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**Contributors**

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183 Euston Road  
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E [library@wellcomecollection.org](mailto:library@wellcomecollection.org)  
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*Lady Butler Field.*



# INFANT CARE

CHILDREN'S BUREAU PUBLICATION No. 8

*United States Department of Labor*





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UNITED STATES DEPARTMENT OF LABOR

FRANCES PERKINS, Secretary

CHILDREN'S BUREAU . . . Katharine F. Lenroot, Chief



# INFANT CARE



Bureau Publication No. 8



UNITED STATES  
GOVERNMENT PRINTING OFFICE  
WASHINGTON : 1935

## SEE THAT THE BIRTH OF YOUR BABY IS REGISTERED

It is of the utmost importance to have the birth of your baby promptly and properly registered. This should be done within 36 hours after the baby's birth.

In most States the physician, midwife, nurse, or other attendant is required by law to report the birth to the local registrar, who will see that the date of birth and the child's name, together with other related facts, are made matters of public record. Birth registration is necessary in order to prove, among other things, the child's age and citizenship, his right to go to school, his right to go to work, to inherit property, to marry, to hold office, to obtain passports for foreign travel, and to prove his mother's right to a pension, if she is a widow. Parents should make sure that this protection of fundamental rights is assured to every child born to them. If there is any doubt about whether the birth of a child has been registered, an inquiry may be sent to the State board of health at the State capital, where the records are filed. If the birth has not been reported the board will furnish a blank to be filled out and returned. It is suggested that a memorandum be made below of certain facts recorded in the birth certificate.

Baby's name.....

Father's name.....

Mother's maiden name.....

Sex of baby.....

If twin or triplet, give number in order of birth.....

Date of baby's birth.....

(Month)

(Day)

(Year)

Birthplace:

City, town, or village.....

County.....

State.....

Attending physician:

Name.....

Address.....

Baby's registered number.....

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## LETTER OF TRANSMITTAL

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UNITED STATES DEPARTMENT OF LABOR,  
CHILDREN'S BUREAU,  
*Washington, October 15, 1935.*

MADAM: There is transmitted herewith the bulletin *Infant Care*, which was first published in 1914, and completely revised in 1929. From time to time since then the material has been brought up to date.

The revisions are the work of Dr. Martha M. Eliot, Assistant Chief of the Bureau, and of the Bureau's advisory committee of pediatricians consisting of physicians appointed by the associations which they represent: Dr. Howard Childs Carpenter, representing the American Child Health Association; Dr. Julius H. Hess, the section of diseases of children of the American Medical Association; and Dr. Richard M. Smith, the American Pediatric Society; and, more recently, Dr. Samuel McC. Hamill, the American Academy of Pediatrics.

Respectfully submitted,

KATHARINE F. LENROOT, *Chief.*

HON. FRANCES PERKINS,  
*Secretary of Labor.*



# NOTES ON DEVELOPMENT OF THE BABY

BABY'S NAME \_\_\_\_\_

	Weight	Height	Held up head	Sat up	Cut teeth	Crept	Stood alone	Walked	Spoke first word
Birth_____									
1st month_____									
2d month_____									
3d month_____									
4th month_____									
5th month_____									
6th month_____									
7th month_____									
8th month_____									
9th month_____									
10th month_____									
11th month_____									
12th month_____									



# INFANT CARE

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## THE NEW BABY

How fast does a baby grow, in weight, in height, in "wisdom and understanding"? What should we feed him? How should we clothe him? How can we keep him well? How can we prevent or cure illness or bad habits? What danger signals should we watch for? These are some of the questions that parents ask and that this bulletin will try to answer.

When a baby is born, whether it is the first one in the family or not, problems come up about his care—how to help him develop normally and how to keep him well. For months the parents have been looking forward to the arrival of the baby and have been making plans for his care.<sup>1</sup> Now that the baby is born the responsibilities of the parents with regard to his care and bringing up become more apparent. They have in their charge a helpless infant who for a long time will be entirely dependent upon them for supplying all his needs. At first only the physical needs are obvious, but the parents must remember that the character building of their child is closely tied up with the way his physical needs are met. His future mental health, as well as physical health, will depend largely on the habits he builds during the first year of life, especially the early months. Some of these habits can be started as soon as the baby is born.

Every child carries in his inherited make-up many qualities. Which ones are to predominate in his future life will depend largely on his surroundings—the food and care he gets, the persons he learns to imitate, the ideals and standards of his home. As soon as the baby is born he begins to live in the surroundings that the parents have provided. Immediately he begins to learn by his experiences. From the hour of birth he learns from everything around him. Even when he sleeps the baby is not cut off from experience, for the weight and texture of the bedclothes and the resistance of the mattress are having their effect upon his body.

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<sup>1</sup> For proper care before birth see Prenatal Care (U. S. Children's Bureau Publication No. 4).



The care of a baby is a great responsibility, but it can be carried successfully if the parents regularly seek the advice of a physician trained in the care of infants and if they follow the simple rules for feeding, sleep, out-of-door life, and general care outlined in this bulletin. They are the result of the experience of physicians over many years and are offered as a help to parents in the care of young babies; but they are not intended in any way to take the place of regular visits to the family physician.



*The newborn baby is the center of attention*

Sometimes a young mother has so much advice from earnest and well-meaning friends that she is bewildered. Their advice may be good, but sometimes the advice of one friend conflicts with that of another. The baby should not be experimented upon with first one mode of care and then another, in accordance with the various opinions offered. The doctor should be the mother's guide, and this bulletin is intended to help her carry out his orders intelligently.

Baby care is a great art. It is the most important task any woman ever undertakes, and she should apply to this work the same diligence, intelligence, and sustained effort that she would give to the most exacting profession.



## DEVELOPMENT OF THE BABY

The first year of life is probably the most important because it is during this period that the baby grows fastest and undergoes the remarkable development that transforms him from a helpless little being into a baby who laughs, plays, stands, and tries to talk.

Not only does a baby grow a great deal during this year, but he learns a great deal. He learns to eat and sleep at regular times and to eat a number of new foods, to hold up his head, to sit up, to stand, and possibly to walk; he learns to handle objects, to reach for them, and pick them up; to know what various things around him are used for, such as spoon, cup, bed, ball, blocks, and to use some of these without help; to know one person from another; to know and use a few words. He learns also whether crying will get his mother to pick him up whenever he wishes, or whether crying is useless as a means of getting her attention. He learns to be part of a family group and to accept new experiences every day.

