. The observation of this fact, repeated for several days, had even excited some incredulity, when, at the end of a certain time, the abscess, becoming more fully developed, opened externally, and one puncture with the lancet gave egress to a flood of purulent matter. There was, then, suppuration there a long time before the abscess showed itself externally, and microscopic examination could

alone demonstrate the alteration of the milk which resulted from this morbid condition.*

Influence of milk mixed with pus on the health of the child. — What is the influence that a milk thus vitiated may produce upon the health of a child who is fed with it ?

Even supposing that we had no direct assurance of the deleterious action of such a substance, it is evident that prudence alone would

* I am not aware, in the present condition of science, of any other means than microscopical analysis which furnishes positive assurance of the presence of a small proportion of pus in a milk with which this morbid product is intimately mixed ; and the use of the microscope offers a means as sure as it is easy to arrive at this result. The pus, like the milk, contains globules swimming in a particular liquid ; but these globules are of a nature and structure so different from the milk-globules that it is not possible to confound them under any circumstances. The latter are, as I have said, little spheres, of greater or less size, perfectly defined in their outline, transparent to the centre, and soluble in ether like the fatty matters. The former, on the contrary, all of pretty nearly the same dimension, and having about one forty thousandth of an inch in diameter, are fringed, granulous, slightly opaque, insoluble in ether, and soluble in ammonia, which does not attack the milk-globules. Besides, the pus-globules are turned yellow, like all azotized substances, by a solution of iodine in water, which does not alter the color of the milk-globules.

require us to abstain from giving it to a child. But it is not so; and Mr. Dubois has often observed evils affecting children suckled by nurses in similar conditions. His opinion is so well established with regard to this, by the facts which he has been enabled to observe, particularly in his practice in the hospital *La Maternité*, that he causes the immediate discontinuance of nursing by women in whom an inflammation and congestion of the breast occurs, that is capable of determining suppuration and formation of abscess. This practice is at the present time followed by all enlightened accoucheurs, and each day witnesses the decrease of the practice formerly adopted, of continuing to nurse from a breast which has become the seat of inflammatory action and of congestion. The present practice is in all respects very wise, and for the interest both of the nurse and the child. In fact, far from being favorable to the nurse, and from facilitating the clearing of the breast, as was formerly imagined, and as is still believed by many persons, the suction of the child only accelerates the inflammatory action, and aggravates the malady. The best precaution is to immediately leave

the breast in repose, to cover it with soothing poultices, &c.

As to the child, it is of the greatest interest not to allow him to take a milk that is always more or less changed in its character; for, from the moment that the organ becomes the seat of congestion, the liquid is infallibly mixed with foreign and morbid elements. If it does not yet contain fully-formed pus, it does beyond all doubt contain granular bodies; and we have seen, in speaking of these bodies and of the *colostrum*, what a disastrous influence these principles exert upon the digestion and nutrition of the child.

I repeat, then, that in case of inflammation and congestion of the breasts, prudence requires us to immediately suspend nursing on the affected side.

Of sore and chapped breasts. — The soreness and chapping which so often occur in the breasts of nurses, are not slight inconveniences purely accidental, without any connection with the secretion of milk and the qualities of this liquid; they have other ill consequences than the pain they cause the mother or the nurse.

I have not a doubt that these slight troubles, wholly external, and to all appearance unimportant, are almost always connected with a disordered condition of the lacteal secretion, from which the child has to suffer no less than the nurse herself; and they merit in this respect serious attention. I have often an opportunity of establishing the fact that women who are affected with soreness and chapping of the breasts, that make their appearance from the earliest period of nursing, have a milk more or less weak, in small quantity, flowing with difficulty, and often even mixed with mucous substances. A coïncidence so constant gives us reason to suppose that a certain relation exists between the cause of the chapping and that of the bad condition of the milk, — if not a physiological relation, at least a mechanical one. For this reason, I consider the chapping as being very often, if not always, a consequence of the poverty of the milk, its small quantity, and the difficulty with which it is extracted by the child's mouth, whose efforts at suction fatigue and irritate the nipple, till it finally cracks and ulcerates. I have the greater reason for this

belief, in the fact that, as the child is badly fed, his saliva may contract a sort of acidity, which of itself contributes to corrode the skin; and thus mothers with whom affections of this kind occur, are very often obliged to give up nursing, less on account of the pain they experience, and which they can bear, than of the dwindling of the child. Chaps, then, are a sufficient reason for forming an unfavorable augury of a nurse, and a cause for rejecting one in the majority of cases.

Having now passed in review all which relates to an examination of the milk, I arrive at considerations no less essential to be taken into account in the choice of nurses. It is evident that the milk is the first point to be considered. This, however, is but one part of the question; it is no less important to pay the closest attention to an examination of the constitution and the general health.

The constitution and general health of the nurse. — As to the constitution, I have but to repeat here what I have said in speaking of mothers themselves. Every one comprehends the necessity of seeking a well-constituted

woman, having no morbid predisposition, nc organic, hereditary defect; and I need not insist on these points here. It is clear that the least tendency to scrofulous or herpetic affections, or the least suspicion as to the state of the lungs, ought to make us immediately reject a woman of the finest appearance. Perfect soundness of the mental faculties is an equally indispensable condition, and one of the first importance. As to what is called temperament, I confess that I have little confidence in the classical divisions established with regard to this, and that I exclude only extreme and too marked dispositions, such as a decidedly lymphatic condition, or an excessively nervous one,—less rare, perhaps, than is supposed, even among women from the country.

Necessity of a complete examination of their persons. Example of the fatal effects of negligence in this respect.—The health, properly so called, demands a scrupulous examination; and I know of no precautions too great to get light on so delicate a point. I venture upon this question, then, boldly; and I do not hesitate to say, that every woman whom we propose tc

choose as nurse, should be subjected to a complete examination by a physician.* It is a principle from which we should never deviate, and one in which I have made it a law for myself never to fail. No recommendation, no assurance can inspire sufficient confidence, nor do away with the necessity of a direct examination, which is alone capable of giving entire security, and allowing the physician to take upon himself the responsibility of the choice imposed on him. Too many terrible examples justify this fear and the opinion I express. I know how painful this duty is, both for the physician and for the nurse; but, without constraining them to it, and leaving them entirely free to accept or refuse, it should be made an absolute condition for them before entrusting them with a child.

It will not be difficult for me to establish the

* The American reader will perhaps dissent from this opinion, or at least consider the practice suggested impossible. But an approach might be made to it, and a certain security obtained, through the medium of a female assistant under the guidance of a physician. If doubt arose, this itself should be a reason for rejecting a nurse, which would be far better than, by any possibility, to expose a child to such terrible consequences as are depicted in the case detailed by the author.

necessity of this examination, which, I well understand, may excite scruples and appear rigorous.

Were the question only whether confidence should be placed in the protestations of certain women of exemplary conduct, in the good recommendations of honorable persons, who know them, and are responsible for them, there would not always be reason to show one's self so exacting; but, in such matters as these, it is not alone a question of the woman herself, her integrity or her probity. It may happen that, in her ignorance, she supposes herself beyond the reach of any malady, — that she has no suspicion of her state of health, and that the examination may discover circumstances she did not suspect. The most perfect good faith is not enough for women of little information, not very careful of their persons, and often, indeed, having neither the time nor the habit of examining and taking care of themselves. It is not to be forgotten that these women are sometimes married to coarse men, without scruples, and that they are exposed to contract diseases, which they may have for a longer or shorter time without pay-

ing great attention to them, and without attaching much importance to them. Though neither they nor their husbands — simple countrymen, perhaps — have ever left their native village, still we cannot be perfectly secure against all the risks which are to be feared. Villages are not always more protected from bad morals and their consequences than large cities. There is, then, I say it again, nothing but a medical examination which can satisfy all the precautions which, under such circumstances, prudence demands.

And, again, up to this point we assume the most favorable conditions, — conditions the most rare, those in which we may place confidence in good faith, in morality, and in the care with which we have made our inquiries. But we are very far from having these first elements of security in the majority of cases. How often are we not exposed to be deceived, through the interest and cunning of the women among whom nurses are ordinarily chosen!

I have not been willing to trust to myself alone, and to my own feelings, for the establishment of my line of conduct, and my opinion on

a matter so delicate, all the bearings of which I fully understand: all the scruples which such a requirement may give rise to, have presented themselves to my mind, and I have felt it my duty to take the advice of the soundest and most conscientious physicians, such as have never failed to rank caution among the first of their duties. Their tried experience has only confirmed me in the principles I have just advanced. A single fact among so many others will be better suited than all reasoning to make others share my conviction.

A certain family had taken all the ordinary precautions to procure a good nurse for a first-born child. The woman was young, ruddy, and apparently in perfect health.

At the end of a month several pimples were observed on the child's body. No great attention was at first paid to them; but they multiplied rapidly, and assumed such an aspect that it was thought necessary to call a physician. He immediately recognized the nature of the disease, and an examination of the nurse at once confirmed this sad result. She was herself in-

fected, and had transmitted the disease to her nursling, either by her milk or by contact.*

The despair of the parents may be easily conceived. But this was not the end of their troubles and afflictions. The father wished to dismiss the nurse on the spot; but he was obliged to restrain his indignation and resentment, when he was informed that this nurse had herself become necessary for the cure of the child; that he must not only keep her, but treat her well to induce her to stay, in order through her to reach the child by treatment; that it was not possible to entrust a child, in that condition of disease, to another healthy nurse, to whom it would communicate the disease immediately, &c.

This hard alternative had to be accepted. But all sacrifices proved unavailing; no care could save the child, and it soon miserably perished.

Now, one single precaution had been neglected

* Is the venereal disease transmitted in such a case by means of the milk, or by contact and direct conveyance of the contagious principle? This question is not at all determined in the present condition of science. All that I can say is, that by no means, whether by the microscope or any other process of analysis, can the slightest trace of alteration in the milk in syphilitic women be detected.

in this case, — the preliminary and complete examination of the nurse.

Of the age of the milk. — What age must the nurse's milk have; or, in other words, how long a time after her delivery can a nurse be given to a new-born child?

The customary plan is to take, as far as possible, women whose children are from four to six months of age. If this usage is not always the most favorable to the child, it is supported at least by a sentiment of morality too deserving of respect for us to think of attacking it. Almost all nurses wean their own child in taking another to nurse. Now, humanity demands that he be not deprived of his mother's milk before the age of from five to six months.

The nurse must also have time to get over the effects of her confinement; and, at the end of a month or six weeks, she would not perhaps be always in a condition to bear the fatigue of her new condition.

But what is to be thought of an older milk, and must we reject a nurse who has been confined from ten months to a year?

On this point, no hesitation is, in my opinion,

allowable, notwithstanding the contrary opinion of some. The milk is no longer, at this period, so well suited to the wants of a new-born child; and, what is more, there is danger of seeing it dry up or diminish considerably in quantity before the end of the time necessary for nursing, and of thus being obliged to wean the child sooner than it would be advisable to do it. In fact, if there are nurses who continue to have milk during two years and more, without its undergoing any deterioration in its essential qualities and in its abundance, it is an exception on which we cannot count; the rule being, in most cases, that the milk diminishes and loses some of its nutritive properties about the eighteenth or twentieth month, and sometimes sooner, even in the case of very good nurses. I might, it is true, cite cases of women who have nursed, with success, child after child with the same milk for a period of forty-eight months; but these are wholly exceptional cases, from which no conclusions can be drawn. I shall never give, with confidence, to a newly-born child a nurse whose milk is of more than from six to eight months'

date, were she the best in the world, and the most abundantly provided. With still greater reason, then, I should absolutely refuse to allow a woman, who had gone through with the nursing of one child, to undertake that of a second with the same milk, not only on account of the age of the milk, but by reason of the influence upon the lacteal secretion, which a change of nursling is, in my opinion, correctly supposed to exert. When a nurse, having gone through with her first child, takes a new one just born, this practice may succeed, and has, in fact, done so in several cases; but it is not for that reason any the less imprudent to attempt it.

Of nurses who have borne but one child. — Experienced physicians, and mothers themselves, who have had occasion to observe nurses, agree in preferring those who have borne two or three children. The reasons for this will be easily comprehended by every one.

Women with their first child have not yet acquired the habit of handling and taking care of children. They offer less guaranties than others relatively to the quantity and duration of their milk; and one very important means of

estimating their value, in all respects, is, in their case, wanting.

What we have said of the difficulty of forming any accurate estimate of the quantity of milk which a nurse possesses will be remembered; but this question is a still more difficult one, when it relates to a woman who nurses for the first time, than it is for one who has already shown what she can do; and, in particular, much more reason for confidence in the persistence and duration of the milk, exists in the latter case than in the former. There is every reason to expect that a woman who has once nursed with success, whose milk has continued abundant during the whole duration of her nursing, who has provided for all the wants of a first nursling during fifteen or eighteen months, will possess the same qualities a second and a third time; whilst doubt and uncertainty attend the case of a nurse who is a beginner. It is so often that we see the finest-looking nurses, the most carefully selected, the most favored in all respects, lose the greater part of their milk after some months' nursing, that too great precautions cannot be taken against this inconvenience, and the best precau-

tion, the surest, in the actual state of our knowledge, is to make application to nurses who have already given proof of their ability in preceding nursings.

To these reasons must be added the no less important advantage of being able to get information as to all the other qualities which constitute a good nurse, — such as relate to character, intelligence, the manner in which she has conducted herself, the care she is able to give a child, and the zeal with which she has accomplished the duty entrusted to her on a former occasion.

Of the nurse's external appearance, — beauty and homeliness. — Outward appearance, beauty or plainness, is not to be neglected in the question we are treating. It is well, as I have said, that the nurse should not be displeasing to the mother who entrusts her child to her. But I am apprehensive of too marked a degree of beauty. It is rare that a very beautiful woman does not occupy herself a little too much with herself; and, in any case, it is to be feared that others will pay her more attention than is compatible with the proper discharge of her duties as a nurse.

Of the character. — As to the character, it is evident that I can say nothing, which will be of any service, that is not already as well known to others as to myself. If I say that a nurse must be amiable, gentle, accommodating, &c., I shall teach nothing new to any one. All that I would recommend is not to be too particular on one's own account; not to consult one's own gratification rather than the real interest of the child, but to endure all which is endurable, provided the child is well attended to.

Of the intelligence. — As the duties of a nurse are not limited to giving her milk, and as the milk itself requires to be administered with method, a certain amount of intelligence is necessary to perform this duty well. The question is also often asked, whether the milk, which serves for the sole nourishment during the earliest years, and the different elements of which are to constitute all the organs, has not an influence upon the faculties and the future disposition of the being who is fed with it. This nice question I cannot answer; but, while waiting till the progress of science shall enable us to resolve it, I am averse to nurses devoid of intelligence, were

it only because stupidity is awkward, indiscreet, and obstinate, and that a mind too limited offers no resources.

Of gayety of character. — Like the ancient authors who have treated this matter, I also attach a certain importance to gayety of humor and sprightliness of character. Even if gayety were only one sign the more of good health, I should very highly value such a disposition; but it is also conducive to the well-being both of the child and nurse, that annoyances and anxiety should have but little influence upon her. A gloomy look and sullen face appear to me a sufficient motive for rejecting a nurse, since a melancholy look forms a disagreeable contrast in presence of a child, and is one not all suited to amuse and divert him.

Of the nurse's age. — The age of nurses ought to be taken into consideration. From eighteen to thirty-four years they are in the best conditions possible. If younger, they have not, perhaps, acquired all their strength. Good nurses can sometimes be found over thirty-four years of age; but this is becoming more and more unusual, especially among the women of the lower

classes who inhabit cities, and particularly Paris.

What are the principal causes which may determine a change of nurse? — I do not undertake to pass in review all these causes, for it would be going over again what I have said before of the qualities which a nurse should present, and of the conditions to be sought for. I shall limit myself, therefore, to citing two particular circumstances, which frequently occur, and which render families uncertain and embarrassed.

Of the premature return of the monthly periods. — Ought the return of the monthly periods, before the moment of weaning, and during the continuance of nursing, to make us dismiss a nurse; and has this circumstance so injurious an effect upon the state of the child that we ought to think of giving him another?

This occurrence disquiets mothers very much; and we are often consulted upon the conduct we ought to maintain under such circumstances.

After having attentively studied this question, and observed the facts, I must confess that it is absolutely impossible to come to any precise result on this point.

It is very true that, with some women, the premature return of the monthly periods produces ill effects, perceivable every month in derangement of the digestion, or in the disturbed condition of the nursling. With some nurses, even, the milk at this period so sensibly changes its nature and appearance, that the modification it undergoes is appreciable by examination; but it happens still more frequently that this condition exerts no influence, and that the child feels no effects from it in any way. Setting aside, then, the case in which the milk experiences a marked alteration, it is the result itself which should be our guide; that is to say, the state of the child is the best indication of the course to be pursued. There are so many varieties, depending upon constitution and temperament, and a crowd of other circumstances which escape our notice, that it would be very wrong to adopt a uniform rule for all nurses. It would be a great pity to give up a good nurse, or even a passable one, for this reason alone, which is in many cases altogether insignificant.

The premature return of the monthly periods is fostered in country nurses, who come to live

in the city, by the abundant and substantial food that is given them, at the same time that they exchange their active life in the open air for a life of indolence, repose, and confinement. This is a reason for not changing too much their customary mode of life, and we shall see, further on, what is the wisest course to pursue in regard to it.

Of a change of nurse. — If it becomes, after all, necessary to change a nurse, is this change to be feared, and is there any reason for anxiety, or are any precautions to be taken, &c. ?

When it is necessary to change a nurse, much more alarm is felt lest the child should suffer than there is any occasion for. It is a very disagreeable thing, undoubtedly, to have to do with a new face, and a character different from the one to which one is accustomed, and to begin anew the education of a nurse, who has to be formed and accustomed to the habits of the house. The child himself is not always indifferent to this change, and to the strange hands into which he passes, particularly when he already somewhat recognizes persons. He may possibly feel some effects from the new kind of milk he takes, — this

milk itself undergoing pretty often a modification by the change in the mode of life of the new nurse, — but it can truly be said that in most cases these effects are only transient, or even do not take place at all. For myself, I do not at all fear a change of nurse; and I have never seen any serious inconvenience to the child resulting from it, provided good milk is given to him adapted to his age. This I have observed on occasions when, in consequence of accidental causes, the nurse has had to be changed five or six times for the same child.

This is not a reason, however, for dismissing a nurse on slight grounds, through caprice, and without real motive. So far from this, I cannot too strongly counsel the being content with what one has when one is pretty well off; there being so many risks to be encountered in these affairs that it is necessary to be very much on one's guard. But, if forced to take this step, I recommend one precaution as very useful, — that the nurse know nothing about it, until measures have been taken to supply her place; and it is well to leave as little interval as possible between the warning and the substitution of the new

nurse. By letting the nurse suppose that you mean to change her, risk is run of rendering her unfitted for nursing through the disappointment you cause her, or even of seeing her leave you before another is provided.

Precaution to be taken relative to the pay of a nurse. — I shall recommend, in terminating the examination of this subject, one useful precaution, in settling upon the pay of a nurse; this is, to engage her for a sum slightly less than it is the intention to give, reserving the full compensation till it is seen if she conducts herself well. If it is intended, for example, to pay her sixty francs a month, it will be prudent to engage to pay but fifty, promising the remainder in case she gives perfect satisfaction. I would condemn the too ready compliance of some persons with regard to nurses, as much as an excessive reserve and parsimony. It must not be forgotten that the attraction of gain is one of the most efficient means of acting upon and restraining nurses, and we must never suffer ourselves to be at their mercy. The best will not fail to abuse their power.

What course is to be pursued with nurses, and

how ought the nursing to be regulated?— The nurse being admitted, let us see how we are to manage with her, and how the child's nursing is to be regulated.

We have already seen that the nursing must be arranged in such a way that the child shall take his meals at hours pretty exactly fixed, at intervals sufficient to leave him time to digest them; and not, without order and at any hour, crowding the digestions one upon another, without giving him the time to finish them. In speaking of the regimen in general, I shall enter upon precise details as to the number of repasts which the child should make.

It is admitted by many persons, and we often hear it repeated by monthly-nurses, nurses, servants, and even by parents, that children cannot nurse too much, and that no risk is run in letting them take all the milk they wish, and as often as they appear to ask for it. This may be true for certain children, and it succeeds in fact in some cases, particularly when the children have, as I have before said, the faculty of rejecting any excess of what they take. Nurses abundantly provided with milk, are very much inclined tc

follow this method, to put their nurslings continually to the breast, and to gorge them with milk as much as possible, priding themselves solely on their excess of development and plumpness. But, besides its being unnecessary, disadvantageous even, to go beyond a certain limit in this matter, and to smother the child, so to speak, beneath a mass of fat, the majority of city children get along better with a more sparing nourishment,—one better proportioned to their strength and their moderate constitution.

Of the nurse's suckling the child during the night.— Nurses have not the same reason as mothers to suspend nursing during the night.

The reason of this difference must be obvious. Most ladies who undertake to nurse their children, are not strong enough to bear at the same time the fatigue of nursing itself, and that which results from the interruption or privation of sleep. It is, then, less for the purpose of sparing them, than with a view to preserve their milk, that I advise them to suspend nursing during the night. Rest being an indispensable condition in the secretion of milk, prolonged sleep becomes for them a greater necessity than

for hired nurses of a more robust constitution. The inconveniences, however, if any exist, are more than compensated by the advantages of nursing by the mother.

It is, then, perfectly advisable for the nurse to suckle the child during the night,—several times even, according to his age and wants, and according as his sleep is more or less interrupted. But here several recommendations are important, and I shall make them freely, without allowing myself to be deterred by the different ideas which many mothers entertain. I write to enlighten them, and not to flatter their weaknesses or their prejudices.

Far from requiring the nurse to give the breast every time the child awakens and cries,—if this occurs too frequently during the night,—the whole attention of mothers ought to be directed to a wise management in this respect. Nurses are but too easily found, who are always ready to place the child at the breast at the slightest cry, not through zeal and an enlightened devotion, but because, in the midst of their sleep, they had rather take the child that lies by their side, and suckle him while they are half

asleep, and without disturbing themselves, than to get up in order to see that nothing is troubling him, — to divert him for a moment, or to give him a little sweetened water. It suits their indolence better to calm his cries by taking him upon themselves, and dandling him without quitting their beds, than to endure these cries, when they ought to do so in order to give the child good habits, and accustom him either to sleep in his bed, or to learn to remain awake in it without crying; in a word, to *teach him*, — for a part of education begins from the cradle and the first day's existence. There is, in fact, as much to be done in combating the indifference of the nurse, as her excess of zeal; both causes produce the same results, the effects of which will be afterwards felt, and become full of mischief, when the child has contracted bad habits, which are as difficult to conquer when once they have taken root, as they are easy to avoid at birth.