### THE BABY AT BIRTH

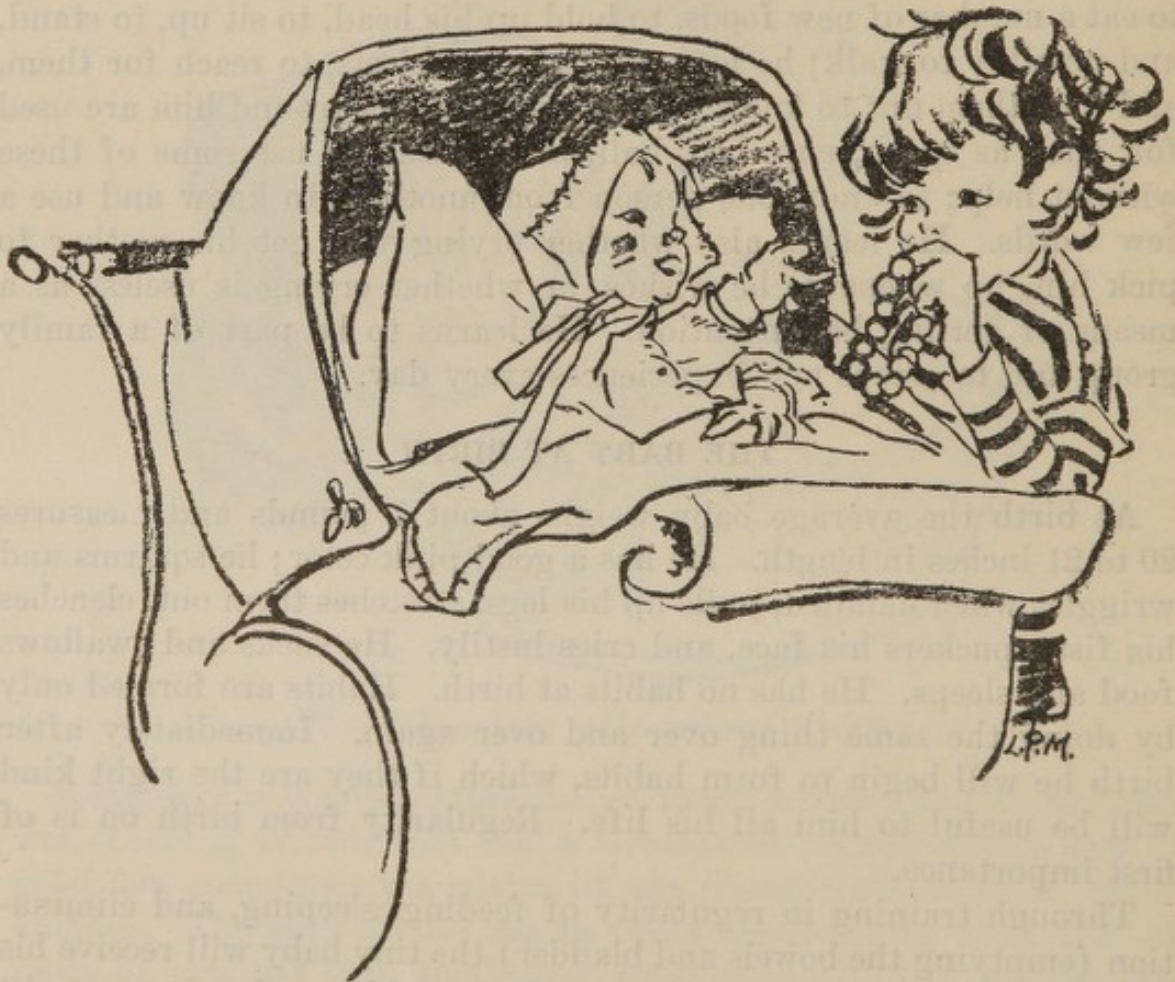
At birth the average baby weighs about 7 pounds and measures 20 to 21 inches in length. He has a good pink color; he squirms and wriggles when handled, pulls up his legs, stretches them out, clenches his fists, puckers his face, and cries lustily. He sucks and swallows food and sleeps. He has no habits at birth. Habits are formed only by doing the same thing over and over again. Immediately after birth he will begin to form habits, which if they are the right kind will be useful to him all his life. Regularity from birth on is of first importance.

Through training in regularity of feeding, sleeping, and elimination (emptying the bowels and bladder) the tiny baby will receive his first lessons in character building. He should learn that hunger will be satisfied only so often, that when he is put into his bed he must go to sleep, that crying will not result in his being picked up or played with whenever he likes. He will begin to learn that he is part of a world bigger than that of his own desires.



## THE BABY AT 4 MONTHS

If parents watch the baby for signs of development they will see marked changes during the first three or four months. At 4 months the baby will be round and chubby; he will have nearly doubled his weight and have grown  $2\frac{1}{2}$  to  $3\frac{1}{2}$  inches in length; his head will have grown about 2 inches in circumference. At 4 months his muscles are getting much stronger, as is shown by his more vigorous kicking and his efforts to turn over and by the fact that he can now hold up his head steadily if his body is supported. The 4-month-old baby looks about, discovers his own hands, begins to recognize his mother and perhaps other members of the family, and is learning to reach for objects around him. He makes known his likes and dis-



*At 4 months he is a real personality*

likes by gestures and facial expressions; he usually has begun to laugh aloud. In four short months he has changed from the little wriggler to a baby with definite individuality. He has already begun to form habits of daily living, such as feeding, sleeping, and elimination. The parents must see that these habits are the right ones. (See p. 54 for discussion of habits.)



## THE BABY AT 8 MONTHS

During the period from 4 months to 8 months the baby will still be growing rapidly in weight and height. At 8 months he will weigh between 16 and 19 pounds and measure between 25 and 27 inches in length, depending on his type—whether tall and thin or short and stocky. His head will be growing rapidly but not quite so fast as in the first four months. His muscular activity will have increased until he is able to sit up without support. He probably will have begun to creep. He will be using his hands better by 8 months and will have learned to pick up and handle, first, large objects, like rattles, blocks, balls, and dolls, then gradually smaller and smaller ob-



*The baby at 8 months will creep after his ball*

jects, such as spools, large buttons, and safety pins. He will be interested in looking at objects and feeling them and in learning what things around him are like. Most babies at 8 months will have discovered their own voices and will make various sounds, such as "ma-ma-ma" and "da-da-da," but they do not say words to which they attach any meaning. By 8 months the baby should have been trained to have regular bowel movements. Many babies will have cut one or two teeth. Weaning will have been begun by this time. During the period from 4 months to 8 months the baby should have begun to learn to eat solid foods. He has nearly reached the end of the breast-feeding period.



## THE CHILD AT 1 YEAR

In the ninth to the twelfth month of his first year the baby will continue to gain weight, but not so fast as before. When he is 1 year old the average child weighs 21 pounds (three times what he weighed at birth). He measures 25 to 35 inches in height, and his head is much larger than at birth. Many children by the time they are 12 months old have lost some of their chubbiness and are lengthening out into the slenderer type of body build seen in the second year.



*At 1 year he can help to hold his cup*

Some children remain fat during this period, and some grow tall without gaining greatly in weight. They vary considerably according to the family type and the nationality and race. No two children are exactly alike in growth.

During the period from 8 months to 1 year the baby has learned to take cow's milk and various solid foods, which will be the basis of his diet for the next 3 or 4 years. By the end of the first year he will have given up the bottle and will be learning to hold his cup of milk and perhaps to help hold his spoon (an ordinary teaspoon).



He is entering the period of early childhood and must no longer be treated as a baby. The parents must help him grow up by teaching him to do things for himself. He should be learning to pull off his stockings at bedtime. It is good for a little child to learn to be independent in feeding and dressing himself, in picking up his toys and playing alone. Training in self-reliance should have been begun by 1 year.

The development of the muscles has progressed rapidly. At 1 year the average child creeps and pulls himself up to a standing position. Many children of this age can stand alone, and occasionally a child of the small wiry type can walk. At 1 year the child can use his hands well and has begun to do things with blocks and boxes and a ball. (See back cover.) He may have learned to say one or two words and associate them with the persons or objects to which they belong, such as mamma, dada, kitty, milk, water.

At 1 year, if the mother has been training the baby properly, he should have learned complete control of his bowels and may have begun to learn control of his bladder. If such training has not been given it should begin at once. (See p. 58.)

Most children at 1 year will have six teeth.

## THE SECOND YEAR

When your child begins to stand and walk and talk he is no longer a baby. Though he is still dependent on you for almost everything, he is daily becoming less so and is daily learning to do more for himself. He must be encouraged in this increasing desire for independence. It is much better that a child should be helped to grow up by his parents than that he should be babied too long. Parents who look upon the little child as "too little to be taught" or "too young to understand" are piling up trouble for him as well as for themselves. The second year is the beginning of the important pre-school years when many life habits will be learned. During this time the parents are the child's teachers, and they must work together and plan consistently to help the child have a healthy body and a healthy mind.

For suggestions on the care of children from the first birthday to the sixth see *The Child from One to Six*; his care and training, United States Children's Bureau Publication No. 30.



## BABY'S DAILY TIME CARDS

Following are schedules for the baby's daily program and habit training. (For details of diet and habit training see pp. 63 and 54.)

## FIRST FOUR MONTHS

4-hour feeding	3-hour feeding	
6.00 a. m.-----	6.00 a. m.-----	Breast feeding. Leave in crib to sleep.
9.15 a. m.-----	8.15 a. m.-----	Plain cod-liver oil, then orange or tomato juice.
		Bath. Before bath let baby kick and play freely on bed a few minutes without clothes.
10.00 a. m.-----	9.00 a. m.-----	Breast feeding.
10.20 a. m.-----	9.20 a. m.-----	Out of doors until next feeding time. Sun bath and long nap in sun if weather permits. Drink of water after nap.
2.00 p. m.-----	12.00 noon-----	Breast feeding.
2.20 p. m.-----	12.20 p. m.-----	Out of doors as long as weather permits, in sun, except on very hot days. Long nap. Drink of water after nap.
	3.00 p. m.-----	Breast feeding.
	3.20 p. m.-----	Out of doors as long as weather permits.
5.15 p. m.-----	5.15 p. m.-----	Undressed for night. Before putting on baby's night clothes let him kick and play gently a few minutes on bed.
5.45 p. m.-----	5.45 p. m.-----	Plain cod-liver oil, then orange or tomato juice.
6.00 p. m.-----	6.00 p. m.-----	Breast feeding.
6.20 p. m.-----	6.20 p. m.-----	Bed; lights out, windows open, door shut.
10.00 p. m.-----	10.00 p. m.-----	Breast feeding.
2.00 a. m.-----	2.00 a. m.-----	Breast feeding (this feeding should not be given after first 2 months).

*Parents must work together from the baby's birth to teach him good habits*

**Feeding.**—Feed the baby regularly by the clock every four hours, or every three hours, according to your doctor's advice. Before and after feeding hold up the baby and pat him on the back until he belches.

**Sleep.**—Let the baby's sleeping periods be regular. After each feeding leave him alone to sleep. During the day have him sleep outdoors in the sun if the weather permits. When putting him to bed at night open the windows, put out the light, and shut the door. Every baby must sleep in a separate bed.

**Toilet habits.**—Begin bowel training in the second month.

**Exercise.**—Give the baby exercise regularly. Twice a day, before bathing him in the morning and after undressing him for the night, let him kick and play freely on the bed for a few minutes without clothes. Also hold him and play with him gently. The play must not be rough nor exciting.

**Crying.**—Do not spoil the baby by picking him up every time he cries. Crying may mean that he is hungry or uncomfortable or merely that he wishes to be noticed. Find out whether he is uncomfortable, but do not rock him nor pick him up nor feed him before his regular time just to stop his crying. A certain amount of crying is not harmful; it even gives him some exercise.

**Sun baths.**—Begin sun baths when the baby is 3 or 4 weeks old. (See p. 42.)



FIFTH AND SIXTH MONTHS

- 6.00 a. m.---- **Breast feeding.** Leave alone in crib to sleep or play.
- 9.15 a. m.---- Plain cod-liver oil, then orange juice or tomato juice.  
Bath. Before bath let baby kick and play freely on bed a few minutes without clothes.
- 10.00 a. m.---- **Cooked cereal, then breast feeding.**
- 10.20 a. m.---- Out of doors till feeding time. Sun bath and long nap in sun if weather permits. Drink of water after nap.
- 2.00 p. m.---- **Egg yolk, vegetables mashed through a strainer (from sixth month on), breast feeding.**
- 2.20 p. m.---- Out of doors as long as weather permits, in sun except on very hot days. Short nap. Drink of water after nap. Play.
- 5.15 p. m.---- Undress for night; before putting on baby's night clothes let him kick and play on bed a few minutes. Play must not be exciting nor rough.  
Plain cod-liver oil, then orange juice or tomato juice.
- 6.00 p. m.---- **Cooked cereal, then breast feeding.**
- 6.20 p. m.---- Bed; lights out, windows open, door shut.
- 10.00 p. m.---- **Breast feeding.**

*Parents must work together to teach the baby good habits*

*Feeding.*—Feed the baby regularly by the clock. Give new foods in small amounts at first, and the baby will learn to take more of them. He may refuse a new food or spit it out because he has not yet learned how to swallow solids. Keep on giving him the new food from day to day, and he will learn to take it. (See p. 82.) Begin to teach the baby to help hold the bottle while drinking water.

*Sleep.*—See that the baby's waking hours are in the daytime—in the late afternoon—so that he will not be wakeful at night.

*Toilet habits.*—Continue training for regular bowel movement.

*Exercise and play.*—Put into the baby's crib simple washable toys that will not break, such as a rattle and a wooden doll. Tie them to the crib with short pieces of tape. Give exercise morning and evening. (See card for first four months.)

*Sun baths.*—Keep on giving sun baths. Let the baby sleep in the sun all morning if the weather permits. On the hottest days do not put him in the sun between 11 a. m. and 3 p. m.



## SEVENTH, EIGHTH, AND NINTH MONTHS

- 6.00 a. m.----- **Breast feeding.** Leave alone in crib to sleep or play.
- 9.15 a. m.----- Plain cod-liver oil, then orange juice or tomato juice.  
Bath. Before bath let baby kick and play on bed freely a few minutes without clothes.
- 10.00 a. m.----- **Cooked cereal, then breast feeding.**
- 10.20 a. m.----- Out of doors till feeding time. Sun bath and long nap in sun if weather permits. Drink of water after nap. Play.
- 2.00 p. m.----- **Vegetable and egg yolk, then breast feeding.**
- 2.20 p. m.----- Out of doors as long as weather permits, in sun except on very hot days. Short nap. Drink of water after nap. Play.
- 5.15 p. m.----- Undress for night. Before putting on baby's night clothes let him play on bed a few minutes. Play must not be exciting nor rough.  
Plain cod-liver oil, then orange juice or tomato juice.
- 6.00 p. m.----- **Cooked cereal, then breast feeding.**
- 6.20 p. m.----- Bed; lights out, windows open, door shut.
- 10.00 p. m.----- **Breast feeding** (this feeding may be omitted during this period).