Simple prudence requires besides, as all know, that the nurse should absolutely abstain from taking the child into bed with her, — the least danger in this case being that he may fall from a high bed in which he is not kept in; and as,

besides, instances of children smothered by their nurses, while asleep, are not unknown to any, I have no hesitation in insisting upon this point.

The new-born child has usually no need of nursing more than three or four times in the course of the night; and it is well to bring him very soon to nursing but twice, from the moment of going to bed at night till that of rising in the morning. Far from injuring his development, this measure favors his health; sleep, and a peaceful, continuous sleep, being as necessary to his strength as food itself. If children in a good state of health be observed, it will be seen that almost all of them sleep soundly and without interruption, and that they do not awaken more than two or three times a night for the purpose of nursing. This habit, I repeat, is easily acquired with a little care and decision, by knowing how to combat certain capricious desires which manifest themselves very early. It is thus that new-born children solicit the breast much oftener than they really need it, from an instinct which makes them seek the bodily warmth of the persons who tend them, and the

movement communicated by holding them in the arms. But if one yields to these first desires, the child can soon no longer rest in his bed,—he sleeps only in his nurse's arms; and the repeated desire he expresses to take the breast becomes but a sort of pretext to obtain attention. Independently of the inconvenience of nursing without rule and method, nothing is worse for children, nothing enervates them more, and renders them more apt to cry, and more exacting, than the holding them constantly in one's arms, and particularly accustoming them to sleep there.

What we should then seek to obtain of the nurse is, that, after having nursed the child sufficiently, she should know how to calm him, if he still seems to want anything, in some other way than by putting him again to the breast; and that, after having made certain that he wants for nothing, that he is not thirsty, that nothing hurts him, that he is clean and does not suffer from cold, she should put him back in his cradle, and bear, if need be, his cries, in order to accustom him to remain and sleep in it. It is not enough that a nurse give her milk to a child,—

that this milk be good and abundant,—it is necessary that she give it with discernment and intelligence.

I know all the pretexts and all the reasons that are given to escape from this rule, which demands more order and firmness, which subjects one to more constant supervision, at least for the early periods, than a less enlightened and an unregulated devotion. Mothers are easily persuaded that theirs is an exceptional case,—that what is good for another child is not good for their own. This idea produces great disorder and great injury in the education of children, and I shall have occasion to recur to the exaggerations,—the extravagances to which it so frequently gives rise. I shall repeat more than once to young women that they ought to distrust exaltation in maternal love, from which the child is the first to suffer. But I have already insisted too much for the present on this subject, which must be treated further on, when I shall attempt to make it understood to what an extent the pliability of infancy extends; how it yields to everything, when we know how to take it; and with what formidable facility its

capricious instincts are developed, when we do not know how to arrest them in time.

Of the nurse's regimen, — her food, and the choice of it. — What is the best diet for nurses, and is it necessary to take any precautions with regard to it and to their mode of life in general?

I shall endeavor to lay down a few clear principles, which may, I hope, serve as a guide to reasonable minds.

Let us first speak of the regulation of the diet, nor fear to attack the opinion that certain kinds of food are adapted to forming milk, and certain others to diminishing its secretion. This opinion has no foundation, and merits no confidence. All that has been said of the advantageous properties of farinaceous food, has no more reality than the fears attached to the use of raw vegetable substances, fruit, &c. This prejudice is based upon a preconceived idea, derived probably from the analogy which some have sought to establish with the animals that furnish us milk. What we should think of these different aliments, enters into the general principle which we are going to lay down.

No alimentary substance has the property of

rendering the milk more abundant with women, any more than it has of diminishing the quantity. The only rule to observe, in respect to this, is the following: Every kind of food which is well digested, which agrees with the nurse, and to which her stomach is habituated, is suitable for her. On the contrary, food considered the most healthy, which she does not habitually take, which is too substantial or too exciting for her temperament, ought to be avoided. The whole question reduces itself, then, for nurses, as for everybody else, to digesting well what is eaten, and not eating to excess. It is impossible to establish any other rule with respect to it.

There is, therefore, no reason for proscribing in an absolute manner fruit, or even salad, any more than there is for seeking particularly certain vegetables or certain meats. It is the good or the bad digestion which ought to determine the choice. I would say the same of the different kinds of drink. Wine, diluted with water, is good for those who are accustomed to it, just as ale suits women who have always used it; but there are no reasons for attributing a particular virtue to either (as many persons still think of

ale in particular), in promoting the secretion of milk, when it is not naturally abundant. Cider itself succeeds very well, when one has drunk it from infancy; and, at the risk of being considered very rash, I will confess that I not only do not proscribe it, but that I recommend it for nurses from Normandy or Picardy, with whom every other drink often disagrees. I lately had occasion to give some, with great success, to a nurse from Picardy, who was fortunately in a family where no prejudice existed against habits foreign to those they live amidst. The poor woman felt so great need of the cider of her village, so superior for her to the best French wines, that she was affected by it physically and morally, and her health was suffering from it. By my advice, no opposition was made to gratifying her desire; and no reason for repenting of this compliance with her wish ever occurred.

This rule once admitted, moderation must of course be exercised in the regimen of the nurse. In authorizing every kind of food, I do not mean to say that all are equally good and healthy, and that the gratification of disordered tastes and caprices for certain dishes out of the common

and regular way, is a matter of indifference. Just as a wise moderation, indicated by good sense, should be observed in the quantity of food taken, in the same way also the dishes which are the basis of ordinary living, and which are consecrated by long and general usage, should form the principal part of the diet of nurses. In recommending a varied nourishment, composed of the ordinary meats and vegetables, it is clear that I do not mean to favor the exclusive and disordered inclination which a nurse may have for smoked and salted meats, for pork, and for vegetable substances eaten raw and in excessive quantities, any more than I would tolerate the abuse of wine, which, taken in proper measure, is perfectly suitable. To the same degree that attention to trifles and an exaggerated exclusiveness are useless and even injurious, to that degree, I say it once more, is moderation in all respects indispensable; and I propose to combat only those exclusive systems which experience does not in any way justify. As to coffee with milk, it is known to form, at the present day, the customary breakfast of a great number of women from the country, and there is no reason to refuse

it, provided it is made weak, as, for that matter, the persons of whom I speak are accustomed to take it.

It often happens that, with the intention of providing largely for the wants of a nurse, of enabling her to perform her duties acceptably, of giving to her milk all the abundance and richness possible, and of satisfying and attaching her by good treatment, persons provide for her a table well spread with substantial dishes, and feed her on roast meat and vegetables carefully prepared. They anticipate her desires, so to speak, and, through fear of refusing her, provoke her appetite by seeking what pleases her most. This conduct sometimes succeeds only too well; that is to say, women accustomed to a sober and frugal living, — one of privation even, — finding themselves all at once in the midst of choice and abundant food, and being excited by the variety of the dishes, gratify their appetites a little more than they should, eat more than enough to satisfy them, and do not fail to feel the ill effects of this sudden transition and this excess of nourishment. It is very wrong to treat nurses in this way; we cannot, on the contrary, be too careful to make

as near an approach as possible to the kind of living they have at home, at the same time that we improve, to a suitable degree, the rather too limited diet to which their poverty compels them. For this reason meat and vegetable soups, such as they like best, not strained and light as we make them, but thick and well provided with bread, carrots, potatoes, and even cabbage, agree with them in general remarkably well.

Of the natural evacuations of the nurse, and of the indications they furnish as to her state of health. — As I must omit nothing in this work which may be of use to the persons to whom it is addressed, I cannot omit the treatment of a point which furnishes, in the absence of confessions, always so difficult to obtain from nurses, essential indications as to their health, and the effects of the kind of living which is furnished them. I allude to their natural evacuations, their dejections and water, which it is important to examine from time to time. Constipation, excitation, or looseness, are pretty frequent conditions with these women, who pass from an active, free life in the open air, to a confined, restrained, and effeminate one. These

ailings are not without influence on their general health, and, consequently, on that of the child. The examination of their stools and water may give a useful warning; and there is the more reason for not neglecting this means of information, in that it is easy to have recourse to it without letting them know it, and without causing them embarrassment, from which they often extricate themselves by dissembling the truth.

Of the general conduct towards nurses, and of the manner in which they should be treated. — I shall not try to lay down any precise rules by which the conduct towards nurses is to be regulated,—relatively to the greater or less degree of strictness it is necessary to employ, or the greater or less degree of confidence that should be shown in them; in a word, relatively to the manner in which persons should be treated, who, not being, properly speaking, domestics, nevertheless perform in several respects similar duties. This depends so much on the kind of disposition with which we have to do, on the more or less exacting character we meet with, on the usages and customs of each house, on a host of shades in the disposition of individuals and of external circum-

stances impossible to foresee, that nothing general can be said on this subject. The only principle from which we can start, is, never to allow ourselves to be governed by nurses, whatever be their qualities; and, at the same time, to manifest for them all the consideration they deserve. It is necessary to oppose to the abuse they are tempted to make of their position, and the need they think we have of them, a firm resolution to part with them rather than allow them to govern and get the upper hand. What we have said of the slight harm that ensues from changing a nurse, may encourage young mothers, and reässure their timidity; but, what is more, the simple resolution to change a nurse, if need be, with a show of decision, is often sufficient to effectually restrain those that are exacting and capricious. If, on the other hand, they are accustomed to consider themselves as indispensable,—if we appear to be alarmed beyond measure at the idea of losing them,—there will often be no limits to their encroachments. But I am decidedly in favor of treating nurses well; of never subjecting them to too minute cares; of recompensing them well for good service; of encouraging them by

evidences of satisfaction in the form of presents, and, finally, of rendering their life easy and happy; only it is necessary to be on our guard, not to be too easy with them at first, and afterwards more severe.

Of oversight to be practised with regard to nurses. — Astonishment will perhaps be felt at my blaming the excessive surveillance which some persons think they must have over their nurses; but it is true, however, that it is well to exercise a certain moderation in this as in everything else. There are no women who can submit to the yoke that is in some houses imposed on them, and to the constraint in which they are held. The gentlest nature, the most amiable disposition, ends by revolting against a subjection carried too far; or weariness, low spirits, and disgust set in. Now, a nurse must, before all else, feel happy and contented. If you take from her all liberty, — if her least movements are spied, her freedom constrained, — if, through fear of letting her come in contact with the other domestics, you keep her shut up, and do not lose sight of her for a single instant, — if you expect to make of a country woman a parlor-maid, a

species of companion, — if you do not let her act and divert herself, in her own way, with persons of her condition, you will not be long in making her unhappy, in destroying all her good-humor and gayety, and in rendering her homesick. So serious and monotonous a life will become insupportable to her; she will no longer perform her duty but with discouragement; and she will feel neither attachment nor devotion for a child of whom she is never allowed either the disposition or the enjoyment.

How can it be expected, for example, that a country woman should feel at her ease, if the mother, a lady, makes her sleep, as is sometimes required, in the same chamber, by her side and near her bed, holding her thus in a state of captivity, from which she cannot escape for a moment either night or day?

Others, forgetting what nurses are (country women, without education, and habituated to rude and coarse labor), impose on them, for the sake of form, a bearing to which they cannot bring themselves. It is thus that one very good nurse, placed in a good house, where she was very well treated, — too well in fact, — could not

bear the fine-lady life which they wished to make her lead, by which she was required to abstain from every other occupation than holding the child, bringing him into the parlor, and taking him to ride in a good carriage, without ever being allowed to engage with the other domestics in any of the household occupations, and never allowed to wet her hands, for fear she should catch cold. This nurse, having reached a degree of weariness that was beginning to undermine her health, at last begged to be allowed to render some services in the house, — to do some cleaning, — if only to distract her mind; and this simple concession sufficed to restore her to good-humor and health.

Of the necessity of making the nurse take air and exercise. — It is equally indispensable to make the nurse take air and exercise. This condition is far from being observed as it should be; and not enough reflection is bestowed upon the evils of confining immediately, and without transition, to a sedentary and confined life, women who, till then, were living in the open air, and engaged in occupations of a very different nature. We shall see, in speaking of the general treat-

ment of children, how advantageous it is to keep them out of doors as much as possible, and from their earliest birth. This habit is no less necessary for the nurse herself, for her health, and consequently for the quality of her milk. How many nurses there are who change and deteriorate in a short time, — who, from being excellent in all respects on arriving, become only tolerable, and lose a part of their milk; the only cause of the change being a want of movement and activity, a privation of air and exercise!

I know that it is not always easy, at Paris and in great cities generally, to make nurses go out as much as suits their own health and that of the child. Remoteness from the walks, the dangers of the street, the ill effects of leaving to herself in the midst of the public gardens a nurse with her child, and the oversight required, are obstacles more or less difficult to surmount, in proportion to the position one occupies, and the state of one's fortune.

But it is no less true that it is to the last degree advantageous to make the nurse take an airing, as far as possible, every day, for several

hours, and in all, or almost all, weathers. Each one will apply this principle in the measure that his condition allows, and in accordance with what good sense dictates.

CHAPTER IV.

OF ARTIFICIAL NURSING, OR OF BRINGING UP CHILDREN BY HAND.

City children, and those of large cities in particular, being generally of medium strength, and placed under conditions which are far from being favorable to health, require attentions, with respect to nursing, which robust children, reared in the country, in the open air and sunlight, do not. The same difference exists for them as for ourselves, and the substances which they would digest without difficulty in the country and open air, do not agree as well with them when they are shut up in our apartments, and in our walks, where the air circulates only imperfectly. For this reason, artificial nursing, with the bottle or mug, which is sometimes seen to succeed in the country, and the custom of which is said to be quite general in

some countries, is, as experience proves, the worst possible method that can be adopted in Paris, and in cities generally. This difference does not depend solely on the better quality of the milk obtained in the country on farms, but upon the difference of the general hygienic conditions.

I shall not enlarge upon this mode of nursing, which I condemn absolutely and without reserve in Paris, and cities generally, and which I barely tolerate in the country, notwithstanding the favorable examples which may be cited in its favor. These isolated cases prove nothing. I do not pretend that it is impossible to rear certain children in this manner; but it is creating needlessly a crowd of chances against one, in an undertaking which, under the most favorable circumstances, always presents difficulties enough by itself.

However, all the necessary directions for selecting the kind of milk, and upon the way of using it for children of different ages, will be found in the chapter devoted to the milk regimen.

CHAPTER V.

OF THE GENERAL REGIMEN OF CHILDREN.

Of the manner in which the nursing should be regulated. — I have already said a few words on this subject; but it is now my purpose to point out precisely the course to be pursued at the different periods of nutrition.

Whatever the age of the child, it is always advantageous to regulate the periods of nursing so that he may take his meals at pretty nearly equal intervals, — short ones at first, and afterwards more remote ones.

Infants thrive much better with this methodical distribution of their nourishment than with irregular feeding, which at one time puts too great an interval between their meals, and at another loads the stomach again and again with a new quantity of food, without leaving it the time to digest what has just been given. All good

observers agree on this point, and it is certain that in all things regularity suits the human organization, as is manifested by the regular return of its acts, and by the habits which it contracts with regard to many of its functions.

In this question, as in many of those which we are about to treat concerning the bed, dress, cleanliness, &c., we shall pass over many details to which attention was formerly considered necessary, when strange and gross prejudices still prevailed. The progress of intelligence, and the more generally prevalent notions of what a wise hygiene demands, having successfully combated these prejudices, it would be useless to refer to them. This is why I shall neither occupy myself with the swaddling-band, nor the cap to form the head, any more than with the inquiry whether it is necessary to purge the child before nursing him for the first time. It would be a want of recognition of services rendered by illustrious writers, to occupy myself with similar questions, and to combat errors which are no longer entertained.

It is pretty well known how much milk should

be given to a child. I have, nevertheless, often enough seen parents in doubt to make it advisable for me to state what is most suitable, according to the age.

How many times during the twenty-four hours ought the new-born child to nurse? — The new-born child has need of nursing frequently; not at every moment and without limit, as many nurses permit, but at short intervals. With some exceptions, depending on the strength and the appetite of the child, it is proper to nurse him about once every two hours during the day, at the first period of his existence. The intervals may even be less when the child is feeble, or when he has a strong appetite. Thus the maximum might be fixed, in ordinary circumstances, at intervals of an hour and a half, and the minimum at three hours. As to the quantity of milk which the child takes at once, I see no objection to his being allowed to satisfy himself, except in the case of particular prescriptions.

This regularity cannot and ought not to be observed in an absolute manner. Good sense indicates that if the child is sleeping a peaceful sleep beyond the time when he ought to nurse

according to the rule, he should not be awakened in order to satisfy a want which he does not manifest, and to administer to him rigorously the fixed number of meals. It would be ridiculous to seek to introduce mathematical precision into the education of a child.

Of children who sleep a great deal, and who do not wake up to nurse. — There are, however, cases in which sleep itself, which must usually be respected, should attract attention when it is prolonged beyond certain bounds. It undoubtedly happens that children, perfectly well-constituted, strong, and in good health, and provided with excellent nurses, sleep a great deal during the first days of their existence. Appetite and hunger do not manifest themselves sometimes, in a strong degree, before a week or a fortnight, as if the child were living at first at the expense of his excess of plumpness; but it also happens that weak or badly-fed children sink into a prolonged sleep when they do not find in their nurse's milk a nourishment either sufficiently substantial or sufficiently abundant. It seems as if nature meant in this way to compensate for the insufficiency of nutrition. Ex

cessive sleep is, then, in certain cases, the sign of incomplete or indifferent nourishment, and it should attract attention to the condition of the nurse. Examination will often disclose the fact that she has but a small quantity of milk, or that her milk is poor and watery; and, if we observe the child, we shall not fail to perceive that he is not thriving. Now, the manner in which the child progresses is the surest means of judging of the quality of the nourishment he takes, particularly in the beginning, at the period that his life is not yet troubled by any suffering, nor by any ailing.*

* Some embarrassment is often felt in ascertaining the degree of development which the child makes, and in making sure that he is really thriving as he ought to do; the progress of the increase is with difficulty observed by parents who have the child constantly before their eyes. There is a very simple means of verifying this progress in a positive manner; it is to weigh the child once or twice a month. This direct means is neglected in consequence of a prejudice, which it would be well to abandon for the sake of one's own satisfaction, and particularly for the well-being of the child.

The weight of a child of medium strength, suckled by an ordinary nurse, increases about a pound a month, till the age of six months.

The nursing ought to become less frequent in proportion as the child grows older; and it is only during the first month, or the first six weeks, that the intervals ought to be as short as I have stated. After this time, if the nurse is a good one, it is sufficient to nurse him every three hours, in order that he may be perfectly fed. He may even nurse still less frequently, without inconvenience, if he finds each time a good amount of milk in the breast.

Should the child take anything else than milk till the age of six months? — I am not in favor of the child's taking anything but milk till the age of six months. If the nurse is not in a condition to furnish a sufficient quantity for him, a certain amount of cow's milk must be added, to supply the deficiency. I shall treat, in detail, in another chapter, the kinds of milk which may be the most advantageously given to children; but I must say, at once, that I much prefer light cow's milk, given pure and without mixture, to every species of milk diluted with barley-water, pure water, &c., as is commonly practised. But how can we procure light milk, and under what

circumstances will this liquid present the conditions I recommend?

We shall see, hereafter, that the milk *first drawn*, of which I have already spoken, that is to say, the first portion obtained in milking a cow, is that which is most suitable, and which presents the qualities that are most favorable to supply a deficiency in the nurse's milk. This milk is now found in Paris in some establishments, and very simple precautions are sufficient to have it in the country. However, if any difficulty is experienced in procuring it, the old custom of diluting ordinary milk with an equal portion of barley-water, must be followed till the child is three or four months old.*

* It is not difficult to procure such milk as the author indicates, in this country, if a little trouble is only taken in selecting a trustworthy milkman from the country, and engaging him to set aside the portion of milk required.

Notwithstanding the author's very decided opinion adverse to artificial dilutions of milk, the uniform success which has attended the use of groats (or oat-meal) in America, induces us to give here the method of its preparation. It may be found a very useful addition to a mother's milk, if from any cause the latter should be found insufficient in quantity, or poor in quality.

In the beginning, take two table-spoonfuls of groats, thor-

Of the different processes for making a child drink; the different kinds of nurse-bottles. — Of all the processes for making a child drink, the most simple is the use of a silver cup, and children very easily get accustomed to this manner, however little care and skill be employed. The different apparatus invented for this purpose, under the name of nurse-bottles, the invention of which has multiplied during the last few years, are, nevertheless, suitable enough, and offer no inconvenience. I have no exclusive preference for one rather than another of the forms given to the nurse-bottles at present in use; all appear to me to answer pretty well the purpose for which they are intended. The most simple and the easiest to keep clean are the best.*

I have already spoken of the manner of nurs-

oughly mixed in a little water, and boil them in a pint of water for twenty minutes; add one half gill of milk, and boil the whole once more till it rises. As the child grows, increase the proportion of milk.

* A common six or eight ounce vial, with an india-rubber tube, is easily filled, emptied, and cleaned, and is more conveniently handled than any of the nurse-bottles.

ing during the night, and shall not revert to it here.

At what age ought the child to begin to eat? — Amongst persons whose system is to begin to *feed* children very early, some have no other end in view than to give them a better nourishment, to render them strong and vigorous; others wish to avoid the difficulties of weaning, by accustoming them, as soon as possible, to take other food than milk; but these advantages may be obtained without having recourse too early to soups and pap, and without disposing the child to evils which seldom occur with a more rational course of diet, and one more appropriate to their age.

Of the disadvantages of feeding a child too early. — I shall not refer to all the dangers with which authors threaten children who are fed too young, and who are crammed inconsiderately with an excessive and too strong nourishment. I shall not say that convulsions and other no less serious affections are thus produced. It seems to me useless to exaggerate the dangers and warnings, for the purpose of frightening mothers. It will be enough to cite for them several more

simple and less terrible examples, in order to induce them to take the most reasonable course.