*Parents must work together to teach the baby good habits*

**Weaning.**—When the baby is 7 months old ask the doctor about weaning him. Once a day give a cow's milk mixture feeding instead of a breast feeding. For a week keep on giving one cow's milk feeding a day and four breast feedings.

Then for four or five days give two cow's milk feedings a day (say at 10 a. m. and 6 p. m.) and three breast feedings. Give one more cow's milk feeding each four or five days in place of a breast feeding until at the end of three weeks the baby is entirely off the breast and on a diet of whole cow's milk (boiled), cereal, vegetables, egg yolk, orange juice or tomato juice, and cod-liver oil.

**Sleep.**—The baby should have a long morning nap and a short afternoon one.

**Solid foods.**—If the baby has not yet learned to take solid food keep on teaching him, giving first the solid food and afterwards the milk, which he likes. Do not worry if he refuses to eat. If you do he will soon learn that he can get a great deal of much-desired attention by refusing to eat.

**Toilet habits.**—Keep on training for regular bowel movement.

**Exercise and play.**—At playtime put the baby on a blanket on the floor or in a clothes basket or a play pen and let him learn to amuse himself with simple toys, such as spools, large spoons, blocks, and boxes.

**Tantrums.**—Do not give in to the baby if he holds his breath or cries, or shows temper in other ways. If he does this he is already being spoiled. Holding his breath will not hurt him.

**Sun baths.**—Keep on giving sun baths.

**Protection against communicable disease.**—When the baby is 6 months old, or as soon afterwards as possible, he should be immunized against diphtheria. (See p. 19.)



TENTH, ELEVENTH, AND TWELFTH MONTHS

- 6.00 a. m.----- Boiled whole milk. Leave alone in crib to sleep or play.  
 8.15 a. m.----- Plain cod-liver oil, then orange juice or tomato juice.  
 Bath.  
 9.00 a. m.----- Breakfast: Cooked cereal with boiled whole milk.  
 9.20 a. m.----- Out of doors till dinner. Sun bath and long nap (in sun if weather permits). Play.  
 1.00 p. m.----- Dinner: Egg yolk; green vegetable; baked potato; boiled whole milk.  
 1.20 p. m.----- Out of doors as long as weather permits, in sun except on very hot days. Short nap. Drink of water after nap. Play.  
 5.00 p. m.----- Undress for night.  
 5.15 p. m.----- Plain cod-liver oil, then orange juice or tomato juice.  
 5.30 p. m.----- Supper: Cereal; zwieback or dry toast; apple sauce or prune pulp; boiled whole milk.  
 6.00 p. m.----- Bed; lights out, windows open, door shut.

*Parents must work together to teach the baby good habits*

*Feeding.*—Give up the 10 p. m. feeding. Finish weaning in the tenth month if it is not already done.

Give the baby a drink of milk at 6 a. m. and three regular meals but no food between meals, and no sweets in any form. If he is never allowed to taste candy or ice cream he will not miss them. Do not give him tastes from the family table.

Teach the baby to hold the bottle himself. During weaning it is well to teach the baby to drink from a cup instead of a bottle. He may begin learning to hold the cup by the end of the first year.

*Sleep.*—Put the baby to bed at 6 in the evening to sleep till morning. He should still have his regular long morning nap and may need a short afternoon nap.

*Toilet habits.*—Keep on training for regular bowel movements and begin training for control of bladder.

*Exercise and play.*—Let the baby learn by himself to stand and walk; do not try to teach him this. Let him pull himself up in a play pen or in a crib with high sides. Give him simple toys, too large to be swallowed. Let him find out for himself how to get back toys that he has dropped.

*Sun baths.*—Keep on giving sun baths.

*Protection against communicable disease.*—By this time the baby should have been immunized against diphtheria. Before he is 12 months old he should be vaccinated against smallpox. (See p. 19.)



## KEEPING THE BABY WELL

The large majority of babies are well when they are born. The universal problem is how to keep them well. Preventing illness in babies is frequently much easier than curing it. Many diseases of babyhood are much less common to-day than they used to be because modern science has found out how they can be prevented. Some diseases can be prevented by feeding the baby properly and by giving him plenty of direct sunlight and some by vaccinating or inoculating him with a protective substance. Some diseases can be avoided only by keeping the baby from contact with them and by keeping flies and other insects away from him, for these carry disease; and sterilizing (by boiling) all artificial food and everything that he is likely to put into his mouth.

Regularity in the care of the baby and the establishment of routine health habits are necessary if he is to be kept well. The daily round of bathing, dressing, feeding, sleep, outdoor life (including sun baths), play, exercise, and elimination must be always regular.

### MEDICAL SUPERVISION

To keep a baby well there should be continued supervision by a doctor trained in the care of babies. The mother can not know nor recognize many of the early signs of trouble because she is not trained to do this and because she is too near the baby and sees him too often to realize that any change is taking place. The doctor, who sees the baby once or twice a month, looks at him with a trained eye and can see whether he is as rosy as usual or is becoming a little pale, whether he is as active as he should be, or whether he shows other early signs that are the forerunners of trouble. A mother can not know just when her particular baby needs to have his food changed or increased, nor when is the best time for her baby to be protected from diphtheria and vaccinated against smallpox. Such things as these the doctor will know, and his advice is of the greatest importance to every mother who would keep her baby well. The doctor's supervision of a baby should begin as soon as the baby is born.

### ROUTINE VISITS TO THE DOCTOR

Regular visits to the doctor should be made for three purposes: (1) Weighing (weekly); (2) advice (monthly); (3) health examinations (every four months).



**Weighing (weekly).**

Every baby should be weighed once a week at the doctor's office or at home (if the baby is weighed at home the weight must be reported to the doctor), or at one of the well-baby conferences or child-health centers that are conducted in many places for mothers unable to afford the services of a private doctor. (Ask at your city or county health department for the address of the well-baby conference or child-health center nearest your home.) If the progress in weight is satisfactory until the baby is 6 months old, weigh him once



*The weekly weighing*

every two weeks from this time until he is a year old. Steady gain in weight throughout the first year of life is one of the best indications of health.

**Advice (monthly).**

The mother and baby should be seen by the doctor, whether at his office or at a well-baby conference, at least once a month, and oftener if the baby is not doing well or if he is artificially fed, so that the baby's diet may be discussed as well as his habits of eating, sleeping, exercise, outdoor life, and elimination.

<sup>1</sup> To weigh the baby undress him completely. Put a soft cloth in the pan of the scales and lay the baby on it, or if the room is not warm wrap him in a blanket. Weigh him carefully and write down the weight. Remove the baby, weigh the blanket or cloth, and subtract this amount from the first weight.