I shall limit myself, then, to calling their attention to the fact that the organs of digestion are those which are the most easily affected in children; that the good or bad condition of these depends most frequently on the regimen to which they are subjected; and that nothing predisposes them more to bad digestions than a food that is disproportioned to their digestive faculties. If diarrhœa is often the consequence of a poor or unhealthy milk, it is often, also, occasioned in young children by too abundant, or too solid food.

When excess of nourishment does not produce disorder in the digestive functions, its action is sometimes seen upon the skin; and I cannot doubt, by the examples I have seen, that this cause particularly favors the development of cutaneous eruptions. I have seen this affection occur in children fed on too substantial diet; and depriving them of this superabundance of nourishment has been sufficient to cure them of an affection not very hurtful, it is true, but disagreeable and distressing to parents.

It is not, then, in my opinion, till about the age of six months that it is advisable to begin to give the child anything else than his nurse's milk, and the cow's milk which may have been added as a supplement. I make an exception, however, for children nursed by their mothers, in case the latter have but a moderate quantity of milk, or need to be careful of themselves. If these children are well, and not too strong, it may be advantageous to make them take, from the age of three months, a light porridge, prepared with the feculæ I shall mention by and by. As to children nursed by hired nurses, one must have very good reasons for retaining a nurse, to accord to her the same privilege, and to keep her in spite of insufficiency in her milk.

Order and composition of the meals. — This, then, in ordinary cases, is what ought to be pretty nearly the regimen of a child of from five to six months of age, and the order in which it will be advantageous to vary and successively increase the nature and the amount of his food.

We should begin by giving in the morning a single very light porridge, made with one of the following feculæ, or meals, which I do not

prescribe in an exclusive manner, but which are good and agreeable: arrow-root, potato-starch, flour dried in the oven, or powdered rice. We must pass from one to the other, and dwell by preference upon one of them, according to the liking and condition of the child. Thus, powdered rice should be preferred when the child appears a little relaxed; potato-starch will serve as a food to purify the blood; arrow-root as a light food; wheat-flour, on the contrary, as a very nourishing substance; but, under all circumstances, it is well to vary, to have a succession of these substances; change and variety in the food being an essential point, which we recommend for children as soon as they have entered upon the regimen of ordinary life; not only in order not to weary and disgust them by giving them too often the same substance, but for the advantage of their constitutions and health. This is, very certainly, an important point, and, if we may be allowed the expression, the secret of good nutrition of children.

As to the quantity in which these gruels should be administered, it ought, at first, to be very small, and not exceed, at the outset, what

an ordinary saucer will hold, or about six tablespoonfuls. Gruels should soon be given twice a day, and then to the substances I have just indicated should be added semoule or semolina,* clear and well cooked, vermicelli even, and soon after meat-broth; that is to say, light soups, mixed with the above farinaceous substances.

Of vegetable and animal diet. — I am not unaware that many persons absolutely exclude from the diet of a child, even at a more advanced age, every species of meat, and meat-broth itself; but I am very much opposed to this system in our climate, and I advise just the opposite method. Convinced by experience of the disadvantage of an exclusively vegetable diet for the children of our country, I recommend meat after weaning, just as soon as the child has teeth enough to

* Semolina consists, in some cases, of the gluten of wheat, mixed with a proportion of wheat-flour ; in others of certain descriptions of wheat-flour only, rich in gluten.

Bullock's semola consists of the gluten of wheat, with a proportion of wheat-starch. This is an excellent preparation. — *Hassall's Adulterations in Food and Medicine.*

masticate the white meat of chicken, or some other as tender food.

As soon as children can lay hold on objects, and keep them in their hands, it will answer to give them, besides their other food, and pretty nearly as much as they wish of it, crust of dry bread, which they readily chew and suck, and of which they swallow only a few small portions after they have rendered them perfectly soft. This exercise of the jaws amuses them, and has the advantage of disposing them to eat solid substances, at the same time that it favors the coming through of the teeth by pressing on their gums.

Of the use of wine. — I am strongly in favor of wine in the diet of children; and I recommend a species of pap, which is made for them by dipping a bit of bread into wine and water slightly sweetened. This food is not only good to strengthen them, but is very convenient in the walk to which it is so important to devote the greatest part of the day, from the earliest age. Nothing is easier to carry than what is required for such a meal. Wine and water does not easily change its quality. It keeps well in a bottle,

and, what is by no means a matter of indifference, it gives no trouble to the persons charged with the care of the child in the walk. A small bottle, a cup, a bit of sugar, and a little bread, compose the whole provision that they have to take with them. This aliment may be introduced into the diet of the child from the age of six months.*

Of weaning. — At about what age, and under what circumstances, should weaning be undertaken?

Nothing is gained by continuing nursing for a long time, when no circumstance of health requires it; but there is real danger in ceasing it too soon. We must, then, take a middle course, naturally indicated by the wants of the child. It is ordinarily about the age of twelve or fifteen

* In this country wine is hardly considered an aliment. The imported wine, being fortified with alcohol to make it bear the voyage, is always more or less intoxicating. The use of any wine here for children is considered dangerous, as leading to habits of intoxication ; but the free use of it in France, with less of this vice than in almost any country, is a sufficient answer to all objections to its use there. It is to be observed, however, that the wine the author means is claret. Strong wines, such as sherry or Madeira, would, of course, be inappropriate and dangerous.

months that weaning should take place. At this age, if their education has been well conducted, and if they are in good health, children take an amount of various kinds of food, large enough to enable them to be deprived, with impunity, of their nurse's milk; and more substantial food is now better suited to the state of their strength, and the development which they begin to acquire. The idea of weaning the child is not to be entertained for one moment until assurance is obtained of the possibility of making some aliment of a different nature supply the place of the milk; and this is why it is necessary to give them the taste of it by degrees, in order to prepare them for weaning. We should run the risk of making them suffer by it were we to break off nursing abruptly, before having habituated their stomachs to the new substances which are to form the basis of their nutrition. The general and invariable rule, then, is that children should know how to eat when weaning is undertaken.

Of late and of early weaning. — But it is often very difficult to habituate them to new aliment when we set about it late, waiting till they have too much knowledge. We sometimes meet with

many obstacles in making a child eat, who has nursed till ten months or a year only; and, as the repugnance increases in proportion as they grow, weaning becomes each day more painful. I have seen children whom, for this reason, it was very difficult to wean at the age of eighteen or twenty months. This trouble is avoided by familiarizing them early with ordinary food, without forgetting the limits which we have prescribed in speaking of the disadvantages of giving substantial nourishment too soon.

Of the opposition of certain nurses to weaning. — Nurses are more or less inclined to feed children according to the greater or less quantity of milk they have to give them. As soon as they perceive that their milk is diminishing, they are quite disposed to give them other nourishment, whilst they resist it as much as possible in the opposite case. Each tendency ought to be carefully watched, seeing that they have each their disadvantages. In the former case, there is danger of exposing the child to eating too soon and in too great quantity; in the latter, of rendering the weaning difficult. It is a means that crafty nurses employ to make their services

necessary for a longer time. They know how to manage so well, and have so many good reasons to give, that if one is not very careful, and does not pay the strictest attention, the child reaches the age of fifteen, eighteen or twenty months, without taking hardly anything but the nurse's milk, which, besides doing him less good, creates in him so great a dislike to every other aliment, that it is difficult to tell what to do, and the greatest difficulty is encountered in separating him from his nurse.

To sum up all, premature weaning presents the disadvantage of fatiguing the child, — to whom it is necessary to give nourishment not yet appropriate to the strength of his digestive organs, — and of depriving him of a precious resource in case of indisposition, or disturbances depending on retarded dentition, or any other cause originating from infancy. Nursing continued too long prolongs, so to speak, the state of early infancy, retards the development and progress of the strength, and creates constantly increasing obstacles to weaning. It is, then, only in exceptional cases, — in case of sickness, extreme weakness and laborious dentition, — that the duration of

nursing should exceed the ordinary bounds, and be extended beyond fifteen months.

Of precautions to be taken in weaning. — Are any great precautions to be taken for weaning? Must the child be prepared for it a long time beforehand, or can he at once be separated from his nurse?

The principal preparation is that which I have just indicated; that is to say, to take care not to deprive the child of his nurse's milk till he is in a condition to do without it and to bear other nourishment. This condition being complied with, the child being well, and accustomed to eating, there is no advantage in protracting the weaning. The moment once arrived, and the resolution taken, it is better, on the contrary, to cease nursing at once, and have done with it in several days, than to go on indefinitely, giving once or twice in twenty-four hours a milk which is changing and deteriorating from the moment that its secretion is no longer sufficiently excited by repeated suction.

If the child were not yet entirely weaned from night-nursing, it is clear that we should commence with that. It will be easy to succeed in

this, by offering him at first a little sweetened water to drink, and soon pure water, each time that he wakes up and asks to nurse. But it is particularly during the night that the nurse must be watched; and too great confidence should not be entertained that she will regularly follow this direction. The best way is to separate her from the child, and to have him sleep near one's self or a maid in whom confidence may be placed.

The season is of little consequence for weaning children that are well and of a good constitution. If there is any particular reason for being careful about the change in food, it would be advisable to let the winter season elapse, and wait for spring or summer.

Of the artificial means that are suited to disgust a child with his nurse's milk. — In case the child has little liking for other food, or that he is, on the contrary, very fond of his nurse's milk, advantage may be taken of some device to overcome his desire to take the breast. This result may be attained, in a pretty certain and entirely harmless manner, by applying to the nipple of the nurse some substance of a disagreeable taste; such, for example, as aloes, which I have several

times used with success under such circumstances.

Of the course of diet of the child after weaning; order and composition of the meals. — The child once weaned, his diet must approach more and more the ordinary diet of common life. The same food which composes our repasts should form the basis of his nourishment, avoiding, however, highly-seasoned dishes, for which, besides, children have no inclination. It is useless to enter into details upon this subject, every one, of course, understanding that highly-seasoned chopped meats, smoked meats, fish of a certain kind, game that has been long kept, and most kinds of pastry, are to be avoided. The same is true of exciting substances, such as strong wines, coffee and sweetmeats, in regard to which simple good sense may serve as a guide, — established usages and information, handed down in families, leaving nothing important to be said. Besides, the greater part of these substances would be, as a matter of course, refused by the child; and it is clear that the choice and variety of their food only have reference to the common dishes universally adopted.

Of the use of sugar. — Sugar alone deserves particular mention, by reason of the very general prejudice against this substance. It will be enough for me to say, that sugar, used with moderation, is not only harmless, but that it is salutary in a host of cases, and under a multitude of forms, and that it must necessarily enter into many preparations which children use. Given even in excess, it is rarely injurious of itself; the principal objection to it is, that it somewhat diminishes the appetite when eaten too often. As to the heating properties attributed to it, I believe, for my part, that the idea is not well founded.

In order to give precise ideas to mothers who have no experience, I will trace out, as I have done for children in their earliest infancy, an order of meals, to which an approach may be made more or less near, according to position and circumstances.

Children make their first meal as soon as they are up. This repast is ordinarily composed of gruel only, or of broth, with bread, or some fecula, or pap, such as vermicelli or semolina. This first breakfast takes place about seven or

eight o'clock in the morning; sometimes sooner in summer.

About eleven or twelve o'clock they make a second more solid breakfast, at which a soup may still be served, but accompanied with a small quantity of meat, if the child is already provided with teeth to masticate it well. A little poultry, a bit of mutton chop, veal cutlet, some roast meat, or a simple stew, are very suitable for this meal, to which is sometimes added, if the child has a good appetite, some light dainty.

If the child is not yet in a condition to masticate meat properly, even when it is cut into small bits, boiled, poached, or dropped eggs are a great resource, and are good in all cases, and at all ages, to give variety to the diet.

About three o'clock a new and slight repast takes place. As, in speaking of walking and exercise, I shall advise the keeping of children almost all day in the open air, this slight meal will usually be made out of doors, and will consist consequently of substances easily carried out, such as slices of bread spread with jelly, a wine soup, such as I have described, or a bit of

bread with a little chocolate, or even, a little later, a bit of dry bread alone.

Although less in favor of dry bread for children than many others who are more rigid than myself, I see no objection to children's being made, either from principle or motives of economy, to form the habit of contenting themselves with this aliment at their luncheons.

Finally, at the meal called dinner, or supper, according to the country,— these denominations making but slight difference in the hours,— the child may eat soup, a little meat, or some one vegetable, as soon as he likes to, such as potatoes, carrots, French artichokes, asparagus, &c., according to the season; and, if it be desired, some light delicacy for dessert.

The food which is given to children ought to be plain, but not without salt, this substance being one of the most necessary elements in the maintenance of the human economy.

Such is pretty nearly the general course of diet to be adopted under all the modifications that position and circumstances demand. Whether followed more or less closely, one of the

essential points is regularity. But it is not enough that the hours be well regulated; it is also necessary that the food given should be in proper quantity, well prepared, and of good quality. Meat must be well cooked, and not dried up. The proportions must be moderate, and pretty nearly constant, so that the child shall be well fed, but not crammed with a multitude of substances. He must very rarely take anything between his meals; and, once subjected to this regimen by the persons who adopt our ideas, not a single day must be allowed to pass without his having his ordinary allowance of meat, under pretext that vegetables will do well enough for a child's food.

Importance of a good course of diet for a child. — The regimen I prescribe will, perhaps, be considered very substantial, and in particular very far removed from the severe prescriptions of certain philosophers, who recommend habituating children to a frugal diet, and a disregard to choice in food, in order to inure them early to hardship, and teach them to support all the privations of life. But, the fact is, I am very much opposed to these severe principles, which I re-

gard as fatal to the constitution of children, particularly in our climate, where too great care cannot be taken to consolidate the system, in order to resist the morbid affections which most readily attack lean and feeble temperaments. If any means exist of combating the disposition to tubercular affections, and to pulmonary phthisis, a disease which makes such ravages among the poor and badly fed classes of our great cities, it is very certainly, at any age even, rich and substantial food. Privations are not made for infancy, and the best way of preparing men to support them some day to advantage, is to begin by feeding them in the best possible way, and rendering their organization the most vigorous and the most energetic that their nature allows.

This advice should never be lost sight of by parents who have any reason to fear for the future constitution of their children. Too great care cannot be taken of them, in their youth, until the age of manhood is reached.

Let us now pass in review the most common ailings which affect children, paying particular attention to those which have any connection

with the regimen, and which are advantageously combated by modifications in the diet.

Of the most common disorders of children, and of the remedies for them. — The most frequent of these disorders is, in the first place, derangement of the bowels, diarrhœa in particular. For children who nurse, the first precaution to be taken, whatever be the cause of the trouble, is the suppressing of every kind of food other than the nurse's milk, whenever there is the slightest tendency to frequent and bad evacuations,—four or five, for example, in twenty-four hours, or even fewer than this when this condition lasts and the child appears worn.

We must enter into some details upon the nature of the evacuations of children, in order not to neglect any of the directions which may prove useful to mothers.

Of the evacuations of children in a state of health. — In a state of regular health, the evacuations of children who nurse are yellow, and of uniform and medium consistence. They present no trace of green matter, nor of white clots, resembling curdled milk, which are, in fact, when they exist, only the cheesy part of the milk undi

gested. Evacuations of this nature take place, according to age, twice or three times every twenty-four hours.

Of diarrhœa. — One of the first signs of deranged or incomplete digestion is the more or less marked greenish tinge of the evacuations; and, in fact, if they are attentively examined, particles of undigested cheesy matter are to be found in the form of white clots. There are also visible, in the midst of the green matter, numerous little drops of the fatty part of the milk, which has traversed the digestive canal without being changed and absorbed. These little drops can only be seen with the aid of the microscope.

As to the green matter, I will say, in passing, that it presents all the characteristics of the bile, though several physicians have thought it necessary to assign a different origin to it.

A more marked degree of this trouble consists in liquid, frequent and fetid evacuations. These disorders may extend to a condition of real and serious disease, with which I shall not occupy myself in this chapter; and I shall stop here, at the point where disturbance ceases to be a sim-

ple ailing without general reäction upon the condition of the child.

Of the regimen to be followed in diarrhœa. — Abstaining from every other aliment than the nurse's milk is usually enough to remove these troubles. Nursing may also be diminished, by giving the breast a little less frequently, by which two effects are known to be produced at the same time; the one, that of loading the stomach of the child less, and the other, of giving him a lighter nourishment, — the nurse's milk being diluted by remaining some time in her breasts. But, except in cases of severe sickness, this abstinence must not go further, for children support privation of food very badly. This point must not be forgotten, even in the midst of sickness; for, even in this case, the effects of a too rigorous diet must be taken into account. Dieting is not for young children, as it is for adults, a precaution always useful to be taken. It is far from being a measure of no consequence, or one of which it may be said that if it does no good it cannot do any harm. Let it never be forgotten that dieting often does more harm to young children than sickness itself.

The immense work of organization, which is going on every day in their system, requires a certain quantity of reparative aliment, and renders them incapable of supporting abstinence.

If the simple precautions which I have just indicated are not sufficient to arrest the evil, it is because there exists a real affection of the digestive organs, and the physician must then be called; or, the cause will lie in the nature of the nurse's milk, and attention must be turned in this direction. I pretty frequently find, in such cases, that the milk is altered by the presence of the elements of the colostrum (granular bodies), as I have before remarked. This circumstance may be encountered in the finest looking and best nurses, whose milk sometimes changes at the end of several months without any known cause. But, in case no deterioration is detected either in the milk or health of the nurse, I am of opinion that a change of nurse should be tried when the trouble continues, and grows worse, without any other assignable cause.

I need not speak of the simple remedies which all mothers know how to employ, such as emol-

lient injections, poultices to the abdomen; and it is not till after all these means have been tried that recourse must be had to more powerful ones. But it is useless to insist upon this.*

Of constipation in children, and the means of contending with it. — A small number of children are, on the contrary, subject to an obstinate constipation, which nothing succeeds in conquering, — neither injections, baths, nor the choice of the most cooling aliment. When this state is momentary, it is efficaciously resisted by the help of a little compound sirup of chicory, the dose of which is about a teaspoonful; but if it is habitual, it depends probably on the child's living too much within doors. The best remedy, then, is to expose him to the open air as much as possible. However, this disposition sometimes ap-

* As to injections, it is a means which must not be abused, for fear of getting children into the habit of them. When recourse is had to them, whether to check a diarrhœa, or to contend against constipation, they should be suspended as soon as the trouble has ceased, and the reëstablishment of the functions themselves should be waited for. The first evacuations are sometimes difficult; but it is better to support this inconvenience than have recourse anew, and without any delay, to injections; for there is never after any reason to stop them when such is the course pursued.

pears to be inherent in the constitution itself, and it is very difficult to contend with it. It may also result from some particular property of the milk, which is not disclosed by examination. In our ignorance on this point, we should, in my opinion, try a change of nurse, — such a disposition being sufficient to cause grievous results when it is carried too far.

After weaning, and for children whose course of diet is composed of various substances, there is reason for choosing the lightest food possible, as soon as any derangement is experienced, — for diminishing the amount taken, and then for putting them upon liquid food alone. When their diet has been thus reduced, and the common precautions and remedies have been employed, if the trouble continues, and the diarrhœa becomes a permanent one, there is no further doubt about it; recourse must be had to the milk-regimen, such as we shall prescribe in a special chapter.

Here, again, I leave off at the point where disturbance ends and real disease commences. This limit, it is true, is not easy to define with clearness. Nevertheless, it is possible to distinguish

the cases in which the child, without being really ill, feverish, indisposed to play, or obliged to keep his bed, is affected with some simple derangement of the bowels, — a more or less copious diarrhœa, — from those in which several of these symptoms are united in an aggravated degree with the troubles of digestion.

I am aware that a simple derangement in digestion, — the most ordinary diarrhœa, — however short its duration, unless arrested by the use of the first remedies, is very often treated as a serious malady, and that no hesitation is felt to impose a strict diet, and make use of all the remedies, such as poultices, anodynes, emollients, the application of leeches, &c. I confess that I am little in favor of these medicines, even when the disturbances become more serious than I have supposed them, and that I have more confidence in the regimen than in remedies. Almost the whole treatment of children is in the regimen; but a regimen appropriate to the different conditions and constitutions, and followed with a care, method, and regularity which are far from being applied to it in most cases. This subject will be developed further on; and I shall show

how the best regimen fails by the manner in which it is pursued.

Of the sleep of children. — I have nothing to say of the bed, and I shall not speak of the dress. All may be summed up in this: Leave the child, as far as possible, the use of his limbs, and do not hinder his movements.

Of the disadvantages of accustoming children to go to sleep in the arms or on the lap of their nurses. — Certain abuses have lasted a great while, and new ones, perhaps, are preparing which merit our attention. Rocking has been abandoned; but children are made to contract other habits still more fatal to their health. Thus, many mothers, through feebleness or want of oversight, allow their children to be put to sleep in the lap, and only placed in their cradle when sound asleep. This circumstance appears, at first, a matter of indifference; and, no importance being attached to it, mothers willingly consent to a practice which spares the child some cries. It is, however, injurious to his health, and equally contrary to his good moral education, inasmuch as it renders him exacting, and teaches him to subject the persons who tend him to his will.

At first, the child asks to be kept in the lap only in the evening, before being put in his cradle, and going to sleep. Desiring to procure for him a good sleep in the shortest possible time, his demands are yielded to, for fear he may remain too long without sleep, fret, cry, and have a bad night. But, soon, it is not in the evening only that he manifests this want, but also during the night, each time that he wakes up, and he ends by sleeping, at last, only in the lap of his nurse, mother, or some maid-servant; or, at least, he goes to sleep only when there, — and it is no longer possible, night or day, to put him, wide awake, into his cradle. Now, independently of the interruption to the sleep which results from this, as the child commonly awakens as soon as he feels that he is put into his cradle, the warmth of the body heats him, the uncomfortable positions he takes in the lap fatigue him and injure the regular development of his limbs. The sleep is less sound and less beneficial; and that which, at the outset, was only a trifling matter, — a slight caprice, attributed to some little ailing, — becomes an inveterate habit, difficult to break up, and injurious to the child.

No one that has not been a witness of it, would believe to what lengths the weakness and blindness of mothers, in this respect, are carried. I have seen some women, full of devotion and tenderness, full of good intentions and of marked judgment, who have allowed themselves to be carried away so far as to hold their children in their arms every night, for years, under the pretext that they could not sleep in their cradles, and who would have feared to compromise their health, and life even, by obliging them to remain in their beds. I have seen others, who, having accustomed their children to feel some one near them while sleeping, can no longer leave them alone an instant without their waking up, — so light does their sleep become, and so readily does their instinct, remaining on the stretch, tell them the moment at which they are left alone. Is any other proof wanting to show how much such habits are to be dreaded?