**Health examinations (every four months).**

A complete examination of the baby will be made at birth by the doctor. After that the mother should take the baby for complete examination by the doctor at least three times during the first year, at 4 months, 8 months, and 12 months of age. When the doctor makes such a health examination he will undress the baby completely, weigh him, examine his head, eyes, ears, nose, mouth, gums, teeth, tongue, throat, thyroid and other glands, heart, lungs, abdomen, genitals, back, arms, legs, feet, skin, and posture (if he is old enough to stand).



*The regular health examination*

**USE OF WEIGHT-HEIGHT-AGE TABLES**

The baby's physical condition is best determined by a medical examination without clothes and by comparison of his height and age with some standard that represents the average weight for a large group of babies. Such a standard is given for white boys and girls in the following weight-height-age tables. Negro babies are on the whole slightly shorter and slightly lighter in weight for their age than white babies.

These tables are not applicable to young premature babies since in the early months premature babies do not fall into a group of normal



babies. During the later months even premature babies may approach the average as they outgrow their early handicap.

*Weight-height-age table for white BOYS from birth to 1 year<sup>1</sup>*

[Without clothes]

Height in inches	Average weight in pounds for each month of age											
	Less than 1 month	1 month but less than 2	2 months but less than 3	3 months but less than 4	4 months but less than 5	5 months but less than 6	6 months but less than 7	7 months but less than 8	8 months but less than 9	9 months but less than 10	10 months but less than 11	11 months but less than 12
17	5½											
18	6½											
19	7½	7½										
20	8	8½	9									
21	9	9½	10	10½	10½							
22	10	10½	11	11½	11½	11½	12					
23	10½	11½	12	12½	13	13	13	13½	14			
24	11½	12½	13	13½	14	14	14½	14½	15	15		
25	12½	13½	14	14½	15	15½	15½	15½	16	16	16	16½
26		14	15	15½	16	16½	16½	17	17	17	17½	18
27			16	16½	17	17½	18	18	18½	18½	18½	19
28				17½	18	19	19	19	19½	19½	19½	20
29					19½	20	20	20½	20½	20½	20½	21
30						21½	21½	21½	21½	21½	22	22
31							22½	23	23	23	23	23
32								24	24	24	24	24
33											25½	25

<sup>1</sup> Reanalysis of the weight, height, and age of 20,299 white boys under 12 months of age, examined in Children's Year (1918-19).

### HOW TO USE THE TABLES<sup>2</sup>

First measure the length or height of your baby by laying him on a table which has been pushed up close to the wall. Place the baby with the top of his head touching the wall, his body and legs straight and flat on the table, and hold him still. Place a book upright against the soles of his feet and mark the spot to which his heels come. Measure the distance from the wall to the mark with a yardstick or tape measure.

Find your baby's age in months at the top of the table (boys or girls).

Find your baby's height in inches at the left-hand column of the table.

Run your finger straight across from his height to the figure in the column under his age. The number found at this point represents the average weight in pounds of babies of the same age and of the same height as your baby.

When using these tables remember that each weight figure given represents an average. If your baby's weight is a little above or a little below the average weight of babies of his height and age, he probably is within normal limits.

<sup>2</sup> For girls' table see p. 16.



*Weight-height-age table for white GIRLS from birth to 1 year<sup>1</sup>*

[Without clothes]

Height in inches	Average weight in pounds for each month of age											
	Less than 1 month	1 month but less than 2	2 months but less than 3	3 months but less than 4	4 months but less than 5	5 months but less than 6	6 months but less than 7	7 months but less than 8	8 months but less than 9	9 months but less than 10	10 months but less than 11	11 months but less than 12
17	5½											
18	6½	6½										
19	7	7½	8									
20	8	8½	9	9								
21	8½	9½	9½	10	10½	11	11					
22	9½	10	10½	11	11½	12	12	12	12½			
23	10	11	11½	12	12½	13	13	13	13½	13½	13½	
24	11	12	12½	13	13½	14	14	14	14½	14½	14½	14½
25	11½	13	13½	14	14½	15	15	15½	15½	15½	16	16
26		14	14½	15	15½	16	16	16½	16½	16½	17	17
27			15½	16	16½	17	17	17½	17½	18	18	18
28				17	17½	18	18½	18½	19	19	19	19
29					19	19	19½	20	20	20	20	20
30						20	20½	21	21	21	21	21½
31							21½	22	22	22	22½	22½
32									23	23½	23½	23½
33												24½

<sup>1</sup> Reanalysis of the weight, height, and age of 19,493 white girls under 12 months of age examined in Children's Year (1918-19).

**HOW TO PREVENT DISEASES \*****PREVENTION OF DIGESTIVE DISTURBANCES**

Digestive disturbances, such as diarrhea and vomiting, are more likely to occur during hot weather, but may occur at any time. They are often due to improper food, or they are likely to follow some infection such as a cold or an abscess in the ear. They may usually be prevented by proper feeding and by avoidance of infections. (For prevention of infections, such as colds, see p. 18.) Severe diseases of the bowels, such as dysentery and typhoid fever, may be prevented by boiling all food and water given to the baby.

**Breast feeding.**

During the first nine months of life many digestive disturbances can be prevented by breast feeding. Most well mothers can nurse their babies and thus save them from much sickness. Breast-fed babies do not have digestive troubles so much as artificially fed babies, especially during hot weather, and fewer breast-fed babies die.

**Boiling milk.**

In the baby who has passed the weaning age or who for some other reason must be artificially fed many digestive disturbances may be prevented by boiling his milk. The cleanest and best milk obtainable should be bought (pasteurized milk, if this is available). The

\* For a general discussion of the prevention of disease, see *The Child from One to Six*, his care and training, p. 18.



milk should be boiled as soon as it is delivered and should be kept on ice in covered sterilized bottles. In summer special care must be taken to get good milk and to prepare it properly. Most of the danger for which hot weather is ordinarily blamed, especially during weaning time, can be eliminated if the baby's milk is boiled.

#### PREVENTION OF CONSTIPATION

Constipation means the passing of very hard material from the bowels, or the passing of a very small amount, or failure to empty the bowels daily. Though it may be thought of as a digestive disturbance it should be considered a minor one, far less serious than diarrhea. Constipation may occur in both breast-fed and bottle-fed babies. It can usually be prevented by bowel training and proper diet—in a bottle-fed baby, by adjusting his food formula. The doctor should be consulted about this.

Training to establish the habit of a regular daily bowel movement is an important measure in prevention of constipation. Proper diet will help to bring about normal stools. (See pp. 78 and 103.)

#### PREVENTION OF SCURVY AND RICKETS

Certain diseases are caused by the lack of necessary vitamins (for discussion of vitamins see p. 79) and are therefore called deficiency diseases. Two such diseases are scurvy and rickets.

Scurvy is a nutritional disease caused by lack of vitamin C in the food. It prevents the baby from gaining weight satisfactorily, makes him pale and irritable, and has other unfavorable effects. It is to prevent this disease that orange juice, lemon juice, or tomato juice should be used daily, as these contain large amounts of vitamin C.