The most ordinary origin of these bad habits may be traced back to some indisposition, some slight sickness incident to childhood, during which it was not thought possible to maintain

any rule of education, nor refuse this kind of compensation to the child's suffering condition. Sickness is, I know, the rock on which good education splits; and I have not the courage to oppose the compliances and weaknesses which are permitted, during the course of a serious sickness that puts in danger the life of a child. These are catastrophes and misfortunes, with regard to which the best reasonings and wisest precepts lose their force. Every one gets over them in the best way he can, and returns, by degrees, to principles when the danger is over. But we must beware of deviating from them at the least obstacle, of allowing ourselves to be intimidated at the slightest danger, and of losing all the fruit of our care at the first appearance of sickness. A slight indisposition cannot be a reason for relaxing a firmness which need never extend so far as severity; and if we do not find in ourselves sufficient force to resist the caprices and tears of a child who is suffering a little, the plainest dictates of interest for his future well-being and his health should serve as a stimulant. It should never be forgotten that it is

he who will be the victim if we show any weakness.*

Of the necessity of making children go to sleep in their cradles. — It is, then, an invariable rule that the child must sleep in his own bed, and be made to lie awake in it till sleep comes. This precept is, perhaps, even more necessary for delicate and suffering children than for those that are in a state of perfect health. For this reason

* Monthly nurses very frequently do us a very ill turn in this respect. Most of them have the detestable habit of taking the child in their arms as soon as he cries. Under pretext of not letting him suffer, — through the groundless fear of seeing him have a rupture by the efforts he makes in crying, — in order to show themselves attentive and zealous, and to make their services appear valuable, they busy themselves incessantly with the child, at his slightest cry hasten to dandle him, and get him to sleep in their lap. It is for their interest, in fact, to render themselves useful in some way or other; for what could they find to do, at the end of a fortnight, when attending a woman who has been successfully delivered? These nurses should be intelligent, well trained to the business they pursue, and capable of showing young and inexperienced mothers the best course to pursue. But monthly nurses often undertake this business for want of something better to do, and without any precise notions as to directing infancy. It is fortunate when they are not filled with the most absurd prejudices.

I greatly approve the custom adopted by some, in case of sickness, of putting the child in a cradle with wheels, which can be drawn about in the house, in order to give him a change of place, and to divert him. It is a much better method than keeping him constantly against one's self in the arms.

How can the habit of going to sleep in the arms or on the lap of the nurse be broken up? — But this habit, once contracted, is it then impossible to get rid of it; and should the fear of exciting the anger of the child, and making him cry, restrain parents who comprehend the disadvantages of this practice, from undertaking a wise and useful reform?

No, assuredly no; and here is the place to insist upon the marvellous facility which children have to adapt themselves to everything which a firm will imposes on them. Their resistance is, most frequently, neither very long nor very obstinate; and it is always time, particularly at the age of which we are speaking, to regain the right path when it has been left. It is enough to be determined upon it, and to proceed in a clear and precise manner. When we once know

what we wish, and have laid our plans for attaining it, they must be perseveringly carried out. These principles are so simple that it would be to no purpose to dwell longer upon them; and it would seem needless to confirm them by examples. Knowing, however, the excessive timidity of mothers, I shall try to give them confidence by the recital of some facts, which happened under my own observation, and which will make them appreciate the pliancy of infancy.

A child had been, till the age of five months, accustomed to sleep in the arms of his nurse. He never left them, so to speak, and a part of the night was always passed in rocking him to get him to sleep, and in putting him back into his cradle, where he soon waked up, and from which it was necessary to take him out to begin again the same course, without interruption, till morning. As the child never enjoyed a peaceful sleep nor complete repose, he was fatigued, and did not make the progress he should. His health in other respects was good, and did not require any special care.

The father at last became convinced of the evils attending this way of bringing up his child,

and of himself took the resolution, without any other counsellor than his good sense, to put an end to this injurious habit.

The same evening he caused his child to be placed in the cradle wide awake, and then, having clearly ascertained that he wanted for nothing, and was not troubled by anything, he bore his cries without alarm, and without changing his resolution. The impatience and despair of the child did not last long; he soon went to sleep. The same practice repeated for several days was enough to bring matters right. This example may serve to reässure parents who fear to see their children fall into convulsions at the least fit of anger.

The following is a case of my own:

One of my children was entrusted to an old nurse, in whom I had the more confidence that she had brought up several others successfully. This woman imagined that it was a good thing to get the child to sleep before putting him into his cradle; and, each time he woke up during the night, she took him in her arms, walked about with him, and dandled him till he went to sleep again; then the same thing occurred again, and

at last the child, as cannot fail to happen in such a case, was constantly waking up; and he thus passed the greater part of the night in these alternations between waking and sleeping, being rocked and put to bed again, and the only real sleep he got was in the arms or on the lap of his nurse. This method was followed till the age of six months.

A reform was becoming urgent; and this is the way it was effected. I had the child placed, awake, in his cradle, in the evening, at his bed-time. He became very angry, yelled, cried, tossed himself about, and appeared really in despair; his body was covered with perspiration, and water ran down his face.

I remained near his bed. By degrees he became calmer; he appeared to be resigned, and to make up his mind. It was not, however, till the end of an hour that sleep visited him this first day. The night was passed better than before, and the child was less exacting.

The next day the same means were taken, attended by the same cries and the same suffering; but, after half an hour, all was ended, and the child slept. The third day it required but a

quarter of an hour, and never since has he made the least difficulty at being put to bed wide awake. Deep and regular sleep now comes in an instant, and it lasts almost without interruption during the whole night.

If there are children of a rebellious, unconquerable nature, that form an exception to this rule, I am persuaded they are very rare, and it is very probable that their resistance is only in proportion to the feebleness they encounter.

Children should be accustomed to sleep in the midst of noise. — I am also opposed to the minute precautions which are taken to avoid noise, lest it disturb the sleep of children and awaken them. This, also, is a matter of habit. Children wake up at the slightest noise only when precautions to maintain the greatest stillness around them while they sleep, have been carried too far, — such as avoiding all movement, daring neither to speak nor walk, for fear of interrupting their sleep.

Children very easily get accustomed, on the contrary, to sleeping in the midst of movement and noise, and they are not at all troubled by it. It is well to encourage this disposition, in order

to enable them to sleep under all circumstances and in all places. This system must not be carried too far, nor should noise be made on purpose near a sleeping child. My remarks are limited to the recommendation not to put one's self out in leaving and entering the chamber of the child, in opening and shutting the doors, and in speaking at one's ease in his presence. No fear need be entertained of troubling his rest in this way, provided he is habituated to it from the beginning, and the advantage will thus be easily secured of his being neither wakened nor frightened when an accidental circumstance occasions some movement or noise around him while he sleeps. But I do not go so far as to approve letting a child sleep in a room where much company is received; the excessive movement and noise being a slight evil in comparison with the heat and privation of air from which he has to suffer in such a case.

Of sleep during the daytime. — As to the duration of the sleep, there is no necessity for calculating and limiting it, except for sleep by day, the habit of which, in my opinion, many children continue much too long. Persons are easily per

suaded that there is nothing better for a child than to sleep a great deal; and the more they sleep the better satisfied these persons are. The child's sleep is, besides, for those who tend him, a moment of respite and liberty; nurses, therefore, like to prolong the habit of making them sleep an hour or two during the day.

Of the advantage of putting a stop to this habit at about the age of eighteen to twenty months. — This repose is necessary for young children up to a certain age; it must even be frequent and last some time, during the earliest periods of infancy; but it becomes less and less useful in proportion as the child grows, and a period arrives when it does more harm than good. This habit should, in my opinion, be resisted at about the age of eighteen to twenty months, when an entire stop should be put to it, and the child should be weaned from sleep in the day-time, in the same way as he is weaned from his nurse's milk. The reason for this prescription it is easy to understand.

It is ordinarily about the middle of the day that a child is made to sleep, from one o'clock tc three; that is to say, at the pleasantest moment

for a walk, and, in certain seasons, the only moment even when it would be possible to keep him out of doors and make him take the air. What possibility, in fact, is there of giving the child an airing, during autumn and winter, when the days are so short, and when darkness and of course humidity and cold set in from four to five o'clock? Getting the child up from his nap and dressing him, bring us to some time in the afternoon, when taking him out is not to be thought of; the more so, that it would be dangerous to expose him to a piercing and cold air just after he comes from his bed, with the moisture of sleep upon him, and when he is sensitive to all impressions, his pores being fully open. Now, it is so important to make a child take the fresh air every day, and to give him exercise in walking, that it is necessary to sacrifice everything to this one rule, even a part of his sleep when it is not absolutely necessary for him. The night, besides, will soon make amends for what rest he loses during the day; he will sleep better, with a sounder and more complete sleep, when he is, on the one hand, deprived of his habitual nap,

and, on the other, when he has breathed the fresh air and taken exercise out of doors.

It is to be remarked that the habit of sleeping during the day absolutely deprives children, for three or four months of the year, of the little sunlight they can have at certain periods; and it is thus that they get puny and delicate, lose their appetite, do not thrive, have bad nights, and become, by too confined a life, liable to a host of ailings which they would avoid by a more intelligent course of life.

It is, then, judicious to give up sleeping by day some months after weaning. At a younger age, sleep is not only a necessity for children, but it has not even the disadvantage which we are now alluding to; for young children sleep very well in the open air in their nurse's arms. Persons do not remark that that is taken for a real necessity which is only the result of habit, — the human economy having the faculty of so readily adapting itself to acts which are daily repeated, that those which are regularly imposed on it are not long in becoming real necessities, however directly opposite they may be to the general laws of the organization.

The objection is made, it is true, that certain children have more need of sleep than others, and that to such sleep in the daytime is indispensable. The fatigue they experience when by chance they are deprived of it, or when an attempt is made to break up the habit of sleeping in the daytime, is brought forward as proof. But, if a little more constancy and perseverance were employed in these cases, the equilibrium would soon be seen to be restored, and in a short time the child would no longer think of sleep. I have weaned children of fifteen months from sleeping by day, who seemed oppressed for several days with a necessity for sleep. They could hardly reach the end of the day and the customary hour for going to bed; and sleep so instantaneously overcame them that they could not even take food before it. But this painful state did not last beyond a week or a fortnight, after which new habits were contracted, and, in fact, they did not suffer from this weaning any more than from that of their nursing. They were not long in reaping the benefits of their new course of life; they acquired more vigor and were better developed, — so great an influ-

ence have air and sunlight upon the body at this age. However, any one can convince himself of the advantages to be derived from this manner of treating the child, by observing how much stronger and firmer in their limbs, how much more active and of better appetite children who do not have the habit of sleeping during the day generally are, than those of the same age, who are, without any necessity, permitted to pass the finest part of the day in their beds.

Necessity of putting children to bed early, and of not exciting them in the evening before they sleep. — This manner of bringing up children imposes the absolute necessity of putting them to bed early. No reason, however plausible it may in appearance be, neither the duties of society, nor family meetings and festivals, permit us to fail in this rule, when we are fully determined to consult only the well-being of the child. At seven o'clock, till the age of three or four years, and at eight o'clock, till the age of six or seven years, children ought to be put to bed; and we therefore condemn, in the strongest terms, the custom adopted in many families, of having too young children present at long dinners; and, with

still stronger reason, of taking them out to dine, even with their relations, and of keeping them in the parlor in the evening beyond their bedtime. Sleep is very necessary to children after the enormous expense of strength which they make each day, and nothing disturbs the quietness of their sleep during the night more than excitement before going to bed. Great care must be taken not to animate them by excessive play, nor by keeping them awake too long in the midst of noisy meetings. I have seen serious injury result to a child in consequence of a kind of frenzy that his mother caused in him each evening, before going to bed, by too animated sports.

Of walking and exercise in the open air. — It has been seen, by what precedes, what my opinion is as to the utility to children of walking and exercising in the open air. Too great importance cannot be attached to this point, and I shall constantly insist upon it. I do not fear to say that the persons the most convinced of the advantages of having their children in the open air as much as possible, — who use the greatest care, and introduce the most regularity into this

part of their hygiene, — do not go far enough, and that there are very few mothers who make their children go out as much as they should, in order to secure to them a vigorous organization and robust health.

It is not so easy as may be imagined to fulfil all the conditions I deem necessary to prescribe on this subject. It requires a conviction, force of will, and regularity in the manner of governing a household, that are not very common, and, in certain positions, personal sacrifices and rare devotion. Obstacles are encountered on the part of the domestics, in the demands of one's own occupations, in prejudices and the exaggerated fear of exposing children to inclement weather; and all these require to be met and overcome, in order to carry out this part of the child's physical education.

Sometimes, the nurse is not ready to start at the hour for the walk, under pretext of other work that she has been set to do; sometimes, the weather does not appear suitable, and cold, dampness, wind, or too great heat, is feared. Nurses never fail to plead the good of the child in order to put off or shorten the walk. It is to

going out in unfavorable weather that is to be attributed, according to them, the cold, or any other ailing the child may have on some preceding occasion contracted. What I say of nurses, properly so called, applies equally well to all kinds of domestics, and even to governesses, who are not always any more eager than the former to pass five or six hours out of doors with the children entrusted to them. Sometimes, in fine, a domestic cannot be spared to take children to walk during a great portion of the day; one is kept at home one's self by household affairs, social or family relations, or the tediousness of passing several hours every day in walking, or in a public garden; and a mother easily persuades herself that she has done all which can be done, all that is necessary for the well-being and health of the child, in making him take an airing during one or two hours; or she thinks she is attaining the same end by taking him with her about the city, shopping or making visits. Now, there is as great a difference between this and what we require, as there is between a life in the country and one in the city. It is not enough to give a child the outer

air in the streets of a great city, to make him pass from his nursery into a parlor or shop, or to have him take a ride in a carriage; he must be allowed to play in the open air * during the greater part of the day. And, in order to be understood in what I mean by the greater part of the day, I shall indicate in a few words, for each season, the number of hours that children ought to pass out of doors, as I have done, as far as I could, the number and nature of their meals. It must be understood that I have especially in view the great cities, Paris in particular; children brought up in small provincial cities, and, above all, in the country, having ordinarily at their disposal gardens or well-aired open spaces, where the time that they breathe the fresh air and enjoy the sun, is not measured out to them;

* Air-bath, to use the expression of Hoffland. This author appears to be no less a partisan than myself of a life in the open air and in all weather, as seen in his little treatise on the physical education of children, which I have consulted with advantage. "It ought, then, to be for us a sacred and inviolable duty not to let pass a single day without procuring for the child so important and life-giving an enjoyment." — *Vide Le Traité de G. Hafeland, à la suite de la Macrobiotique, ou l'art de prolonger la vie de l'homme, trad. par A. J. L. Jourdan, Paris*, 1839, pp 459.

and, yet, for these also my recommendations would not be wholly useless, for country children themselves are often kept shut up much more than is believed.

In the long days, and during summer, if the liberty we have in the country were enjoyed everywhere, it would be enough to say that little children should be out of doors pretty nearly the whole day, from the moment they get up till the time they go to bed; but there are, in great cities, impediments which must be taken into the account, and which oblige me to enter into some details.

Household duties, which occupy in most families almost all the morning, do not always allow children's going to walk before breakfast, — that is to say, before twelve o'clock. However, the rule ought to be, so far as possible, to make them take the air in the morning for an hour or two in the season of fine days. This first walk does much good, and gives great pleasure to children; it creates an appetite for their second breakfast, and renders them lively, and it would be particularly useful for those whose habit of sleeping in the middle of the day, during great heat, makes

them lose one or two hours of exercise. From noon, or one o'clock, till five or six, according to the habits of each house as to the meals, the child should be out of doors, without reëntering the house, unless bad weather absolutely forces him to abandon the walk. We shall see, further on, to what point it is advisable to carry our precautions in order to shelter him from inclement weather. After dinner or supper, from six to seven in the evening, up to the moment of putting the child to bed, he should again return to the walk, and only come in to go to bed about eight o'clock, and even a little later, if there is not too much humidity.

In spring or autumn it is not always possible to start on a walk in the morning, nor particularly to take a second walk in the evening; but children should not be out less than from four to five hours continuously, from noon, or one o'clock at the furthest, to five or six o'clock; and it is well to exercise the greatest vigilance in seeing that the nurse is active, and always ready at the moment, so as not to lose precious time.

Finally, during the winter, when the days are very short, and the sun remains only a few hours

above the horizon,—when fine days are rare and the season severe,—advantage must be taken of the few moments at one's disposal to take the child to walk and to give him exercise. Even at this season means may be found to keep him out three or four hours, from noon to four o'clock, if one is only convinced of the advantage of this method, is vigilant and firm with regard to the nurse, and has taken care to make this duty the first condition of her service.

I shall indicate what means are to be taken to protect little children from excessive cold, at an age when their system is not in a condition to reäct, and when they are unable to maintain their warmth through exercise.

As to mothers who cannot employ domestics, exclusively consecrated to the service of their children, it is for them to undertake a part of these important cares.

What shall I say to those who are neither able to give their time to their children, nor to hire domestics to serve them? We can only ask of them to follow as nearly as they can the precepts we lay down; their duty will be performed. Children must share, in this as in everything else,

the condition of their parents; and the case, in this respect, is the same as for their clothing, food, and lodging. It is not in the power of any of us to give to our children all the well-being we desire for them; the necessity which weighs upon us must weigh upon them also.

It is very necessary to think betimes of the means that are proper for the development of infancy, for strengthening it, and consolidating the constitution and health, and to neglect nothing of what may establish a good temperament. There is but one time for this; and the obligations of life, the duties of the intellectual and moral education, will soon impose the necessity, particularly with regard to boys, of a mode of life far removed from the most favorable hygienic conditions. From the age of seven to eight years, is it not absolutely necessary to occupy children with serious studies, to keep them shut up for entire hours, and soon for the greater part of the day, in schools and colleges, where they will pass the rest of their youth, devoted to the sedentary pursuits that the culture of their intellect, and the knowledge they must acquire, demand, but

which are not the most suitable for the development of physical strength and constitutional energy? No one can think of opposing this mode of life, which is one of the conditions of our social position, and which has been a law of humanity since labor was imposed on man; but it must not, however, be forgotten, how much, by this manner of life, the physical is sacrificed to the moral, and to the necessity of preparing for the active duties of life. Now, since physical strength no longer plays the principal part in this world,—that it is no longer directly useful to man, but seems to be subordinated to intelligence,—everything in education tends more and more to develop the faculties of the mind at the expense of the body. It is time to reflect on this tendency, which is carrying us away more and more every day, which is urging the present generation to excesses which the organs are not always in a condition to endure, as the numerous examples of nervous maladies and mental affections, so common in society at the present time, but too well testify. That the mind enfeebles the body is, perhaps, an evil that may be borne; but it is not necessary to absolutely kill it.

Precautions to be taken about walking, according to age. — Let us see now what suits the different ages of early infancy, to which we limit our observations in this work, and try to determine how the employment of the hygienic means we recommend must be proportioned to the strength and endurance of the child.

Children are kept much too secluded soon after their birth. In the finest weather, it is as much as any one ventures to do to take them into the open air at the end of a fortnight, or even a month. This fear is really exaggerated. The child is pleased at once in feeling himself out of doors in mild weather. There is no cause at all to fear the action of the air and sunlight on him, and too great haste cannot be made to expose him to their influence, which is entirely beneficial to his development and health. Instead of letting him sleep shut up in a chamber, and in his cradle, or only giving him the air from the window of his apartment, it is proper, from the age of a week to a fortnight at the furthest, to take him out of doors during the pleasantest part of the day; and, when he has become accustomed to the influence of the air, he ought to pass sev-

eral hours out of doors, either in the arms of a nurse or in a garden, when a favorable place can be had to spread a coverlet or a mattress. He must be protected from the direct and prolonged action of the sun's rays, but not deprived of it entirely. It is the best means of giving tone to his skin; and it is better that he be a little browned than that he should remain pale and wan, like many children that are too minutely cared for.

Bracing and even somewhat cold air is not a condition to be dreaded for a very young child, provided he is well wrapped up, and is not left too long without some movement. It is wrong to keep him in the house under such circumstances; and, as soon as the practice of taking him out is begun, it is well not to let a single day pass without making him take an airing. It is rare that the worst weather does not offer some favorable moments, of which immediate advantage must be quickly taken. This habit once well established, it will soon be observed how much need the child has of it. He will be less lively and less active when he has not taken his usual walk. Children brought up in a hot-house, as it were,

do not manifest, it is true, great want of air; but this disposition is not a natural one. It is the result of a factitious education, which may extend so far as to inspire in them a real repugnance to going out.

Of the action of cold upon new-born children. — The action of intense cold may be very injurious to new-born children. When they are born in winter, it is, therefore, reasonable to wait a longer or shorter time, according to circumstances, and according to the severity of the season, before taking them out, — three weeks or a month, for example; — and, so long as their system is not in a condition to reäct of itself, or by the movement they make, it is wise not to expose them too long to the air, when it freezes, even if they are well clad. Very young children easily get chilled, and clothing is not enough to protect them. They may, indeed, be made to take the air, even in cold and freezing weather; but the walk must be short, — of an hour or two at the furthest, — and careful observation of the child's appearance and condition is necessary; for children are easily penetrated by the cold, without hardly perceiving it, and with-

out any manifestation of their sensations. It is not till a certain age — about eighteen months or two years, and even later — that they complain of it, and cry when they suffer from the action of too intense cold. I repeat it, then, that, independently of the clothing in which new-born children need to be wrapped up to retain their warmth, a too extreme chilling of their limbs and body ought to be avoided, and the best precaution is, not to expose them for too long a time at once to severe cold.

The same precaution must continue, diminishing progressively, till an age which cannot be otherwise fixed than by indicating the epoch at which they are in a condition to stir about of themselves, and take exercise by running and playing. They may, then, without fear, be left in the cold for a longer time; and there is even no harm in accustoming them to bear it, in not yielding to the first uneasiness they experience, and in constraining them, by gentle means, to stay out for some time, in order to inure them by degrees to severe weather. They will soon have no repugnance to going out when it freezes. The walk will become a necessity for them in all

weathers—an enjoyment which they will earnestly solicit; and this treatment will benefit, in every way, their constitution and their temperament.

A certain number of children, though in good health, are more impressionable, more delicate, than they should be. This disposition must be resisted, and it may be done successfully with a little firmness, and by not allowing one's self to be affected by weakness and exaggerated fears. It is not to be forgotten that the best manner of preserving children from a host of little ailings, —of fortifying them against the influence of atmospheric changes, from which they cannot always be protected,—is to diminish their susceptibility; and nothing is better suited to strengthen them, than to make them live as much as possible and in all weathers in the open air.*

Of the indispositions which prove an obstacle to

* Let it not be said, in reference to the preceding advice of the author, that our climate, in winter, is too cold for such exposure of very young infants as he recommends. If care is only taken to follow his advice, as to watching the appearance of the child at every moment, and of bringing him in if there is any reason to suppose he feels the cold too sensibly, there is not only no danger, but great advantage, in ordinary cases, in taking infants of a few weeks' age into the open air.

children's going out. — Most parents would be strongly in favor of this course in theory, and would willingly adopt it in practice; but a circumstance which thwarts their views, and prevents their executing them, is the indispositions which so frequently occur, and which infancy cannot ever escape. Thus, the sufferings from teething, derangement of the digestive organs, colds, &c., are obstacles which derange all plans of education, and prevent any regular and constant practice of the kind of life which we recommend.

But here, again, care must be taken not to fall into a system of excessive precautions, nor apply a remedy worse than the disease, — a thing which is often done when children are kept from going out if they cough ever so little. There is no doubt that they are injured more by being kept in for so slight a thing, than their cold would be aggravated by taking them to walk; and I am even quite convinced that privation of air is far from being a good means to employ for simple cold. Colds are often rendered much more lasting, through such precautions, than they would have been by continuing to live as

usual, provided care is taken to clothe the child well and make him take exercise. Which one of us has not happened to catch cold at his fireside, quite as well as by the action of cold out of doors?

It is, however, necessary to make a distinction relating to the nature of the cold, and the kind of constitution the child has.

Of precautions to be taken against colds. — An ordinary cold is a simple inconvenience, which hardly deserves attention in a child of good constitution, for whom there is no reason to apprehend an unfavorable predisposition to disease of the lungs. We shall not undertake to mark out here, any more than we did for other ailings, a line of distinct separation between simple indisposition and the more serious disturbance of a function so important as that of the organs of respiration. It may be said, however, that, in a well-constituted child, born of parents with healthy lungs, a cold, even if pretty severe, yet one which does not give rise to fever, nor to any particular prostration of strength,—which neither takes from the child his liveliness nor his flow of spirits, and which does not deprive him of appe-

tite,—is an ordinary cold, not requiring great precautions. One may cough a great deal in infancy, as in adult age, without any injury to the lungs or the general health, provided there is no fever or loss of flesh. Fever is what gives a serious character to colds, and is the symptom which makes of this affection something more grave than a slight inconvenience. Except in the case in which there is suddenly produced a particular modification in the tone of the voice, a cold, with a child secure from all hereditary predisposition, and manifesting no great delicacy of the lungs, requires real precautions and some kind of treatment only when it is accompanied by fever.

The treatment should be limited to the use of some emollient diet-drink,—a little lohoch (liquid confection) for the night,—and in the application of a little warmer clothing. I have taken cold for an example; but I will say the same for the other ailings which may affect children to the degree I have just spoken of. Habitual derangement of the bowels requires, nevertheless, particular care against the action of cold, and especially damp cold.

The course of exercise which I prescribe requires, as will be seen, that children should take one of their meals out of doors. I have stated elsewhere what kind of nourishment can most easily be carried out for them to eat out of doors.

When children begin to walk and run alone, and when their movements are no longer confined to taking a few steps with the aid of their nurse, or to creeping on the ground,—when they can have motion by engaging in more active sports,—then, there is no longer any limit, as I have said, to the time they may stay out of doors, except that which is imposed by the condition of the weather, the necessities of household work, and the hours devoted to their meals, toilet, &c. Cold, snow, moisture, fog, wind, heat, sun, none of these atmospheric circumstances, if they are not excessive, should interfere with the daily walk of children, when they are well and early accustomed to this treatment. At the furthest, they may be obliged by these circumstances to shorten the time of their stay in the air; but they should, without fail, be exposed to it every day, as long as possible; for

a single day passed in the house, in an apartment, is almost time lost for their well-being and health; and it is very important never to interrupt, unless it is absolutely necessary, the habit of whatever treatment they are made to follow.

Presuming that, in the walk the child takes, he will find shade in summer, and a covered place to take refuge in in case of bad weather, I see no season nor any state of the sky which should absolutely prevent his going out. This will, without doubt, happen sometimes, but very rarely, and the days in the year are very few which do not offer some favorable hours of which advantage may be taken; while, for persons who have a carriage at their command, children can, under all circumstances, be taken out during at least half an hour.

Such is the life which children must lead in respect to the subject we are now considering. I have had to insist strongly upon it, at the risk of repeating myself, so important is it in my opinion. It is one of the essential conditions of the physical education of children, without which all others would be insufficient or useless; and if the course which I have pursued, with regard

to my own children, could give more weight to my words, and inspire more confidence in my precepts, I should say that there is not a single one of these recommendations which I have not strictly followed for them, and that I have had occasion for nothing but congratulation at this way of proceeding. They literally pass their life out of doors and in the open air, in pretty nearly all weathers, whatever ailings they may have; and this mode of life has become for them so great a necessity, and such an enjoyment, that it is difficult to keep them in, whatever be the state of the sky and the severity of the season. But they did not contract this habit without resistance, and it was necessary to oblige them sometimes to abandon their play, or to quit a well-warmed apartment, to go out in severe weather and take their daily walk. One of them, who was very sensitive to the cold, had some difficulty in getting used to this treatment, and it was necessary to proceed gradually, and to bring him little by little to bear a winter's walk. But the habit was soon acquired, and only a month's perseverance and attention were necessary to render him insensible to the action of pretty

severe cold. So easily is childhood, in this as in everything else, moulded by one who can persist with prudence, but without allowing himself to be dissuaded from his purpose by the first obstacle.

Of companions for the child. — It is well to seek companions, of their own age, for children, — to make them play together, and accustom them early to live in the society which suits them.

Disadvantages of solitude. — This precaution is particularly useful for children that are timid and inclined to keep alone and aloof. Such dispositions are not very unusual, and they are to be resisted for the good of the character and health. Some need the company of others to form their character; others suffer from the inaction in which their timidity keeps them. The solitude in which certain children in high life live, who are not allowed to associate with those they meet in the public walks, and who have not any comrades around them with whom they can frolic and abandon themselves to their feelings, is a lamentable circumstance. The constraint in which they are kept gives to their solitary sports a monotony and sadness which fatigue and weary them. They become shy and formal, and their

body soon feels the effects of the limited activity allowed to their tastes and natural instincts. Never having to contend with the wills and caprices of children of the same age, to exercise their faculties and their address in presence of companions sometimes inferior and sometimes superior to themselves, — sharing neither their sports, their vexations, nor their pleasures, — finding around them no physical or moral resistance proportioned to their strength and age, — they become imperious and pusillanimous, effeminate in body and mind, and they learn nothing of the life which is suited to children. Parents themselves get accustomed to fear, for children whom they always keep near them under continual oversight and protection, the least contact with other children. Turbulence and abruptness of movement appear to them real danger, and they feel that their children are not a match for others brought up with greater freedom. They dread all sports and exercise that is somewhat animated, — the contests and races so well fitted to develop agility, — and they fear illness as soon as they see the perspiration running down their children's faces, — forgetting that they do not play and amuse

themselves in earnest except with each other, and that there is always less danger in leaving young children to themselves, with others of the same age and proportionate strength, than in putting them in charge of older persons, who do not appreciate the extent of their powers of resistance in the exercises to which they subject them.

I repeat it, children must live as much as possible with children. They mutually form and develop each other, and only among children is their true society to be found. Children brought up alone are melancholy, while gayety is necessary to good health, and solitude is injurious to the constitution as well as to the character. Sometimes they remain dull and unintelligent when they converse with older persons only; at other times, their faculties acquire a premature development, which impedes that of their body, and destroys the equilibrium and harmony which ought to exist between their different organs; the intellectual and sensitive faculties getting the ascendency, their bodies are debilitated, and they become too subject to impressions of all kinds. It is thus that those irritable temper-

aments are formed, which are accessible to a host of nervous affections so common in society.

Of the clothing. — Children are now dressed in a suitable manner, and nothing in the form of their garments is contrary to hygienic principles. The fashion adopted by some might be criticized as to taste, but the health is not compromised, children being neither dressed too tight, too much covered, nor too much exposed to the action of cold, heat, &c. The customs at present in use may then be followed pretty nearly. What is best to be done is, not to depart too far from it, through a spirit of system, or through imitation of foreign usages less appropriate than our own to the climate in which we live.*

Some attention is to be paid to the transitions of temperature to which children are subjected, in

* It has been stated in an American medical work, of considerable note, on the authority of a distinguished physician, that the very common practice of leaving the arms and legs of infants bare, is the cause of much of the mortality which attends this period of life. It is certain that the appearance of the child should never be a question in adopting one or another form of dress in accordance with the season; and it should never be forgotten that children do not bear cold with the same impunity as older persons.

changing the dress for the different seasons or the differing circumstances of the day. Taking off warm clothing, to put on thinner garments, should be avoided if the weather is cold; and in particular it will be well not to keep them much covered in-doors; they should go bareheaded in the house, and wear caps and hats only in the outer air.

Of the use of flannel and its disadvantages. — My observations would stop here, if I did not think it useful to attack the immoderate use of flannel for children, which prevails at the present day. No hesitation has been felt, of late, to make them wear flannel next the skin, upon the slightest pretext; and the least disposition to colds, or any other indisposition, appears a sufficient motive for taking this precaution. Indeed, flannel is so much in favor that recourse is even had to it to keep off future disease, without any actual necessity for it. It makes, so to speak, a part of the hygienic treatment and care of children at every age.

There is more than one inconvenience in this custom, adopted without discernment. In the first place, it renders children too susceptible, by

guarding them with too much care against atmospheric changes. Besides, this fabric, so favorable under certain circumstances, of which we shall speak hereafter, keeps the skin of children in a constantly moist state, which becomes for them, especially when they are feeble, a cause of exhaustion; they cannot engage in any lively movements without being covered with perspiration; exercise and games fatigue them, and they remain feeble and indolent. To protect them from slight ailings, which are not avoided after all by this means, a precaution is taken from which they have to suffer every day, — one which enervates them, either by the loss which an incessant perspiration causes, or by the emanations concentrated around them in woollen shirts, which become impregnated with these emanations, and which are not always changed as often as they should be.

We should, then, be more sparing of flannel, and never employ it unless absolutely necessary. It will be better to reserve it for cases of illness, or for determined predispositions, such as we shall speak of when treating of the regimen and mode of life which children, whose health is

really threatened or affected, ought to follow. I shall then show myself more scrupulous and rigorous than most persons,—not being at all in favor of half-measures and incomplete methods, which only spare the life of delicate or puny children, without modifying their constitution or giving them the strength they might acquire in conditions more entirely appropriate to their needs.

I shall add but one word to finish what I have said about flannel; it is, that it is neither as difficult nor as dangerous as is imagined to leave it off, after the habit is established, and when it has been worn for a longer or shorter time. Profiting by a period of warm weather will be enough to secure one from all danger. This simple precaution is a preservative from the consequences which may be feared, either in children or grown people, to the latter of whom the abuse of this fabric has equally extended.

Of washing and attention to cleanliness, and of baths. — Children cannot be kept in a state of too great cleanliness, and too great care cannot be taken in this part of their hygiene. All authors are unanimous on this point, and some even have

gone further in their recommendations than we believe to be necessary.

The precaution of frequently washing the body of children, is not prescribed for the purposes of cleanliness alone; it is a means of strengthening them, of giving tone to their skin, of disposing this organ to properly fulfil its important functions, and of fortifying it against the action of external agents.

But is it proper to wash children in cold water every morning, from head to foot, from their earliest infancy? This method, recommended by respectable authorities,* may present great advantages when applied with discernment; but it requires particular attention and an intelligence rarely to be met with. Thus, washing in cold water must be executed very quickly, so as not to leave the wet body of the child exposed to contact with the air. If the washing is performed slowly, and the child is not immediately wrapped up in very dry towels, in order to avoid the evaporation of the water from the surface of the body, considerable diminution of temperature is

* Hufeland. *Physische Erzickund der Kinder.*

produced by the very effect of evaporation, and this may prove extremely injurious. Besides, the child should have been up some moments, in order that the moisture of the bed shall have had time to pass off before his toilet is made in this manner. I shall not, then, venture to give a general prescription for a method which is capable, when badly executed, of occasioning more or less serious evils.

For strong and well-constituted children, washing in cold water might indeed produce no great injury; but would it be prudent to subject weak and delicate children to this treatment?

Certainly not; we wish at this day to rear our children even when they are weak, and we succeed in doing so, and it is one of the triumphs of modern hygiene. To obtain this result it is often necessary to take the most minute care of newborn children, to guard them from every violent shock; and many a child, that a cold bath might have killed at the beginning of his life, arrives at development, getting stronger by degrees, and at last triumphing over the unfavorable conditions which existed at his birth.

How is it possible to draw the line between

children that are capable of supporting with advantage the action of cold water, and those to whom it would be dangerous to apply it? The physician might do it for each child in particular, but any general distinction cannot be laid down.

Washing in cold water does not, besides, offer such advantages that the use of washing in tepid water, or tepid baths, cannot be properly substituted for it, as I shall at once show.

Of washing in tepid water, and of tepid baths. — For the ordinary washing of children, that is to say, of the parts constantly exposed to the air, such as the face and hands, I am of opinion that it had better be done, during very cold weather, with cold water, or at the least with water slightly heated. This habit may be begun very early, not, however, in the very beginning. It is indispensable to use tepid water for little children at their birth, and for several weeks after; and, by degrees, one may afterwards come to using cold water of the temperature of the apartment

Baths are an important point; but I do not attribute to them, as the celebrated German physician whom I have already quoted, the virtue of preserving the child from all sickness, of giving

health to the soul at the same time as the body, and of changing weak constitutions into strong and robust ones; and, if I had to choose between the frequent use of baths, such as Hufeland recommends, and exercise in the open air, I should even give a decided preference to the latter part of the treatment of children. The influence of the air and sun is much greater than that of baths, administered in any way whatsoever. I shall not say, then, with the German author, that baths are the foundation of health; but rather that life in the open air and proper food, are so. However, one of these means does not exclude the other; and baths, given with moderation, necessarily make a part of a well-ordered treatment.

Of daily baths. — It is the custom at present, in many houses, of bathing children every day. It is almost a fashion, introduced from England, and I do not object to it in all cases. It is, however, beyond a doubt that this habit does not agree with certain natures. Some children are fatigued and enervated by the use of these daily baths; and they would be much better if they only took them once a week.

Of the temperature of children's baths, and their duration. — Two conditions are necessary to render daily baths salutary to the children who support them best. First, these baths must be very short, lasting scarcely a few minutes, and be rather a washing all over than a real bath. Second, the water should be only lukewarm, fresh rather than warm to the touch; in a word, at a temperature of from seventy-five to eighty-five degrees,* Fahrenheit. This temperature is, besides, in harmony with the liking of most children, who prefer baths a little fresh to warm ones, and the others easily get accustomed to them.

Of weekly baths. — Of the advantage of giving baths in the evening under certain circumstances. — When infants take only about one bath a week, there is no harm in leaving them in it a little longer, — a quarter of an hour or twenty

* Care must be taken, when the temperature of a bath is measured with a spirit-thermometer, such as is commonly used, to leave the instrument plunged in the water for several minutes. For want of this precaution, it very often happens that the baths are three or four degrees warmer than is supposed, the thermometer not having had time to rise to the degree of heat the water really has.

minutes, — but always in water at the temperature which we have indicated; and, if they are a little fatigued by it, this inconvenience will be entirely avoided by bathing them in the afternoon, before dinner, instead of bathing them, as is most frequently done, in the morning. This precaution is extremely useful for many children, and it must not be forgotten in bad weather, in order not to expose them to the action of the cold air, fog and humidity, in coming out of the bath.

Evening-baths are equally excellent for calming children when they are agitated, and for the purpose of procuring for them a good sleep.

To sum up, daily baths, according to the prescribed conditions, are good, but not indispensable. The habit must not be abused, for fear of rendering it ineffectual and of depriving one's self of a precious resource in case of sickness. This is one of the reasons for which baths ought to be very short.

But, on the other hand, I am decidedly in favor of baths once a week or fortnight. In the first place, as a means of cleanliness; and, next to this, to accustom children to them, so that they shall not be alarmed by them when it becomes neces-

sary to administer them in sickness, — an evil which I have sometimes seen to occur.

Of river-baths during the summer. — I advise giving river-baths in summer to children of four to five years of age, whose health does not require particular caution, taking care to choose the finest and warmest days. It is very important that they do not remain in the water more than ten minutes or a quarter of an hour, and that they be not left in it without movement. In putting them in, it is also much better to plunge them in suddenly, and all over, than to make them enter by degrees.

Of the care of the head and teeth. — It is hardly necessary to say that the head of the child ought to be kept perfectly clean. But the care of the teeth, which is much more difficult, it is true, is not so well understood; and it is rare that attention is paid to it before an age when many an irreparable evil is already produced.

I do not speak of the pains of dentition, nor of the ailings it occasions. These troubles are in the province of medicine, properly so called, or they require the employment of a suitable regimen, as we shall see in the following chapter.

But the condition of the teeth themselves cannot be looked after too soon, and it is never too early to have them examined by a skilful dentist. The teeth of the youngest children are attacked with caries, ordinarily in consequence of bad or insufficient nutrition, and sometimes without any known cause.

Now, the preservation of the first or milk teeth the longest time possible, and in the best condition, is not a matter of indifference. These teeth, although provisional, are not without influence upon those which will come to take their place;—in this way, that the definitive order and arrangement of the teeth depends, to a certain extent, on the manner in which they find their places occupied and arranged. If the first teeth have fallen out too soon, those which succeed are less regular, their places not having been preserved by the provisional teeth. The child's mouth ought, then, to be examined from time to time as soon as his first teething is over, without waiting for him to suffer and give signs of pain. The teeth are sometimes, in fact, found to be much decayed when the child begins to complain of them, so rapidly does caries progress;

and it is not impossible to successfully fill the teeth of docile children of from four to five years of age, when the decay has not extended too far, and in this way to preserve them much longer than would be the case without this precaution. These regular visits of the dentist have, besides, the advantage of accustoming children to allow their teeth to be examined without fear. They submit at this age to this process, which becomes so difficult when they are older, and when it has to be performed for the first time at a period when painful operations are necessary.

In all cases, it is indispensable to clean the teeth of children every morning with a brush, and to avoid as much as possible allowing bits of food to remain between them; the contact of these tainted substances being one of the causes of caries.

Pure water is perfectly suitable for the mouth of children when their teeth are sound; but if they are in a bad condition, it is well to employ, with the brush, powdered charcoal, slightly alkaline.

CHAPTER VI.

OF THE INTELLECTUAL DEVELOPMENT AND MORAL EDUCATION OF CHILDREN IN THEIR CONNECTION WITH PHYSICAL EDUCATION.

THIS subject would furnish matter for a large volume, were we to undertake to treat it fully. Such is not my purpose. I shall touch only on such points of this important question as are proper to serve as examples in showing how the physical condition is connected, to a certain extent, with the moral and with intellectual activity; how these two conditions reäct upon each other, and how they may mutually benefit or injure each other. I shall dwell particularly on those points which have a direct relation to hygiene and health, and on which sufficient stress has not been laid in the works which treat of the moral education, and which are also too much neglected in the present manner of bringing up children. I shall show, in a word, how the health

may depend on a good moral education, just as the latter is influenced by the state of the constitution.

It is by authority that young children must be guided. — What system of education must be adopted for the earliest infancy? Is it by reasoning that we must guide them, appealing to their judgment from the first wakening of intelligence; or, rather, is it not better to direct them by the altogether simple idea of authority, which little children recognize so naturally in their parents, and which they do not think of contesting? I do not hesitate to say that, till the age of six or seven years, there is every advantage, as regards physical education as well as moral, in preserving undisputed authority over children, and in appealing to no motive but the sentiment of obedience, freed from all which other more complicated notions of duty will add to this at a later period.

Necessity of preserving authority over them, and of accustoming them to obedience, for the good of their health. — For want of ability to preserve this authority, the health of children, and in some instances their life even, may be endangered.

How shall an infant be made to submit to medical prescriptions which displease him, but on which his cure depends, if he is not accustomed to obey at an age when he is insensible to every other consideration based on his own interest, the danger he is in, and the anxiety of his parents? I have seen a child come near perishing, or at least become seriously ill, for want of the power to get him — by any means whatever, prayers, threats, or other expedients — to take, even in an agreeable form, the only medicine capable of putting an end to serious indisposition. This child had, for a long time, been accustomed to acknowledge no authority in his parents, and the idea, even, no longer existed with him. Such resistance would certainly never be manifested by a child carefully brought up in the sentiment of paternal authority and the habit of obedience.

But other much more pressing occasions present themselves in the life of children of tender years, in which all reflection is impossible or useless, — in which the action of authority alone is prompt enough to arrest a child in presence of immediate danger. What could be done, for

example, if he happened to get hold of a deadly weapon, to lean too far out of a window, or over a river, if we were not able to hold him back at once? Such dangers, or others analogous to them, which are not very unusual, can only be prevented by the ascendency of a will to which the child submits as soon as expressed, when he has once contracted the habit of obedience.

By this it may be sufficiently seen how much the exercise of an authority, at the same time gentle and firm, regular and never capricious, is necessary even to that part of the education of children which we are specially treating. It has no less advantage in regard to the moral and intellectual development, which reäcts in its turn so strongly upon the constitution and the health.

Disadvantages of discussion with children. — The exercise of authority enables one to dispense with all puerile discussion, in which we are never engaged with a being capable of reasoning. These discussions, into which it is wrong to enter with children who are incapable of understanding, have no other result than to excite their resistance, increase their self-love, and

embitter their character; and it is leading them by a painful, long and circuitous path, full of contradictions and cavilling, on their part, and fertile in opposition and ill-temper, to the end they would naturally arrive at of themselves, without effort and by their own inclination, if they were led to it by a straight-forward course.