Rickets, a nutritional disease affecting especially the bones and muscles and resulting in deformities such as bowlegs, may be prevented by daily sun baths and the daily use of cod-liver oil that is known to contain vitamin D, the "antirachitic factor." If children in the Temperate Zones, where rickets affects many babies, are to grow normally and avoid this disease, they must have both sun baths and cod-liver oil from the first month of life (when rickets may begin) to the end of the second year. (See pp. 42 and 80.)

#### PREVENTION OF ANEMIA

Anemia is a condition in which a test by a doctor shows that the child's blood has less coloring matter than it has under normal condition. Anemia is often seen in babies who receive a diet of milk and sugar only. Anemia of this type may be prevented by giving the baby enough green leafy vegetables, egg yolk, and fruit juice. (For suggestions regarding these foods see p. 78.)



**PREVENTION OF GOITER**

In the region of the Great Lakes and other so-called "goiter regions" mothers and babies may need small amounts of iodine daily in addition to diet to prevent goiter. Ask your doctor whether you and your baby need this, and if so, how it should be given.

**PREVENTION OF COLDS**

Babies are very susceptible to common colds and are frequently made very ill by what is "just a cold" in an adult. All persons having colds or coughs should be kept away from the baby. No one should lean or talk over a baby, or breathe in his face, since breath carries a fine spray which may be loaded with germs. Some persons though they apparently have no colds themselves, are carrying germs in their noses or throats which will produce disease in a baby.

Avoid overheating of the rooms in which a baby lives. Keep the air fresh by leaving a window open a little way. (See p. 22 for ventilation.) Do not overheat the baby by wrapping him up too warmly when he goes out. If he perspires too freely outdoors he may be chilled when he comes indoors and has his wraps removed.

Never take a baby into a crowded place, for some one in the crowd may have a cold and the baby is likely to catch it.

Do not let the baby get too tired.

**PREVENTION OF TUBERCULOSIS**

Tuberculosis is a very serious and often fatal disease in infancy. Babies get tuberculosis by being near a person who has tuberculosis or by drinking unboiled milk from tuberculous cows. (See section on how clean cow's milk is produced, p. 85.) To keep a baby from getting tuberculosis keep him away from anyone who has the disease, even if it is his mother or father, and from anyone who has a cough, and see that he drinks no cow's milk that has not been boiled.

A tuberculous person may infect an infant directly through germs in the droplets of spray which he breathes or coughs out, and for this reason a baby should not live in the house with a person suffering from active tuberculosis. The germs may be present on the floor or in rugs and may infect the baby when he creeps. If any member of the household has the disease, either the baby or the patient should be removed from the home. If the mother has active tuberculosis when the baby is born, the baby should be taken away from her at once. She should neither nurse nor take care of him. Babies should be kept away from any person who has a chronic cough, since frequently such a cough is due to tuberculosis, whether recognized or not. Many mothers do not know that tuberculosis may



occur in old persons and fail to keep the baby away from an old person with a cough.

#### PROTECTION AGAINST SMALLPOX

Every baby should be vaccinated against smallpox before he is 12 months old. This should be done whether there is any smallpox in the community or not, as the disease may break out when least expected.

#### PROTECTION AGAINST DIPHTHERIA

Every baby should be immunized against diphtheria when he is 6 months old or as soon after as is possible. This is done by the injection of three doses of toxoid or toxin-antitoxin. Six months later the baby should be given a "Schick test" to see whether the treatment has protected him against the disease. In the majority of babies thus treated the test shows that the baby has been protected, but in a few the test will show that they need to have the injections repeated. Be sure to have the Schick test done and find out whether your baby is safe. Babies who are effectively treated with toxoid or toxin-antitoxin will not get diphtheria.

#### PREVENTION OF WHOOPING COUGH

Whooping cough is a serious disease in a baby under 1 year. If a baby is exposed to whooping cough he may be inoculated with a vaccine which, though it probably will not protect him from the disease, may make it less severe when it develops.

#### PREVENTION OF MEASLES

Measles is a serious disease in a baby or a very young child, and it is often wise to try to modify it. If within a week after he has been exposed to measles a baby is inoculated with serum or blood from a person who has recovered from measles, the disease will be modified. If the inoculation is given in the first four days after exposure, the disease may be prevented for the time being. The doctor should be consulted with regard to this.

Do not allow the baby to be exposed to measles (or any other disease), with the idea that "he is sure to get it some time." It is wise to ward it off as long as possible, for the younger the child the more serious the disease is likely to be. Most babies under 6 months of age will not get measles.

#### PREVENTION OF OPHTHALMIA NEONATORUM (NEWBORN BABIES' SORE EYES)

Ophthalmia neonatorum (newborn babies' sore eyes) may be prevented by putting 2 drops of 1 per cent silver-nitrate solution into each of the baby's eyes immediately after birth.



### PREVENTION OF CONGENITAL SYPHILIS

Congenital syphilis is in most cases a preventable disease. With proper examination and treatment of the mother before and during her pregnancy congenital syphilis would be entirely done away with. Every mother should have a Wassermann test made of her blood as soon as she knows that she is pregnant. If the test shows that she has syphilis intensive treatment for the disease should be begun at once and continued under the direction of her doctor or a clinic throughout her pregnancy. If there is no clinic or laboratory in a community the doctor can send a sample of the mother's blood to the laboratory of the State department of health. If a mother with syphilis is treated intensively throughout her pregnancy her baby will probably not have congenital syphilis. The fact that a woman is pregnant is not a reason for avoiding or delaying treatment for syphilis. If she is not treated it is likely that she will have a miscarriage or that the baby will be born either dead or diseased.

### HOW TO PREVENT ACCIDENTS

#### BURNS

Burns are far too common in infancy. They should be prevented by keeping the baby away from the stove, open fires, and gas or electric heaters. Keep him in his crib or in a play pen, at a safe distance from any heater. Never bathe him close to the stove, as tragic accidents have been caused by overturned kettles of hot water.

#### POISONINGS

Keep all bottles of medicines or boxes of pills on high shelves or in cupboards well out of the baby's reach. Do not leave the bottle of iodine on the washstand or table. Keep the kerosene can in a closed cupboard or other safe place. A baby who bites his painted crib or other piece of painted furniture may get lead poisoning; he should have an unpainted wooden crib or one painted with paint containing no lead.

Never use a baby powder containing stearate of zinc unless ordered by your doctor. Never give a baby a can of baby powder as a plaything, even one that is apparently empty. If he puts the top in his mouth he may inhale the powder. If stearate of zinc is inhaled, a serious and often fatal form of pneumonia develops.

Always keep such poisons as lye on high shelves out of the baby's reach. Never leave a can of lye on the floor or in any place where a creeping child might get hold of it. Lye causes a type of burn in the mouth and throat that may result fatally.