Reason is not within the comprehension of children till the age of six or seven years. — Reason is too elevated to enter into the minds of children. Its exercise has been confined to the parents, and they are not obliged to give a reason for their wishes till their children are in a condition to understand it. A lady of much intelligence and character has brought up — and very well brought up — her children with these two expressions alone: "You must," and "You can't." These two expressions embody, in fact, the two principles of the education of early infancy; and we should seek in vain to find a rule more simple and more reasonable, more in harmony with the disposition and faculties of children at the period of life we are considering. It is, at the same time, the best manner of bringing them up well, and of rendering them happy. I

insist upon this word, happy; for one of our first duties is, not to trouble in anything the perfect happiness children enjoy when they are well directed. The inevitable pains of early infancy once over, they ought hardly to know what sorrow and tears are till the age when the serious acts of their life begin. We may be certain that a child who cries a great deal is not well educated, and the best manner of sparing his tears is certainly to lead him by the way, at once so simple and smooth, of authority. Is it not pitiable to see all the artifices that are deemed necessary to persuade children to leave their sports and society when bedtime comes? How much difficulty and vexation would be spared, — how many disagreeable and painful scenes, little deceits, and weaknesses, — by simply accustoming them to obey, instead of seeking to persuade them and often to deceive them! Children subjected to authority, restrained by a will that is gentle, but constant and regular, and not destroying in the morning the work of the evening before, are generally of a docile character; but nothing is more likely to trouble their ideas, to lead their judgment astray, and to take from them

all confidence in the authority which they ask nothing better than to yield to, than a sort of caprice and disorder in the manner in which it is imposed upon them.

It is, again, by authority that a good direction is given to the development of the intelligence, and to the first studies the child is required to make. It obliges him to make earnest use of attention.

Danger of a premature development of the intellectual faculties. Inutility of teaching children to read too soon. — Here, however, is the place to recommend the greatest caution with regard to the premature development of the intellectual faculties. Too great eagerness in this respect may create disturbances in the child's physical condition, his brain being already over-excited by the great number of involuntary acquisitions which he makes, and must make.

I am, also, very decidedly opposed to the present very common custom of teaching children to read at three years of age. There is no advantage in beginning this part of their instruction so early. It is only running the risk of disturbing, for the benefit of a partial development

of the intelligence, without any advantage to positive instruction, the equilibrium of the economy and the constitution. Let us take full advantage of the very small number of years that we are allowed to consecrate to the care of the physical organization of children, nor lose a moment of this precious time. Let us employ it undivided in strengthening organic action, and in establishing good health, without which there will be no real enjoyment hereafter, nor any complete possession of the intellectual faculties. Let us not try to make one of those imperfect beings, in whom the mind is not freely served by its organs, but suffers itself from the want of harmony between the different systems of the economy, just as the latter are themselves readily fatigued by the efforts of intellectual labor and the exercise of the thinking faculties. What difference does the loss of one or two years make in the small amount of instruction acquired at the age of four or five years? Children that are in good health, and well trained, will readily make up for this time, so usefully employed for their health in another way.

Of the custom of teaching them several lan-

guages at once. — Neither is it, perhaps, without its disadvantage, at least for children of a weak and nervous constitution, to speak to them several languages at once, and to teach them by providing them with foreign nurses and governesses, English, Italian, or German, at the same time as French. This method appears advantageous and convenient for securing to the child, without study, the knowledge of languages difficult to be acquired later in life; but it requires a mental labor on their part which all children are not in a condition to bear. It may be remarked, even, that children brought up in this way are often serious and preöccupied when addressed, — that they are silent, and begin to talk much later than others.

Of the amusements and pleasures which may be given to children. — As to the pleasures and distractions which are procured for children, there is no need to vary them much. Children are pleased with the same objects with which they amuse themselves every day, and with the places that they are often in, and where they pass their life. Far-fetched pleasures tire them, irritate and pall upon them; while, on the contrary, the calm

of a uniform life suits both their temperaments and tastes. There is no risk of wearying them by reason of the small number of objects made to pass before their eyes, and the little variety introduced into their habits; their imagination makes up for all, and they know no such thing as monotony, — such a source of new impressions for them is the slightest circumstance. Their health, besides, requires that their minds be not occupied with too many ideas at once; that their imagination be not excited, nor their sensibility disturbed by too many lively and multiplied sensations. A child that was travelling in Italy with its family, whom the mother took with her everywhere, and before whose eyes a host of new and varied objects were made to pass every day, contracted thereby a nervous disorder, which could only be allayed by a tranquil and uniform life in the open air, and without change of place. Let us, then, leave children to their proper nature; let us not constrain them, but take good care not to make them old before their time, by attributing to them the tastes and the requirements of a more advanced age.

What shall I say of parties, entertainments,

and fancy balls, to which young children are taken without hesitation, in order to derive amusement from their disguises, much rather than to amuse the children themselves? It is enough to have been present at one of these parties to be convinced of the injury it does them morally and physically. Why have recourse to such pleasures, which do not really suit their age, which enervate them by disordering their young brains, and which, in all cases, never call forth in them as hearty and spontaneous gayety, as a show of a magic lantern, or a collation in the middle of the day? These are pleasures which are really made for children, that may be given to them from time to time without danger, and which we enjoy ourselves from the joy the children receive from them and communicate to us.

How must we act with children when they are afraid?—I have just recommended, incidentally, treating the imagination of children with care, and not exciting it by too vivid impressions; but this point merits my insisting upon it in a particular manner. It demands great attention on the mother's part. A violent shock may have

serious consequences in the after-life of a child whose character is feeble and mind very easily shaken. We should not at such times set abruptly to work to reässure him and accustom him to the circumstances and objects which move him, or create in him a vague terror. One seldom feels inclined to treat with precaution the ill-grounded fears of children. It is, however, fears of this kind which are most closely allied to the secrets of the human organization, and which are the most difficult to eradicate; and, if we do not treat them with gentleness and tact, we run the risk of seeing them continue a long time under the most varied forms. Too great precautions cannot be taken to familiarize children, little by little, with the objects and ideas which move and frighten them. Herein, the conduct demands tact and skill. That which is essential is, not to make too much of them, but to lead the child's mind into an ordinary channel, by a simple and unaffected conversation. With still stronger reason should we avoid frightening a child on purpose. It is a detestable system to try to cure him of fear by force, by obliging him, for exam-

ple, to remain alone and in the dark, notwithstanding the terror he may experience from it. It is a disposition which we must certainly attempt to conquer, but without having recourse to any violent means. Prudence requires us to await patiently from advance in years what cannot be obtained by reasoning, and still less by force. Authority in this case would be powerless,—the sentiment of fear being only aggravated and strengthened by fear itself. The best way is, not to expose children to fear, while showing no signs of trying to save them from it; for they must not be allowed to see that we pay any attention to their little terrors.

With still greater reason must we carefully abstain from all demonstration of fear on our own part in the presence of children. This precaution is indispensable, but it demands a certain firmness and command over one's self, particularly on the part of women who feel vividly sudden emotions, who break out into cries at the least surprise, or who are frightened at storms, the noise of thunder, &c. I cannot too strongly recommend to them to constrain themselves before children, who are themselves disposed, for

the most part, to be moved by all phenomena at all extraordinary, and who are only calmed by seeing the persons who are around them remaining calm and indifferent.

CHAPTER VII.

OF THE CARES DEMANDED BY THE MOST COMMON ACCIDENTS TO WHICH CHILDREN ARE EXPOSED.

As mothers are often in doubt as to the treatment to be pursued for the slight accidents to which children are often exposed,—such as falls, blows, slight wounds, burns, &c.,—I have thought it useful to trace here some rules, which comprise, be it understood, only the most common and simple circumstances. Though an accident be very slight, and create but little anxiety, the most prudent course always is to send for a physician; but, while awaiting his arrival, there are some useful precautions to be taken; and, if the accident be slight, it may also require some care. I shall indicate what is proper to be done in either case, according to the nature of the accident.

Slight accidents which do not require the aid of

a physician. — Let us examine, first, the slightest cases, which do not cause any serious anxiety, and for which a physician's care is not ordinarily demanded.

The greater part of the falls which children get, in walking or in running on the carpet or on the ground, do not occasion any accidents deserving of notice; they only give rise to contusions more or less severe, the result of which is sometimes a swelling, sometimes a black and blue spot, and sometimes a slight bruise. The only thing to be avoided, in such cases, is frightening the child by the expression of one's own terror, pitying him beyond measure, and disposing him to cowardliness by the excess of cares with which he is surrounded.

The best way is to pay but little attention to him when the hurt is but temporary and trifling; and, as soon as we have calmly assured ourselves that nothing serious has happened to him, — that the accident has only caused a swelling or rubbed the skin off, to set him on his feet again, wipe away his tears, and make him begin to play again. It is well to teach a child to bear pain; and, what is more, accidents should serve as a

lesson to him to make him cautious and skilful.

Is it necessary to add that it is absurd to seek to calm a child by beating the furniture and inanimate objects against which he has hurt himself? This is only giving him gratuitously an idea of foolish and unjust vengeance.

Of slight wounds, cuts, &c. — Children will, in spite of every precaution, sometimes get hold of knives and other cutting or piercing instruments, and give themselves slight wounds, which, like blows and falls, only occasion a slight contusion or scratch. We must not allow ourselves to be frightened at them, nor manifest any strong emotion in seeing a little blood flow.

If more calmness were manifested in like circumstances, — if even such almost inevitable accidents were profited by, to familiarize children with the sight of blood, — the risk would be avoided of seeing them when older, or even when grown up, faint at the sight of blood-letting, and become incapable of rendering the slightest service in case of dressing a wound, when they might but for this be useful.

Dressing of slight wounds. — There is nothing

to be done, in case of wounds of this kind, but to wash the spot with a little cold water, or dress the cut with court-plaster, taking care to bring the two edges of the wound as near as possible to each other.

Means of calming the feelings of children and their fits of anger. — If the child happen to have a pretty severe nervous attack, he must be made to drink cold water, and some drops even must be thrown into his face with violence, without any fear of thereby occasioning too sudden or too violent an impression on him. This means is, on the contrary, very well suited to calm him, and I do not know of any that is more efficacious and more prompt in putting a stop to the fits of anger to which certain children are subject. It has, moreover, no inconvenience, and it is preferable to all the efforts which are made in like cases, such as the threats and impatience which are manifested, and which only prolong the irritation of children.

Of burns. — Burns are, among common accidents, what are most to be feared. In fact, however slight, besides the extremely acute pain which they occasion, they may be somewhat

serious. There is danger, however, only when they are of considerable extent, though not very deep, or when they are quite deep, though not very widely extended. With still stronger reason, then, if they are at the same time deep and extensive, do they come under the category of severe accidents, to which neither too much attention nor too prompt remedies can be given.

Immediate dressing of burns. — Whatever be the nature of the wound, whether slight and superficial, or extensive and deep, the best remedy to apply, while awaiting the arrival of a physician, — if it is thought best to send for one, — is cotton-batting. The burned part should be speedily wrapped up in cotton-wool, without any other preparation, and this should be kept on, whether the skin be broken or not, whether it be blistered or even destroyed, until the place is perfectly healed over. This means is so efficacious for calming the pain, in the first place, and consequently the nervous shock which renders burns so formidable, that it is prudent always to keep some cotton-wool on hand.

Of severe falls and collisions, dislocations, fractures, &c. — If the child have a fall from a high

place, capable of producing a violent concussion,*—if any joint is dislocated, or limb broken, or if the skin and flesh are deeply bruised, &c., — our cares must be limited to placing him on a bed while waiting for medical aid to arrive. In case, however, that the blood flows abundantly from a wound, in consequence of the rupture of some vessel, it should be stopped as far as possible, either by pressing upon it with the fingers or hand, or by bringing together the edges of the wound by means of strips of adhesive plaster, which is to be found at all the druggists.† For sprains, bandages dipped in cold water may be employed to advantage; or, what is still better, when the injured part is so situated as to allow of its being done, as in a sprain of the foot or wrist, the limb may be plunged into a bucket of cold water.

Such are pretty nearly the sole precautions it

* It is well to know that falls upon the posteriors are sometimes capable of producing more severe concussions than those upon the head itself.

† In cold weather the adhesive plaster should be softened by applying the back of it to the outside of some vessel filled with hot water.

is possible for us to indicate for cases of accidents, which are as varied as they are unforeseen. We could not enter more into detail on this subject, without danger of overstepping the limit which we propose to ourselves, and of leading parents astray, instead of preparing them for the dangers which present themselves.

Danger of the remedies which are kept on hand and administered without the advice of a physician. — As to the remedies which many persons think it prudent to provide themselves with, particularly when going into the country,—such as a certain amount of emetics to make children vomit that are threatened with croup, laudanum, or any other as powerful substances,—we cannot approve such precautions, which are much more likely to endanger than to save the life of a child, by the mistakes to which the administering of such medicines may give rise. The surest course to take, in case of sudden sickness, and even the only one, if any trouble occurs that is serious enough to require the use of energetic remedies, is to send for a physician as soon as possible, at the risk even of having to wait and lose a little time. There is less danger in ab

staining than in hastening to administer unseasonable remedies.

Precaution to be taken in case of the application of leeches to a child. — Finally, when leeches have been applied to a young child, it is of the greatest importance to watch the flow of blood, so as to stop it if it is prolonged too far. A single leech-bite may cause the death of a child from bleeding. When the flow of blood is not stopped by ordinary means, such as lint or powdered alum, compression must be used by applying the finger to the puncture, and keeping it there till the physician arrives.

APPENDIX.

OF THE REGIMEN EMPLOYED AS TREATMENT IN CERTAIN DISEASES OF CHILDREN, AND IN PARTICULAR OF A STAY IN THE COUNTRY, AND THE MILK-REGIMEN.

The medical treatment of children should consist more than all else in the regimen. — I have partially shown, in several parts of this work, what is my opinion as to the way in which the aid of medicine should be resorted to with children.

I have shown myself little in favor of remedies properly so called. Except in certain acute cases, the medicine of children should, in my opinion, consist much rather in the regimen than in remedies. Children have hardly anything to do with medicine, so far as it consists in administering drugs every time that their diseases result from a general condition of the constitution, an habitual susceptibility of some organ, or a chronic derangement of some function. But

a regimen pursued with system, and embracing, so to speak, the whole of the acts of life, is really an essential part of medicine.

What is a regimen, and how should it be pursued? — It is, however, very necessary to fully understand the use of the different regimens, and the manner of following them; for the result depends on the agreement of the different parts of which they are composed, and which must all conduce to the same end. Regimen comprises a certain number of means, none of which has, when alone, an energetic action; but the union of which constitutes a whole of conditions, capable, after a time, of deeply modifying the human economy. It is this which distinguishes regimen from remedies properly so called, which last produce by themselves a marked and appreciable effect upon one or other of the functions; and thus remedies must remain in the hands of physicians, and be prescribed on every occasion by them, whilst medicine tends more and more to popularize and render common the principles of hygiene.*

* I am not ignorant that hygiene must not be separated from medicine, and that it makes a part of therapeutics; but I am

Progress of hygienic notions. — The general diffusion of correct notions of hygiene is the surest sign of the real progress of medical science. It is, so to speak, the most clear summing up of its acquisitions, — the most faithful expression of its positive knowledge. In this respect medicine has largely contributed to the progress of information during the last half century. It has rendered great services by destroying a host of prejudices, disseminating a great number of useful notions, and indicating the precautions to be taken in case of ailings or slight troubles, and the use which may be made of certain simple medicines, &c. Medical science has advanced towards the end to which it should tend, — that of rendering itself useless, as an art, in the greatest possible number of cases. Such a result would be its real triumph; but much still remains to be done before this is attained. We shall never even arrive at it, any more than science will attain any complete and final truth;

addressing the public generally, and I comply with the ideas generally entertained, in establishing a distinction between medicine, properly so called, and hygiene.

but it is possible for us to make nearer and nearer approaches to it, and it is in the hope of causing it to make some progress, relatively to infancy, that I write this book, and that I shall attempt to trace the principal rules of regimen, such as will prove most salutary in case of sickly dispositions.

Regimens are rarely followed exactly, being adopted only in part. — Nothing is more rare than to see a regimen fully adopted in all its details. Either from want of knowledge, or want of confidence in the efficacy of means which do not have a direct or immediately appreciable action, — the effects of which are slow, and almost insensible, and which act only as a whole, and require time, — it is certain that, as regards regimen, only half-measures are most frequently adopted, which are altogether insufficient, and much more capable of endangering success than of assuring it. From a complete system of means, those only are followed which please, — chosen, so to speak, according to taste, adopting one and neglecting another. Prescriptions are made to yield to habits, half the requirements being followed, but no obligation being felt tc

execute them with regularity. Persons are content with making their children go out rather more than is usual, if they are agreed that air is really necessary for them; but, if they must be sent into the country altogether for several months, they hesitate, and do not always decide to do it, even when their circumstances do not offer any serious obstacle to such a measure.

If the outward life which many children are subjected to, wears upon them, — if they are excited by parties, balls, and dinners, at which they are allowed to be present, — persons consent to deprive them of it in part, to reform this kind of life one-half or one-quarter; but they do not put an entire stop to the evil. If, later in life, the constitution requires, before all, that the physical development be cared for, that all intellectual occupation be neglected and laid aside for a certain time, it is still by half-measures that they proceed; and, whether from self-love or want of conviction, they do not consent to interrupt entirely the education of a child, even at the earliest age; and still more rarely, at a more advanced age, — with which, however, we are not to occupy ourselves in this work, — do they con-

sult the physical condition of the child and the state of his constitution for the choice of the manner of his education, — for the climate and place, in which it would be well for him to pass his earlier years, and for the direction of his course in life.

Difficulty of following a suitable regimen in certain conditions of life. — To all these precautions there exist, I know, great obstacles. First in importance is the condition in life of the parents, which rarely permits the doing all which it would be best to do for the education of children. We encounter here, as at each step in the practice of medicine, and as in all affairs of life, insurmountable difficulties, perpetual conflicts between what should be done and what is done, — between the needs of life and the impossibility of satisfying them. Medicine is accused of impotence, but it fails more frequently from the hard and imperious necessities of life than through the insufficiency of its own resources. What can you say or do to an unfortunate door-tender, to whom you prescribe fresh air, when he is necessarily penned up in his narrow lodge to obtain his living? or to a poor seamstress,

who can hardly buy bread to eat, and who would require rich soups? In other forms, these cases are everywhere reproduced as extreme facts in the general life; and they occur as well in the position of the head of a bureau, a cabinet officer, or a rich merchant tied down to his counting-room, as in the life of the poor.

But this sad reality must not prevent us from laying down rules and principles by which the more fortunate may profit, and which others will approach as nearly as they can, by always applying themselves, according to their means, to arranging the different parts of the regimen in such a way as not to destroy the effect of one by neglecting others.

It would be somewhat imprudent in me to let parents believe that the principles of hygiene can be in all cases applied through the dictates of good sense alone. This is true only for children of good health and sound constitution; but as soon as the slightest suspicion is entertained as to the state of the constitution, — as soon as an unfavorable predisposition is feared, — the intervention of a physician is necessary to direct the whole system of hygienic treatment, and the pre-

cautions which the regimen requires. But here arises another obstacle, of which I have already said a few words; I mean the reserve which physicians practise in their intercourse with families, and the slight confidence which the latter place in them when the danger is not pressing.

Necessity of providing early against the consequences of a poor constitution. — It is not alone when the disease has set in that the physician's advice is to be sought, and that the latter should express his opinion, and give a prescription. In many maladies, the time is past for seeking the aid of medicine when they have reached a certain point. What can be done, for instance, when the lungs are invaded by tubercles, or ulcerated and filled with cavities, — when rickets has deformed the bones, or a scrofulous taint has entered deeply into the economy, — when the blood is impoverished, and the digestive faculties are so far impaired that they are incapable of reäcting upon the substances proper to modify the humors, &c.?

All these evils, which are long in coming on, are the result either of an originally bad consti-

tution, an hereditary predisposition, or long-continued action of the conditions of the regimen and the external influences of the previous life. It is necessary, therefore, to attend to them early, and long before their characteristic symptoms are manifest.

How many even acute diseases exist, the immediate cause of which is sought for in vain, and whose origin goes back to a combination of remote circumstances, — a badly arranged mode of life, for instance, — without our being able to seize exactly the link which connects these causes with the ulterior effects which they produce! A child is taken some day with an affection of the bowels, a brain fever, a disease of the lungs, accompanied by bad symptoms. Nothing but the actual disease is seen, — the imminent danger for which the aid of medicine is urgently demanded. The question is not asked whether the manner of living may not have contributed to develop these diseases, and predispose the child to them; whether the conditions of his regimen are favorable or unfavorable to the constitution of infancy; whether they are adapted to increasing his power of resistance to disease, and put

ting him in a condition to support and triumph over them, or, on the contrary, to weaken him and leave him unarmed against the attack of the evil. The regimen of children is not reflected upon; things are left to take their course, with a sort of indifference, so long as the evil does not manifest itself, nor make its appearance as an immediate consequence. But, I say it once more, it is often too late to think about it when the evil has arisen, and it is to its prevention that we ought to direct our attention, our care, and our reflections. We wish our children to have perfect health; we fear, with good reason, the diseases which may attack them. We must begin, then, by doing all that is requisite to prevent and avoid these diseases.

Of the want of confidence and sincerity between families and the physician.—But it would require both families and physicians to have the courage to acknowledge and confess the chances which threaten the future health of the child, in order to guard against the attack of the evil which is dreaded, and to combat the predisposition to it, at the epoch at which the work of organization allows us to lay the foundation of a sound consti-

tution. It is impossible, doubtless, to completely reform a vicious, hereditary constitution, and to make a Hercules of a child that is delicate and born of feeble parents; but can we deny the powerful action of good and bad external influences, — of nourishment, air, sunlight, and all which constitutes the regimen of life in general? Can we even say where are the limits of this action; and are they not also placed much beyond what we suppose? For my own part, I have before my eyes examples which lead me to believe that the influence of daily, incessant causes, acting at all moments on the body, and penetrating it in every part, is, so to speak, incalculable, when we know how to use and direct it.