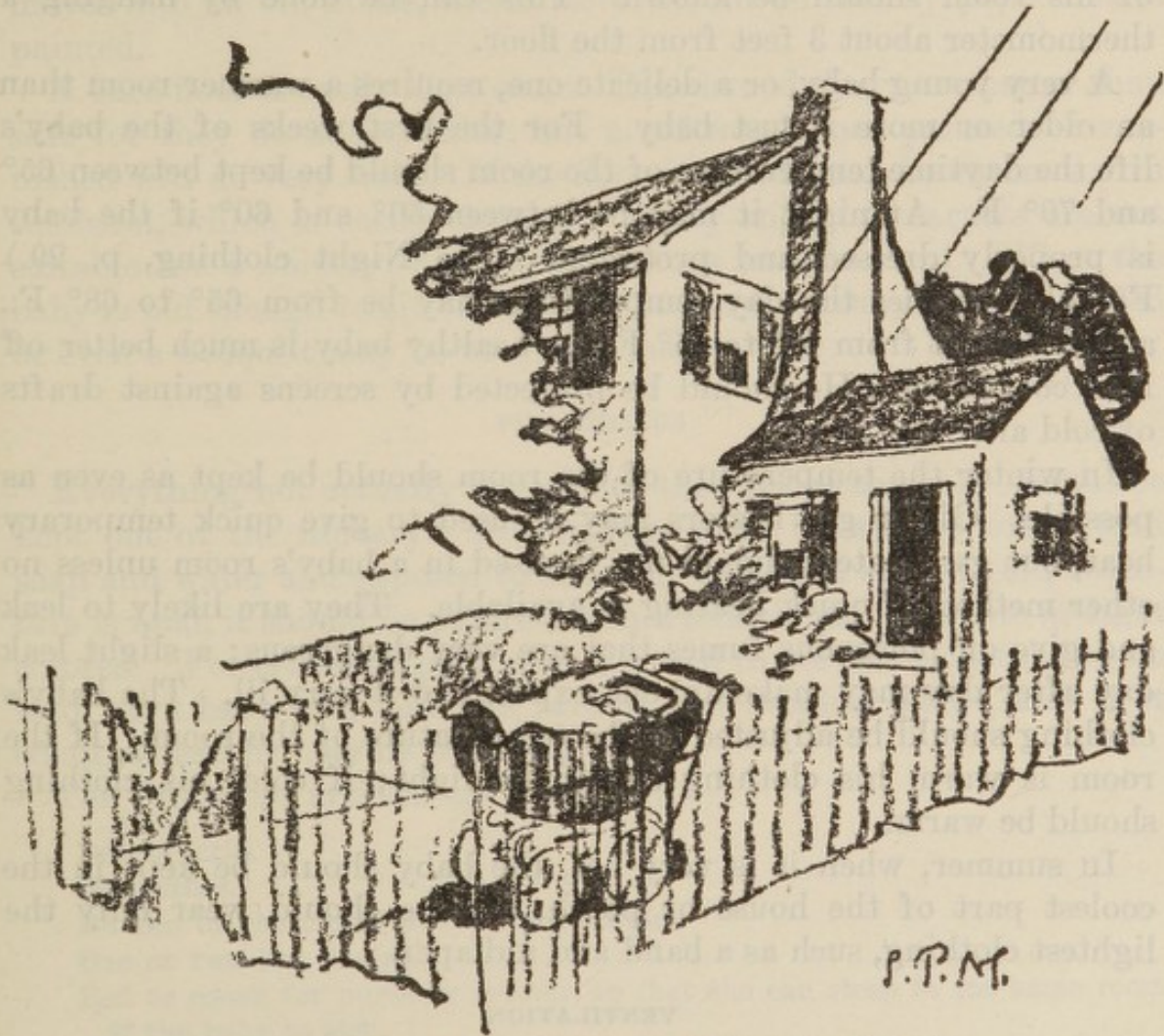
To avoid gas poisoning, be sure that gas fixtures do not leak and that lights that might be blown out accidentally are not left burning.



## THE HOME

### SELECTING A HOUSE

The house that is to be the home of children should be sunny, well ventilated, and dry. If possible there should be a sunny yard or porch where the children may play and where the baby may have sun baths. Plumbing, drainage, and other conveniences should be in good repair; the cellar should be dry; there should be no breeding place for flies and mosquitoes near the house, such as manure piles,



*A cottage in the suburbs is a good place for the baby*

open privies, or open water barrels. All doors and windows should be screened.

The water supply, if a well or a spring, should be so located as to prevent the water from being polluted by bacteria or drainage from barns, stables, cesspools, or outhouses. The most satisfactory method of avoiding the possibility of water pollution is to make certain that the cesspool or outhouse is on a lower level than the



well or water supply. In no case should a cesspool or outhouse be closer to a well than 50 feet.

### THE BABY'S ROOM

Whenever possible a room should be given up to the exclusive use of the baby since it is hard to give him the quiet he should have in a room that must be used also by other members of the family. A bright, sunny room should be chosen for the nursery.

#### TEMPERATURE

In order that the baby may be dressed properly the temperature of his room should be known. This can be done by hanging a thermometer about 3 feet from the floor.

A very young baby, or a delicate one, requires a warmer room than an older or more robust baby. For the first weeks of the baby's life the daytime temperature of the room should be kept between 65° and 70° F. At night it may be between 50° and 60° if the baby is properly dressed and protected. (See Night clothing, p. 29.) For older babies the day temperature may be from 65° to 68° F., and the night from 40° to 55° F. A healthy baby is much better off in a cool room. He should be protected by screens against drafts of cold air.

In winter the temperature of the room should be kept as even as possible. Oil or gas heaters may be used to give quick temporary heat, but gas heaters should not be used in a baby's room unless no other method of quick heating is available. They are likely to leak and give off poisonous fumes that are very dangerous; a slight leak day after day may make anyone exposed to it very ill. The baby's clothing should be adjusted to the temperature of the room. If the room is warm his clothing should be light; if cold, his clothing should be warm.

In summer, when it is very hot, the baby should be kept in the coolest part of the house or porch, and he should wear only the lightest clothing, such as a band and a diaper.

#### VENTILATION

The best way to ventilate the baby's room is to keep the window open. Most of the time the window may be left open at the top, or at the bottom when a window board is used.<sup>1</sup> It is possible to shield the crib in such a way that no direct draft falls on the baby.

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<sup>1</sup> A window board is a piece of wood or glass, 10 or 12 inches high, resting on the window sill, slanting toward the inside of the room, and held in place by a triangular support at each end. The board turns the air upward and keeps it from cooling the lower part of the room too suddenly. By another plan the window is opened a few inches, at either the top or the bottom, and a board cut to fit the opening is inserted. This permits the air to enter through the space between the sashes at the middle of the window and distributes it so that it does not fall directly upon the head of the baby.



For ventilating the nursery at night in cold and windy weather tack one or more thicknesses of cheesecloth on a wooden frame like that of an ordinary wire screen and insert in the open window. The cloth breaks up the air current and distributes it in various directions, thus preventing drafts. A narrow cloth screen a few inches wide may be inserted in an opening at the top of the window, thus making it possible to keep the window open most of the time even in very cold weather.

#### WALLS AND FLOORS

The baby's room should be kept scrupulously clean. If the family moves into an old house, the nursery should be freshly papered and painted.

A bare floor is easily kept clean. Hardwood floors are better than soft for they do not splinter, but a softwood floor painted or varnished will do very well. If the floor is old, it may be covered with linoleum, which is easily cleaned. Heavy rugs and carpets are not suitable for a nursery, but washable rugs may be used. When the baby is old enough to sit on the floor to play, a heavy blanket folded or even a bedquilt may be used as a mat.