The physician should, then, whenever the position of families enables them to make the necessary sacrifices, inform them, a long time beforehand, and from the tenderest age, of the precautions which should be taken to screen the child from the dangers which threaten it, whenever it is possible to foresee them. How many children there are who perish in the climate in which they were born,— who are reared only with the greatest difficulty, or remain in a feeble and always alarm

ing state, — that would triumph over the defects of their organization, if brought up in propitious places, if they were sent early to a milder climate, or if they pursued their studies and passed their youth in some remote boarding-school, — sometimes at the north, and sometimes at the south, according to circumstances, — instead of being shut up in a Parisian college. Medicine will not render all the service it may, and physicians will not have fulfilled all their duties till they have the courage to give this salutary advice in season, and long before the appearance of danger.

I shall not undertake to define the circumstances under which it would be necessary to bring up children in the country; this would be impossible; but I do insist, in a general manner, and still more than I have done for children in good health, upon the advantages of a life in the open air and sunlight for children of a feeble constitution.

Influence of the country, and a life in the open air, upon children and old people.— It is especially at the two extremes of life that the influence of the country makes itself felt. Children and old

people generally derive advantage from going into the country to recruit during the summer. The open air and sun strengthen the one, and reïnvigorate the other; and, on seeing the remarkable effects which a stay in the country sometimes so rapidly produces on both, one would be tempted to attribute to country air some peculiar and hidden virtue, which its greater or less abundance, its more or less free circulation, and particularly the chemical analysis of its principles, do not account for. When I see, for example, children brought up in Paris, to whom neither air, exercise, nor sunshine is refused, who are conducted every day into well-exposed public gardens, where they pass pretty nearly all the hours that their sleep and meals do not engross, and who freely engage in all the exercises suited to their age, never arriving at that flourishing condition, at that plenitude of strength and health which they acquire by a sojourn of some weeks in the country, I ask myself to what influence can such effects be attributed, and whether a little more or a little less air can alone be capable of producing so prompt and manifest changes? Is there not also something else than what we

can feel and appreciate in this new air they breathe, to which old men even are not insensible, and which seems to renew their strength and prolong their lives?

Action of the air during sleep. — But, without having recourse to unknown causes, to emanations which we cannot lay hold of, to hypotheses which the present condition of science does not justify, a bare statement of the fact is enough to enable us to turn it to account. Besides, the action of the air is not limited to the daytime only, when the child is out of doors; its influence is also felt, and perhaps still more powerfully, during his sleep; and the difference which I noticed just now, between the effect of the air of cities and that of the country, may depend on the different manner in which it circulates and is renewed in the interior of houses in the open country, and in city apartments, hemmed in on all sides, opening only upon narrow courts and streets where the air is more or less confined. Taking into account these different conditions, and also the nature of the emanations in places where men are collected in masses, with all the products of their arts and industry, or in

the midst of vegetation, where the air is impregnated with principles peculiarly adapted to maintaining the life of animals, the diversity of the results in one or the other place will be, to a certain extent, comprehended, and less embarrassment will be felt in explaining the salutary action of the country on children. Do they not live as much by what they absorb through breathing, through all the pores of the skin,—that immense organ constantly plunged in the fluids which surround us, and perpetually in contact with external agents, — as by the alimentary substances on which they are fed?

Having thus made mention, in a general manner, of the advantages which the country affords us, and the benefit to be derived from it by children of indifferent constitution, we shall leave to each one to apply these principles to particular circumstances, and to deduce the consequences of the facts we have signalized, while we enter into more circumstantial and precise details regarding the effects of the alimentary regimen, and in particular of the milk-regimen in case of sickness.

Of the milk-regimen. — I have already shown the internal composition of the milk, or what may

be called its organic and physiological constitution. What I have said of the state in which the principal elements which compose it are found, and of the relations of these elements to each other, indicates a certain analogy between this fluid and the blood itself.

Resemblance in composition between the blood and the milk. — This resemblance being established,— both by microscopical examination, the principal results of which I have made known, and by physiological experiments which I shall recount, — the influence of this liquid, as an alimentary substance, and the importance I attach to its effects in many cases, will be better understood. The success of this regimen, confirmed besides by facts, will be in accordance with the curious phenomena which the milk will present to us, and of which a rational explanation can be given.

Composition of the blood. — The blood, considered with regard to its organic constitution, is, as well as the milk, composed of a great number of different elements, the principal of which are the fibrine and the globules,—the former an azotized matter analogous to caseine, in a state of

solution like it, and having equally with that substance the property of coagulating and solidifying, from some cause entirely unknown, as soon as the blood is withdrawn from the vital action; and the latter, small red bodies, of a regular and complex structure, suspended in the bloody liquid, the form of which differs according to the class of animals to which they belong.

Struck with this so remarkable analogy between two liquids,—one of which is the most direct product of alimentation, and in which are contained all the materials of the organization, and the other the only aliment of young animals, and the only one, consequently, which can furnish to the blood itself the primitive materials,—I have considered the milk as blood in a first degree of formation, to which only one degree more of elaboration is probably wanting to become perfect blood.

Physiological relation between the milk and the blood.—It is by following this method of analogy, already so well indicated by the composition of the two liquids, that I have been led to confirm, by direct experiment, the physiological connection between the blood and the milk. I

shall be pardoned for citing here the principal results of these experiments, affecting as they do so nearly the general laws of the organization. They seem to me of a nature to enlighten the mind as to the manner of action of a regimen which I have applied with success in several remarkable cases, and which I think is destined to play an important part in the hygiene of infants, and even of adults, when it shall be well understood and well followed.*

Injection of milk into the veins of animals. — Having introduced a certain quantity of milk into the circulatory system of some animals, in which it is easy to observe the circulation of the blood, I have been surprised at the little trouble which this commingling of a foreign liquid with the bloody fluid occasioned in the functions of these animals; and I have seen, not without great curiosity, the milk-globules circulating in the vessels with the blood-globules through the organs

* These experiments are embodied in a memoir upon the origin and formation of the blood-globules and the part they play in the human economy, &c., which I recently submitted to the judgment of the Academy of Sciences. See my *Cours de microscopie complémentaire des études médicales.* Paris, 1844.

without the animal's appearing affected by them. It seemed as if I had only added a little blood to the proper blood of the animal; and this mixture not only did not occasion death, but the animal continued to live as if he had absolutely undergone no modification in his organism.

This result demonstrated already a great physiological analogy between the blood and the milk, — the milk not being a liquid, simple in its nature, like water for example, which might be considered as of no influence in the functions of the organs and the laws of the economy; — but, besides this, I did not fail to remark certain modifications in the form and structure of the milk-globules circulating with the blood, which led me to think that these foreign globules were, perhaps, susceptible of direct transformation into blood-globules, just as the chyle-globules are, that product of the digestion of alimentary substances, continually emptied into the circulatory system. This fact, numerous other experiments executed on a broader scale, upon a multitude of animals of different species, and approaching by their constitution more or less to man, have demonstrated in the most striking manner. Injections

of milk in considerable proportions, practised on the vessels of animals selected from the three classes, reptiles, birds, and mammalia, from the smallest to the largest species, have always had the same result.

Anomaly in the horse. — The horse alone, by an anomaly the cause of which is still unknown to me, is an exception. The smallest quantity of milk introduced into the veins of the strongest horses, has always been enough to produce death, and several have fallen as if struck by lightning; whilst even the most delicate birds, rabbits, dogs, and she-goats, have borne the injections of this liquid in such a way that it has been possible for me, in certain cases, to substitute, so to speak, milk for a part of the blood, without the animal's appearing troubled by it. But the harmlessness of these experiments is not the only fact important for me to remark in them; it is no less curious to follow the milk-globules in their circulation with the blood, and to see what they become and how they disappear.

Transformation of the milk into blood. — Some instants after the injection of milk into the veins,

if the animal be slightly bled, at a distance from the point where the milk has been introduced, numerous milky globules, in a state of perfect integrity, are to be found mixed with the blood-globules. Some hours later, in a new quantity of blood that is drawn, many of the milk-globules are no longer entire in their form and nature; they have already undergone modifications, which I cannot follow here, nor minutely describe in this work. It will be enough to say that they gradually approach the intermediate state through which the blood-globules themselves pass before arriving at their perfect state, and that they at last become true blood-globules like the globules of chyle. These facts are new in science, and I cannot say that they are adopted, since they are scarcely known. I shall publish them soon in detail, with the proofs in support of them; and I hope to give to them then, for the benefit of everybody, the degree of evidence which they have in my own eyes. But, were they even contested, no one can refuse to admit the direct result of the injection of milk into the veins; and the manner in which animals support the mixture of this liquid with their blood, is a

sufficient proof of the analogy which I have established between these two fluids. It is the principal point that I wished to make known before stating the facts which relate to the influence of the milk-regimen, for which the preceding experiments serve as an explanation and a theory."

Of the most common diseases of children.— The most common maladies, and often the most obstinate, to which early infancy is subject, are diseases of the digestive canals. Even if they do not immediately endanger life, they impair the constitution, weaken the strength, and impede the natural and regular development of the body. This is the principal obstacle which is encountered in the physical education of children, a great number of whom derangement of the digestive functions affects. So long as it does not exceed the limits of a slight and momentary indisposition, this state does not deserve serious attention; and the indication of the remedies to be used for it has been given in another

* I have employed for these experiments milk in all possible states, taken from various animals, and even human milk.

chapter. We have here to consider only the state of actual and firmly seated disease.

Of derangements of the bowels, and the means commonly used to check them. — In such circumstances we begin, it is true, by modifying the alimentary regimen, diminishing the quantity of food, and even having frequent recourse to the different species of milk, — cow's milk, pure or diluted, ass's milk, goat's milk, &c. But this course is not boldly entered upon. The alimentary regimen is considered as an accessory means, and not as the fundamental treatment; and confidence is especially placed in the employment of drugs, properly so called; so that children, exhausted by fasting, which does not suit their nature, and by the energetic medical treatment to which they are subjected, often reach the last degree of weakness, having no longer strength to support the remedies, nor the faculty of absorbing the substances proper to restore it. In this state, also, the milk-regimen offers precious resources, as we shall see directly; but haste must be made, life is so near escaping from these worn-out bodies.

But I abandon these generalities to come to

precise and determinate indications. I have said enough to show in what spirit I consider the application of medicine to children, and I am going to trace the plan of the milk-regimen, such as it has succeeded in several very severe cases; some, where the ordinary means of medicine had failed; others, where they should have been employed according to the most generally accepted ideas, but where recourse was had immediately and solely to the method of the milk-regimen.

I do not pretend to have invented anything new. There is not one of the means that I shall recommend, — which, for that matter, are very simple, — which has not been advised at different times, and practised with success upon many patients. It is a reason the more for having confidence in them; and I have no other pretension than that of having paid particular attention to these means, — of having studied them with care, and applied them with more method and perseverance than had previously been done.

Certain morbid conditions of infancy should rather be managed with patience than treated directly. — When a child that is no longer suckled

experiences a derangement of the digestive functions, such that he does not bear any longer any ordinary aliment without having diarrhœa, he dwindles, his flesh softens, his skin grows wan; and this state often persists in spite of all the little means put in practice in similar cases. Badly-digested portions of alimentary substances are to be found in the evacuations, having preserved their texture and their form after having traversed the digestive canal. Whether this state be accompanied or not by a fever of slight intensity, whether the child be more or less jaded, whether he have colic before his evacuations, or whether this symptom do not accompany the derangement of the entrails, I am not of opinion that recourse must be immediately had to a rigorous fasting, or to blood-letting. Besides the fact that these means are far from having, in many cases, as much efficacy as is supposed, they have the disadvantage of weakening the child, and of taking from him the power of reäction, and of supporting the evil during the whole course it must, whatever be done, necessarily run. Children are much injured by our wishing always to cure them promptly, and at all hazards,

from the troubles they experience. There are states which must be borne with patience, and observed without attacking them directly, while waiting for nature herself, aided by a suitable regimen, to triumph over a disposition which nothing can change suddenly and in a few days. There is no part of the practice of medicine which demands more patience than that of children. There are affections, doubtless, which require prompt and energetic remedies; but there are many others which must be led along, and guided through their different phases, rather than directly opposed. The whole art, then, consists in sustaining the child, in keeping up his strength, in being on one's guard against the complications which may arise, and in remaining in a sort of equilibrium until the organism experiences some modification of itself, which may be favored, but not produced, by artificial means. All efforts should be limited to giving the child time to arrive at this term; and this is why his strength must be economized.

This conduct is, I allow, difficult to maintain with people. The conviction is so general that medicine must act, and that the physician is made

to give remedies, that this inaction is supported impatiently, even on the part of a physician in whom implicit confidence is placed. The consequence is that many remedies are given, very harmless, it is true, but only out of consideration for the family, rather than for the real good of the child. The difficulty of which I speak is experienced by the physician, even with his relations, family and children, where he would seem the most free to act according to his conviction. How much firmness does he not require to resist the general eagerness, in presence of disorders before which he thinks he ought to wait, while limiting himself to some simple means, and some precautions of regimen! And yet moments of indisposition present themselves in the life of infants, which are only kinds of crises of development, and which cease of themselves at the end of a certain time. These states of indisposition may last several days, or even weeks, with a slight febrile movement, prostration, want of appetite, derangement of the bowels, yet without serious affection of any organ; and in the end the whole collection of symptoms may disappear of themselves, without the intervention of any

active remedy. But is this not making of medicine a useful study, to watch over the organs, to examine each day the chest, the abdomen and the head, in order to ascertain whether they are not becoming affected, and to avoid everything which might make the disease take a serious character? How many children do we not see who, at the end of eight or ten days, come out from this state, waking up some morning fresh and bright, asking for food, resuming their habits, and returning to their ordinary life, without having undergone other change than a little growth, and one degree more of development? There are children whom I have had to wait for fifteen or eighteen days, without doing anything else than observe them.

Advantage of at once fully adopting the milk-regimen, when the first ordinary means of treating derangement of the digestive organs have failed. — I return to the affections of the digestive canals, which are in particular to occupy me here. When the suppression of a part of the food, the choice of the lightest substances, the employment of baths and of some emollient remedies, do not arrest the evils, and the child con-

tinues to grow weaker, I am decidedly in favor of having recourse to the milk-regimen in the way that it is ordinarily practised, but in an exclusive manner, and with precautions too often neglected till now. Much greater advantage will be derived from this regimen than from all the meat-broths, chicken or others, which have the double inconvenience of affording but very little nourishment, and of being but little suited to reëstablish the soundness of the digestive organs. Broths, such in particular as are administered to the sick, do not merit the reputation they enjoy. They contain only an infinitely small quantity of nutritive principles, and in a form not the best adapted to being assimilated.

The milk contains all the elements necessary to nutrition.—The milk, on the other hand, contains all the elements necessary to the constitution and the reparation of the organs, since it is destined to be the exclusive nourishment of the young being during the first period of its existence. The experiments cited above show, as I have said, that the milk is already almost blood in its perfect state, to which only one degree

more of elaboration is wanting to become perfect blood.

Comparative influence of milk and of meat-broth in the nutrition of young animals. Experiments. — If it were necessary to cite other facts in support of this manner of considering the milk, I would say that, having fed young animals of the same age, dogs of the same litter and of equal strength, some with their mother's milk, or even with the milk of another species, and others with meat-broth, as much as they would take, a notable difference was established in a few days in the development of the animals subjected to these different regimens, — a difference which could be appreciated each week by the difference in weight. I have varied these experiments in every way, restoring the milk to those that had at first been deprived of it, and, on the other hand, putting on broth-regimen those that had been fed on milk, and I have always arrived at the same result, — the difference of weight never failing to preponderate the other way. This disproportion becomes so sensible at the end of a certain time, when the milk is continued to the one and broth to the others,

that it is clearly visible without having recourse to weighing; and what is remarkable is, that we never see young dogs reared on broth or soup arrive at the same degree of force and development as those that have taken the milk of their mother, or that of another species; the former remain inferior in size and plumpness as well as in strength and energy.

Manner in which the milk should be given. Choice to be made according to circumstances. — But it is not enough to give milk, whatever be its nature and the circumstances under which it is taken. There is a choice in it according to the case, and some precautions are essential in the manner of administering it. We must sometimes even feel our way, and I doubt not that if more success is not obtained by this regimen, it depends, in great part, on the imperfect manner in which it is followed.

The milk-regimen must be the exclusive one. — And, in the first place, the milk-regimen must be exclusive, when recourse is had to it under the circumstances of which we are speaking. It will not do to give alternately milk and broth or some other aliment, as is ordinarily done.

What makes the milk-regimen fail. — It is rare that the milk, administered in this manner, succeeds well, and this is why we are so often obliged to renounce it, the regimen not producing the effects which are expected from it, or the child not supporting it. We often hear it said, therefore, that milk has been tried, that it did not digest well, that it did not agree with the child, and that it had to be given up; but this proves absolutely nothing, unless that it was badly administered; and what we say of this first condition will apply to the others, which concern the state of the milk, its nature, choice, and species. There is no doubt that the majority of children, if not all, and many adults even, who do not digest milk under ordinary circumstances, might support it very well, and that we might derive more advantage from it than we do in many morbid conditions, if it were only given as it should be.

The first point, then, is to make the child take milk only, — sometimes pure, or diluted with water; sometimes, on the contrary, combined with some feculæ, according to the severity and circumstances of the disease.

When the condition of the child presents a certain danger, and the stomach and bowels with difficulty support the least portion of alimentary substance, we begin by giving the liquid milk as a drink, by small cupfuls, at regular and suitable intervals. The milk should be slightly sweetened, and lukewarm; but the manner in which it is warmed is of the greatest importance.

Precautions to be taken in heating the milk. — Milk is the less easily digested the longer it has been subjected to the boiling process, and to repeated boilings.* If it were possible to give

* Knowing that there exists in the milk either an albuminous matter, properly so called, or modified albumen, the reason why milk rises rapidly at the first moment of ebullition, when all the albumen is not yet coägulated, is easily understood. Later, it rises much less, and only by reason of the viscosity communicated to it by the casein held in suspension. In the same way it may be understood why boiling develops in milk an animal odor, which reminds one of coägulated white of egg, and, at the same time, gives it a whiter color. No one is surprised to see boiled milk forming at the end of a short time a light, white scum, particularly if the milk is not very fresh. This effect is attributed to adulteration. Finally, the explanation why boiled milk keeps longer than before, is that the coägulated albumen is much less susceptible of change than when in the liquid state, when it forms one of the most easily putrescible substances. * * *

These, then, are so many reasons which enable us to account

children milk as it came from the cow's udder, and without having been artificially warmed, it would be the best thing possible; but it is not ordinarily necessary to be so particular as this. There are even some children, and particularly many adults, to whom the peculiar taste of warm milk, at the moment it is drawn, is displeasing, and they consequently digest it less easily in this state. It is, then, only in certain particular cases, which we shall speak of hereafter, that the milk must be taken at the instant of milking. Most frequently, it is enough that it is fresh, that is to say, not a day old, and that the precaution is taken not to warm it more than is necessary to render it lukewarm, and always in the water-bath.* In summer it is necessary to

for the difference of their action, as a medicine, between fresh and unboiled milk and that which has undergone the action of heat, — a difference which has long been observed by practitioners, and which Boerhaave regarded as a very great one, expressing his views by saying that this fluid lost its healthiest and most balsamic properties. — *Quévenne*, 2e *Mémoire sur le lait. Annales d'hygiène publique et de médecine légale.* Paris, 1841, tome XXVI., p. 5, *et suiv.*

* Bain-marie. One vessel, inside another containing boiling water, by which the contents of the former are heated.

keep the milk in the cellar, or some other cool place, lest it sour.

Milk-porridge. — If the child is in a condition to bear more solid food, a little milk-porridge is given him twice or three times a day, made, as I have before said, with one of the feculæ indicated,—arrow-root, potato-starch, kiln-dried flour, or semolina,* according to the taste of the child, or as he digests one or the other best.

Administered in this manner, and with this care, the milk is not only well digested, but children acquire such a liking for it that they often refuse all other nourishment that is offered them; and they are very fully nourished by it, — the milk containing, as we have said, in small volume, very substantial and very nutritive elements. Sick children may thus take nearly a pint, or even a quart of milk a day; and disorder in the digestive apparatus is soon seen to cease, their flesh becoming firm, and their strength returning. The progress they make can be verified beyond question by the increase of weight which they acquire. This increase becomes

* Semolina is a granule of Italian wheat, used in soups, and in making vermicelli.

visible from week to week, and it is well to ascertain it exactly, in order to appreciate directly the effects of the regimen.

Influence of the milk-regimen on the tone of the skin. — It is not to be expected that the color and tone of the skin should return at once, and follow the progress of the general improvement which we are describing. During all the time the child is subjected to the milk-regimen, his skin remains a little wan, as we have stated, without our being able to explain this effect perfectly; but this circumstance has no ill effect on his strength and health; the skin soon recovers its color, as soon as the child can be again put on the regimen of ordinary life, and at the same time be exposed to the air and sun.

Discolorations of the evacuations. — Neither should it create astonishment to see the evacuations discolored and almost white, although of good consistence. It is a circumstance which always accompanies the employment of the milk-regimen.

Choice of the kind of milk. — What attention must be paid to the choice of the milk, with respect to its nature, its species, and its qualities?

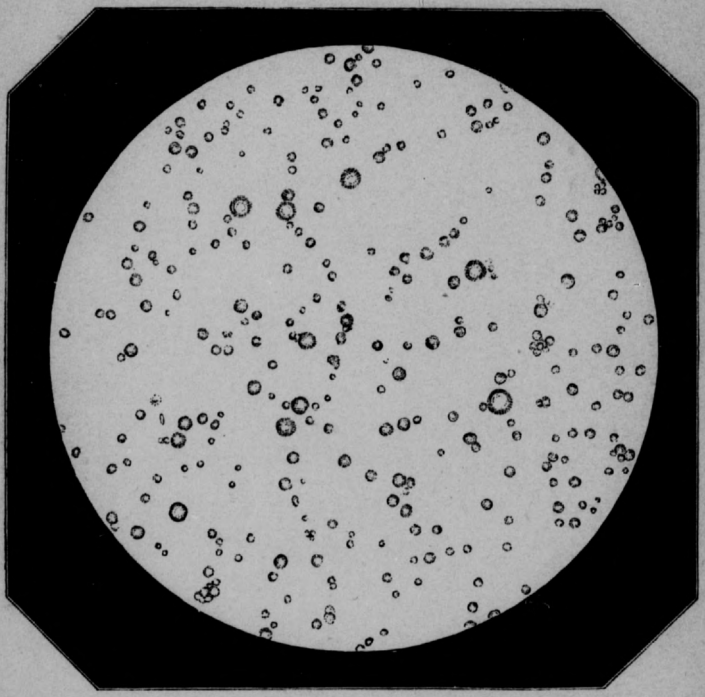

Plate V. ASS'S MILK OF AVERAGE QUALITY.

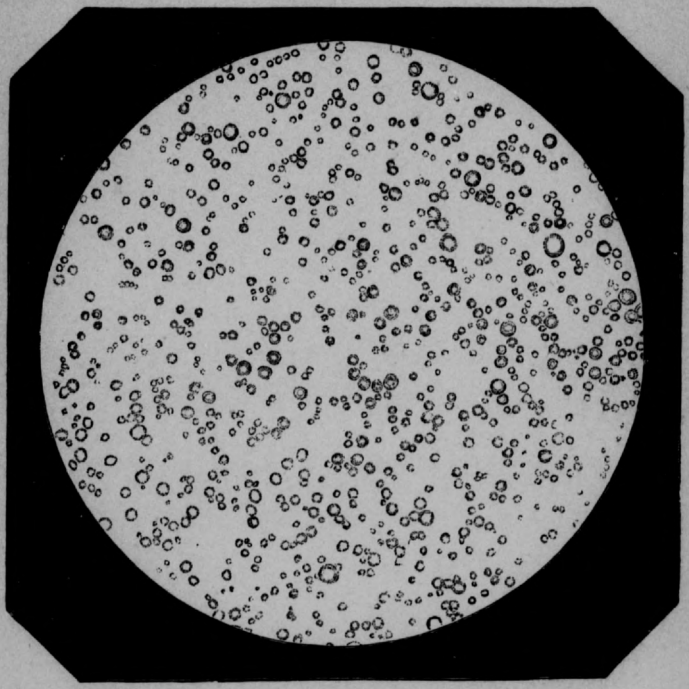

Plate VI. GOAT'S MILK OF AVERAGE QUALITY.

I am in favor, when the condition of the child manifests nothing very disquieting, or offers no particular indication, of beginning with cow's milk; and, instead of diluting it with water, as it would be necessary to do for pure milk, I prefer, as I have said, the first-drawn milk, which is naturally weaker. (See what I have said about this milk at page 79.)

When cow's milk digests well, it is better to employ it than ass's or goat's, because it is more easily procured in every place, and in good condition; and because it possesses a more regular and more uniform composition. There are cases, however, in which ass's milk* suits better as being lighter, and goat's milk† as being very nutritious, and very rich in substantial principles. The property is also attributed to the latter of counteracting looseness in real diarrhœa. Neither must it be forgotten, in order to appreciate the value of these different species of milk, that the cow's is, to a certain extent, an artificial milk, — in this sense, that it is furnished by the animal beyond the time its young is

* See Plate V. † See Plate VI.

suckled by the mother. It is, so to speak, the result of a succulent and forced nutrition, and not of a natural function like that of other animals, that do not, like women themselves, produce any milk except while suckling their young. This circumstance is probably not without influence upon the constitution of this liquid, and the manner in which it acts. It is, perhaps, to this that we must attribute the facility with which ass's milk, and particularly woman's, are digested under certain circumstances in which cow's milk is not supported. Cow's milk has a particular character, that can be easily verified, which distinguishes it from the others, and the cause of which is probably also in the conditions which I have just noted.

Acid and alkaline state of the milk. — Cow's milk is the only one, the chemical reäction of which is very feebly alkaline, often neutral, and sometimes even slightly acid; ass's and woman's milk are always decidedly alkaline.* Now,

* The acid or alkaline state of the milk is verified by means of what is called litmus-paper. This chemical paper, dyed of a vegetable blue color, turns red under the influence of acids; and, on the other hand, when it has been reddened in the first place, it

it is precisely these which are produced in the conditions which I call altogether natural and physiological; that is to say, during the period of suckling the young. And it is probable that the slight degree of acidity in cow's milk is already a sort of alteration, since this milk is decidedly alkaline, like the others, immediately after the birth of the calf, and while he still suckles.

Of the qualities of the milk, its richness, &c. — We must assure ourselves, as far as possible, of the good qualities of the milk which is given to children, either by getting it at a well-directed establishment and one in which confidence may be placed, or by ascertaining for ourselves that the cow which furnishes it is healthy, and in

turns again to blue by alkaline liquids. It is only necessary, then, to dip a little strip of blue litmus-paper into the milk, to see if it is acid; and in the same way red paper will indicate, at the expiration of a certain time, whether the milk is alkaline. Ordinary cow's milk should turn red paper to blue after some minutes' contact, though in a less marked manner than ass's, and than woman's in particular. Cow's milk which is decidedly acid, ought, in my opinion, to be rejected, when the regimen of children and the sick is concerned. Litmus-paper is to be found at the apothecaries.

good condition; that her milk is not too old, and that she is subjected to a well-regulated regimen. We can, as I have just indicated, see whether the milk is acid, by means of litmus-paper; whether it contains a sufficient proportion of cream, by measuring the latter after having let it rise in a graduated test-tube, as I have said (page 72); and whether it has its usual density, by plunging into it an hydrometer.* Ordinary cow's milk ought to furnish from twelve to fifteen parts of cream out of one hundred; that first drawn, from five to ten; ass's milk furnishes, even when it is rich, only from one to two parts of cream in a hundred. Goat's milk, on the contrary, is very abundant in cream, but it does not separate in a clear layer, and it is difficult to measure by this method. Finally, the purity of the milk can only be appreciated by microscopic inspection.

Influence of the animal's food on the nature of her milk. Feeding on carrots, beets, and mixed fodder. — The manner in which the animal that furnishes the milk is fed, is important. It is

* The density of ordinary cow's milk is pretty nearly 1030.

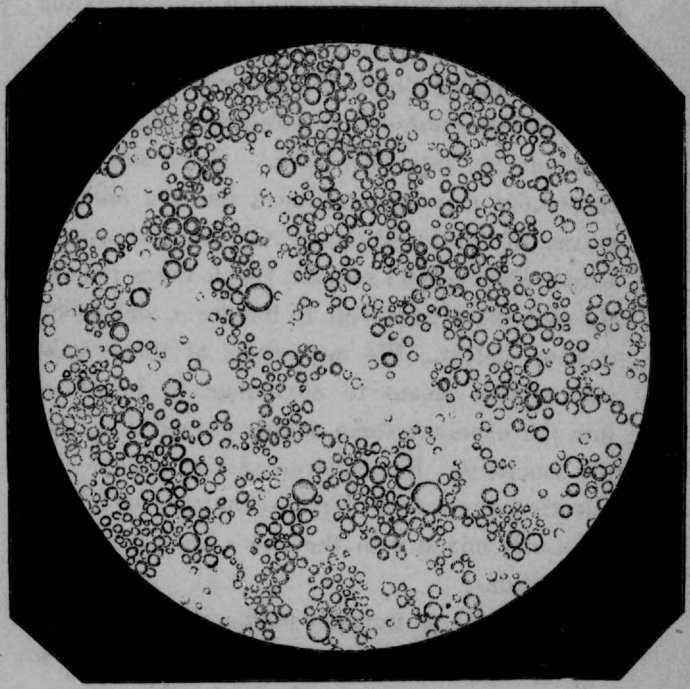

Plate VII. MILK OF A COW FED ON BEETS.

known that carrots produce the lightest milk, and the most easily digestible; the one, in fact, best suited for the milk of sick children. Beets, on the contrary, produce the most substantial and richest milk;* other substances, and ordinary fodder, produce a milk of intermediate richness.

Medicinal substances administered to animals, and entering into their milk. — Some medicinal substances may be introduced into the milk, by means of the food, such as preparations of iodine, alkalies, and sea-salt, which latter renders the milk more agreeable to the taste, and makes it keep better. We may, then, at times make use of this means to advantage to introduce into the economy some agents proper to modify the functions. For children of a scrofulous constitution, the iodide of potassium may be advantageously mixed with the cow's food, in certain proportions.

Of the use of woman's milk. — If the different species of milk which we have just passed in review, cow's, ass's, and goat's, do not succeed in correcting the disorders; if derange-

* See Plate VII.

ment of the bowels, diarrhœa, and consequently the weakening of the child, persist, in spite of the milk-regimen; or if the state of the patient is so serious in the beginning as not to permit the use of these substances, there is no time to be lost in experiments, and recourse must be had without hesitation to woman's milk. I have seen effects that were really marvellous ensue from the use of this milk, in children reduced to the last degree of feebleness, and for affections of the digestive canals, for which all kinds of treatment, all other kinds of milk, and all the resources of medicine, had failed. I do not fear to say, that children in a desperate state have been saved by this means. I believe it capable of rendering the greatest services, and susceptible of being applied, not only to children, but to adults even, under certain circumstances.

But here, again, essential precautions are to be taken, and a certain method is to be pursued, without which the success might be endangered.

Choice of a nurse for this special case. — The choice of the nurse is not less important, in this case, than in the ordinary occasions of which we have had to speak in the beginning of this work.

It is not enough for the nurse to be sound, in good health, provided with good milk, &c.; there are other conditions to be fulfilled, which we must point out.

And, in the first place, a nurse must be chosen whose milk is not too recent, for fear it should still possess a little of the laxative property attributed to it after delivery. It must be as well formed as possible, since it is to be given to a child already somewhat developed, and not having nursed for a certain time. It is, besides, indispensable that the nurse should be abundantly provided with milk, and have the faculty of extracting a pretty considerable quantity from her breast. It is only very rarely, in fact, that we succeed in making a child nurse that has been weaned for a longer or shorter time, and who is no longer accustomed to nurse. Besides this, it is not at the first moment that we should try to give him the breast. The most urgent necessity is to make him swallow several spoonfuls of milk to reänimate him, and sustain his strength. The nurses, then, to whom we have recourse for this object, must know how to extract their milk in considerable

quantity. Now, this condition is not met with in all women; and there are many, even among the best nurses, from whom only a very small quantity of milk can be obtained by these means. It is not that they are without it, but the milk does not come into their breasts, and does not flow out, except under the influence of the child's suction. They are incapable of drawing it from themselves, or of having it drawn from them, beyond one or two spoonfuls at a time. I have seen women who could not, with great difficulty, give more than two or three spoonfuls of milk, although the child that they nursed found in them an abundant nourishment; whilst others fill with ease an ordinary tumbler. The former fatigue themselves very much in giving a wholly insignificant quantity of milk, and cannot long continue this service to a child. The latter alone are capable of enduring this process, and supplying the needs of the patient.

Of the quantity of milk necessary for a child subjected to this regimen. — One woman alone is not, however, sufficient, whatever be her ability in this respect, to feed a child subjected to this regimen. The sickest child consumes no less

than half a pound — a pound, even — of milk in twenty-four hours, under the circumstances of which we are speaking. He may begin by several spoonfuls only; but his wants rapidly increase, and it is necessary to give him from hour to hour, or every two hours, by night almost as much as by day, a cupful of milk. Now, the same woman cannot suffice for such consumption, — the more so, that she is obliged to continue nursing her own child to keep up the secretion of milk. It is, then, only by the help of several nurses that such a regimen can be followed with all the regularity necessary to its success; and I have been obliged to have recourse to three or four women at a time, — to six even, in certain cases, — in order to satisfy the wants of a single child.

Of the means of procuring woman's milk with facility. — It is not always necessary to collect about one so large a number of nurses to attain the result we wish, — a condition which would often render impossible the execution of such a treatment. It is easy to procure in Paris, at the different establishments for nurses, — or in the country, in the neighborhood of the place in-

habited,—a sufficient number of nurses, to come, one after another, and at fixed hours, to give the quantity of milk needed.* I have pursued this course, without difficulty, in several cases, and it is a means which renders this mode of treatment accessible to the most modest fortunes. Nurses are never wanting, in fact, who are willing to render this service for a moderate compensation; and, as this regimen never lasts very long, it does not necessitate enormous expense.†

Necessity of giving this milk fresh, and not warmed over. — It is very important to give

* I have no doubt that, by a suitable advertisement, many mothers, who could not be induced to become wet-nurses, might be found with us, willing, for no great sum, to come once a day, and furnish a portion of their milk to a sick child.

† I am attending, at this moment, the child of a poor woman, for whom the mother goes every morning to an intelligence-office to get milk, which the nurses give her with the greatest readiness. In a week, this child, who was reduced to the last degree of atrophy and feebleness, has regained strength enough to digest first-drawn cow's milk ; and there is every reason to hope that the mother will be repaid for her zeal by the cure of her child, whose state appeared really desperate. Several of our professional brothers, among others Messrs. Blache and Rayer, have obtained remarkable success by this method in almost hopeless cases.

woman's milk at the moment it has been drawn, and with its natural warmth. I have had occasion to observe the difference which this milk drawn beforehand and afterwards warmed over produces. One of the children, upon whom this regimen has produced the most happy results, experienced a change in his digestion, from the moment that, for greater convenience, a provision of milk had been made beforehand, which was warmed in a water-bath in proportion as he needed it. It became necessary to abandon this method very quickly, and to return to the milk as it came from the nurse's breast.

Can a child that has been weaned for some time, be made to resume the habit of nursing? — It would be in all respects very advantageous to be able to make a child resume the habit of nursing. This would much simplify the treatment, since the child would thus return to the conditions of a child at nurse. But this willingness on his part is very rare. The trials which are made to arrive at this end, ought ordinarily to be made in the night, while he is half asleep; it then sometimes happens that he takes mechanically in the dark the breast of the nurse,

that he sucks, and, once having begun, continues.

Ordinary duration of the treatment by means of woman's milk. — So far as it is possible to fix the time of such a treatment, I should say that it does not ordinarily exceed a month in duration. At about this period, the disorders, which have disappeared from the first days, are not renewed, and the convalescent begins of himself to manifest the need of a stronger and more varied aliment. He becomes a little disgusted with the milk, which, till then, he took with avidity, and he no longer appears satisfied and to have had enough. This is the moment to try to introduce other elements into his regimen; but the transition demands some care, and the following are the means by which we may return by degrees to ordinary living, without a shock, and without compromising anything.

How to return to the ordinary regimen. — The state of the child would allow us to take several ways. When digestion is well reëstablished, as happens in a rapid and really surprising manner by means of woman's milk, we might pass at once to another kind of milk, — cow's milk, for

example, — choosing such as is suitable, and abandoning entirely woman's milk. The digestive organs seem so well rested, and so fully calmed by the use of the mild and easily assimilated food that has been given to them for a certain time, that they would probably be ready to receive all light nourishment, were it even meat-broth. But this sudden transition, without any intermediate step from one diet to another, though I have seen it succeed, appears to me less prudent than a transition that is more gradual and cautious. This is why I adopt the following method, which appears to me secure from all danger, — which allows us to retard or accelerate a return to the normal regimen, to stop short when we wish, and to govern ourselves, in a word, by the circumstances and results. This method consists in giving, at first, meat-broth, with tapioca, vermicelli, or some similar light substance in it, once every twenty-four hours, and continuing for the rest of the time the use of the woman's milk. Then the broth is soon to be given twice a day, and, at each new step, we must be on the look-out, ready to fall back, if any trouble occur. I give the

preference to meat-broth over cow's milk, in order not to mix together several species of milk, and because each step taken in this direction is a real progress, approaching constantly a little nearer to the regimen of ordinary life, upon which we at last enter fully by giving up the last cup of woman's milk; whereas, in passing from woman's milk to cow's milk, we only postpone the difficulty, and find ourselves in the same embarrassment as before, when called upon to abandon this transitory regimen, in order to return to the ordinary one. Precautions are then to be taken analogous to those which I have just indicated for each new element substituted for milk, and time has also been lost. Now, whatever be the utility and the advantages of the milk-regimen, it is extremely important to abandon it as soon as possible and resume a varied nourishment, which is the only really substantial and strengthening one for children after the time of nursing is passed. The course which I have just indicated, to pass from the use of woman's milk to common aliments, is equally applicable to the transition from the ordinary milk-regimen to the regimen of common life. It is evident that the

same precautions ought to be taken, when the child has made an exclusive use of cow's or ass's milk, as when he has been put on woman's milk.

Of prejudices against the use of woman's milk. — Here terminates all I had to say of the milk-regimen, in the appendix which I have thought advisable to annex to this treatise on the physical education of children. As to what concerns the use of woman's milk, I do not doubt that certain minds will experience some repugnance at the idea of it. This making, as it were, a cow of a woman,—to use an energetic expression which has been applied under similar circumstances,—may at the first moment shock the imagination. There is nothing in it, however, offensive to decency or morals; and, for that reason, my experience, and the facts upon which my convictions rest, make it my duty to strongly urge mothers to master their first impression when the life of a child is in question.

Necessity of assisting the effect of the milk-regimen by a union of hygienic means. — It is necessary to add that the milk-regimen must be seconded by all the other hygienic means upon

which we have so much insisted in the course of this work. Regularity of life, calm sleep, exercise in the open air and sun, residence in the country, abstinence from all premature excitement of the intellectual faculties and the nervous system, &c., are conditions which are much more important in a state of sickness than of health.

Of vicious habits in children, and the means of ascertaining them. — I cannot terminate this work without saying a word of the vicious habits to which it is no uncommon thing to see children addicted at a very early age. I shall not speak of the precautions which this deplorable inclination claims. It is for the sagacity and prudence of parents to search out the causes of this precocious aberration of the imagination. They will have to see whether the kind of life and mode of education which they pursue for their children, whether the premature development which they give to their senses and their faculties, have not something to do with the injurious habits they may have contracted. For my part I must limit myself to indicating the means of solving all doubts, in cases where uncertainty may exist, without incurring the risk of awakening

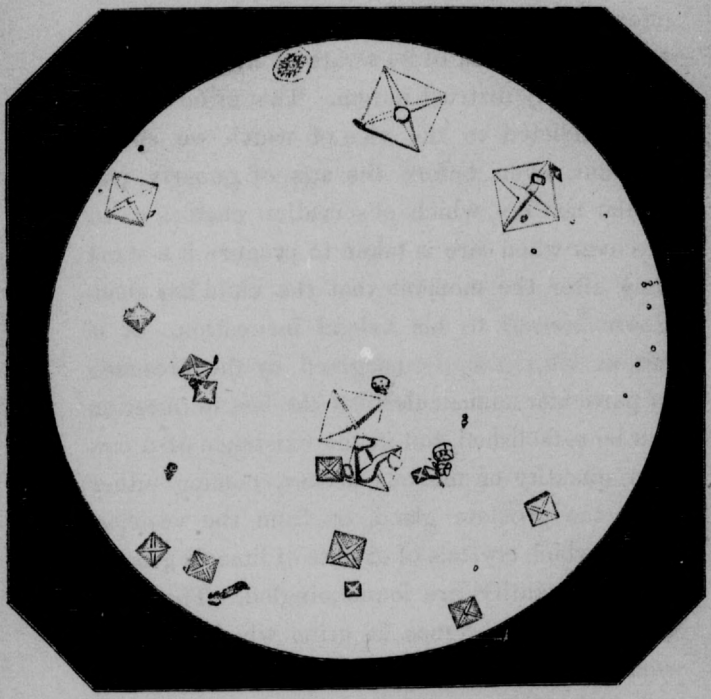

Plate VIII. CRYSTALS OF OXALATE OF LIME IN THE URINE.

ideas which the child might not till then have had. Microscopic investigation of the urine affords a means of arriving at the truth without allowing the child to be aware of it, and without showing any distrust in him. The urine of children addicted to the vice of which we speak, contains, even before the age of puberty, particular matters, which observation enables us to discover when care is taken to procure it a short time after the moment that the child has abandoned himself to his baleful inclination. It is not, as will readily be imagined, by the presence of particular animalcules that the fact in question can be established, but in the existence of a certain quantity of mucous matter, coming either from the prostate gland, or from the vesicles, and in which crystals of oxalate of lime, in greater or less quantity, are found mingled.* The presence of this substance in urine which contains some of the elements of the seed, is so constant a fact, that it may serve to establish the diagnosis of involuntary seminal emissions in adults, when the essential sign itself happens to fail. This fact is seen in children themselves, but it requires, in all cases, that attention be paid to the kind of

* See Plate VIII.

food, — the use of sorrel being capable of determining at any time, in any individual, the formation of crystals of the same nature in the urine; but this is an accidental circumstance, which it is easy to take into account.

CONCLUSION.

I HAVE proposed in this work to present to mothers a guide suited to direct them in the difficulties which many among them encounter when called upon for the first time to fulfil their maternal duties. I have sought to answer the principal questions which they have to resolve relative to the cares of nursing, the direction of the regimen in general in a state of health and of sickness, the most common disorders which may occur, and the moral guidance of earliest infancy. This last part, the most important to be considered in a treatise of general education, occupies here but a very limited place; education, properly speaking, having little to do with the period of life to which I have confined myself. I have touched on those points only which have appeared to me to have a direct bearing on the end I had in view, physical education and health.

The origin of many evils in life goes back to infancy, and it is necessary to watch over the

entrance upon the career of life, in order to direct it well, that its course be firm and secure in after years. It is to the earliest infancy that all one's attention must be paid, as to a source from which will flow, later in life, strength or weakness, vigor or infirmity. We have only a few full and entire years to consecrate to the physical constitution, — the best part of those which succeed requiring to be employed in the development of the intellectual faculties.

Without denying the influence of the health of the parent upon that of the child, and granting a large proportion to inherited qualities, it is impossible not to recognize the extreme aptitude of infancy to be affected by exterior agents and modifications arising from the circumstances in the midst of which it is placed. This action is such that the more it is observed the greater is the conviction, that, by well directing it in this period of life, when the organic phenomena are not disturbed by the conflict of moral perturbations, no state, so to speak, can exist which cannot be restored to order and regularity. Children offer almost infinite resources in their diseases; and it is almost a popular truth that there is

never reason to despair of their life, however severely attacked it may be. It remains to be determined to what extent many of their diseases are not of our own producing, rather than the necessary result of their natures; but, without pretending that it is possible to avoid all of them, it cannot be doubted that many among them are disorders occasioned by bad hygiene, and by errors in regimen.

I do not hesitate to affirm, from the observations which I shall soon have occasion to publish, upon the conditions of mortality which attack children in the first periods of their lives, that, out of a population like that of Paris, several thousand infants might easily be saved every year by applying to them the rules of a wiser hygiene. For this reason, I have not thought it possible to insist too strongly, in this work, upon the precepts of regimen which make the basis both of the physical education of children in health, and of the treatment of their most common morbid affections. These precepts are founded upon observation and practice, and I state them with the utmost confidence.

THE END.