#### FURNISHINGS

Everything not actually needed for the care of the baby should be kept out of the nursery. Furnishings must be washed often with soap and water and exposed to sunshine and open air. If old furniture is used, it should be painted with washable paint—white or light colored. For cribs and play pens it is well to use paint containing no lead, as a baby may bite the railing and swallow paint, and if it contains lead he may be poisoned.

The following articles are essential:

Bed or crib.

Bedclothes.

Bureau or chest of drawers for clothing.

One or two low chairs.

Bed or couch for nurse or mother, so that she can sleep in the same room if the baby is sick.

Wall thermometer.

Low chair for the mother to use when nursing the baby.

Folding or stationary dressing table on which to bathe and dress the baby.

Bathing equipment:

Tub—tin, enameled ware, or rubber.

Washbasin.

Enameled-ware tray, or a box or drawer divided into compartment in which are kept such things as—

Absorbent cotton.

Boric-acid solution.



Safety pins (three sizes).  
 Soap (Castile).  
 Squares of gauze or old linen.  
 Talcum powder.  
 Mineral oil, tube of petroleum jelly, or cold cream.  
 Soft hairbrush.

Six soft linen towels.

Six soft wash cloths.

Bath apron (butcher style), of outing flannel.

Rubber apron to wear under flannel one.

Bath towels for mother's lap or dressing table.

Toilet equipment (kept in bathroom if possible).

Painted nursery toilet chair for the young baby, with a cushion.

Small toilet seat with back and sides, which can be firmly fastened on the regular toilet, with a safety strap that goes around the baby's hips, and a foot rest for the older baby.

Small enameled-ware chamber.

Covered enameled-ware slop pail or two for diapers.

Covered soiled-clothes hamper.

Other useful articles are:

Clothes rack.

Balance scales.

Table to hold scales.

Screen.

Nursery ice box.

Bath thermometer.

Little chair and table.

Hinged gate at stairway.

### Bed.

The first requisite of a good bed is that it should enable the child to lie perfectly flat. The first bed may be a bassinet, or it may be a large flat clothes basket, or even a wooden soap box. A folded piece of table padding or several thicknesses of blanket may be used as a mattress; it must be flat and smooth. The basket or box should stand on a table or on two chairs placed with their seats together and should never be left on the floor while the baby is in it.

A larger bed will be needed as soon as the baby tries to sit up, so that it is well to start with the permanent crib and a firm mattress that does not sag in the middle. If the side of the crib lets down, the catch that holds it up should be well out of reach of the older baby or little child. The bars of the crib should be fairly close together, so that the baby can not put his head between them. If the crib is of metal it is well to pad the ends and sides.

To make the baby's bed, cover the mattress or at least the middle section of the mattress with a piece of oilcloth or soft rubber sheeting, to each corner of which a strong tape has been sewed. Tie these tapes together under the mattress to hold the rubber cover smooth. (The rubber cover may be made like a pillowcase, covering the mattress entirely.) Over this place a cotton pad. Cover this with a small sheet, which should be tucked under the mattress on all four sides, so that the bed is perfectly smooth. If a sleeping bag



is used no other covers are needed, except in cold weather, when extra blankets may be needed. For weather when sleeping bags are too warm, lightweight wool blankets should be provided. Such blankets are much warmer than heavy cotton ones. In very hot weather no covering is necessary, not even a top sheet. The bed may be finished with a dimity or seersucker spread, which is easily washed and requires no ironing. Do not use a heavy spread.

It is better not to use a pillow, as the baby will lie more nearly flat without one. A folded napkin may be placed under his head instead of a pillow.

A combination bed and play pen, with a bed spring and a mattress, may be used for a young baby. Such a bed usually is covered with wire netting on all four sides, the bottom, and the top, to keep out insects; the top opens like the cover of a box. The top should have a fastening that locks automatically when it drops, so that, when the baby begins to stand up, he can not raise it with his head and possibly injure himself. The top must be kept securely fastened. This bed may be fitted with casters or wheels so that it can be moved readily between the porch and the house or from room to room. After the baby is about a year old this kind of bed should no longer be used. He will probably need more room than it affords, and a larger bed should be provided.

A baby carriage should not be used as a bed unless this is absolutely necessary, and then it may be used only for the little baby. There should be a flat mattress in the carriage. As the baby will soon outgrow a baby carriage, he should have a bed with space large enough to permit him to turn over, stretch his arms and legs, and kick freely.

#### Dressing table.

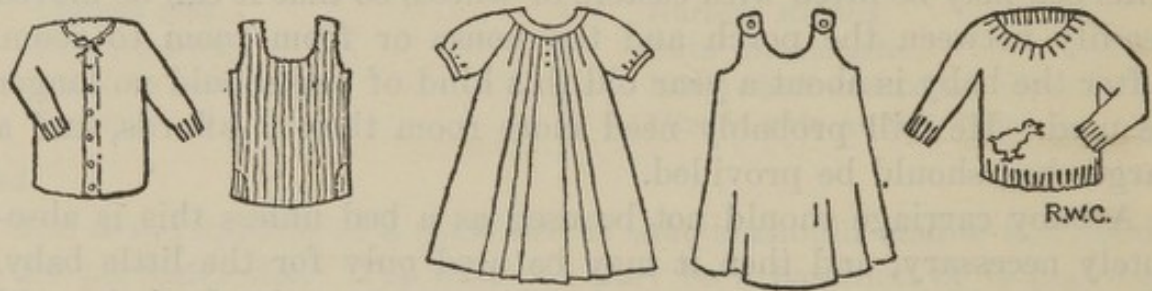
A table on which to change the baby's diaper and to bathe and dress him is a great help. It should have a smooth top or be covered with oilcloth so that it may be scrubbed. A soft pad should be put under the baby.

A small clothes rack is convenient for use in dressing and undressing the baby.



## CLOTHES

Clothing must be simple and washable and adapted to the climate and season, to the temperature of the house, and to the age and condition of the baby. In warm climates and in summer, lightweight garments should be chosen, and in cold climates and in winter much warmer ones will be necessary, except in well-heated rooms. In the hottest weather only the band and diaper need be worn. Very small babies and feeble babies who lie still a great deal need to be watched closely to be sure that they are warm enough. Robust babies are often dressed too warmly. If a baby continually perspires and his body is moist to the touch he is dressed too warmly. Such babies are likely to be restless and fretful.



Baby's clothes

If the baby's hands and feet are cold he may need warmer clothing; but it is a mistake to bundle a baby up too much even when going outdoors, for when he comes indoors his clothes may be damp from perspiration and he may actually be colder indoors than out. Be careful that your baby is warm enough but not too warm.

The following list gives the clothing necessary for the average newborn baby:

Diapers	dozen	4-6
Knitted bands		2-4
Knitted shirts		2-4
Nightgowns		3
Slips or dresses		4-8
Stockings	pairs	4
Sweater		1
Flannel squares (outdoor wraps for newborn)		3
Cloak and cap, thin		1
Cloak and cap, heavy		1

Pins are used for the diapers, but buttons or tapes are better for fastening the other garments.



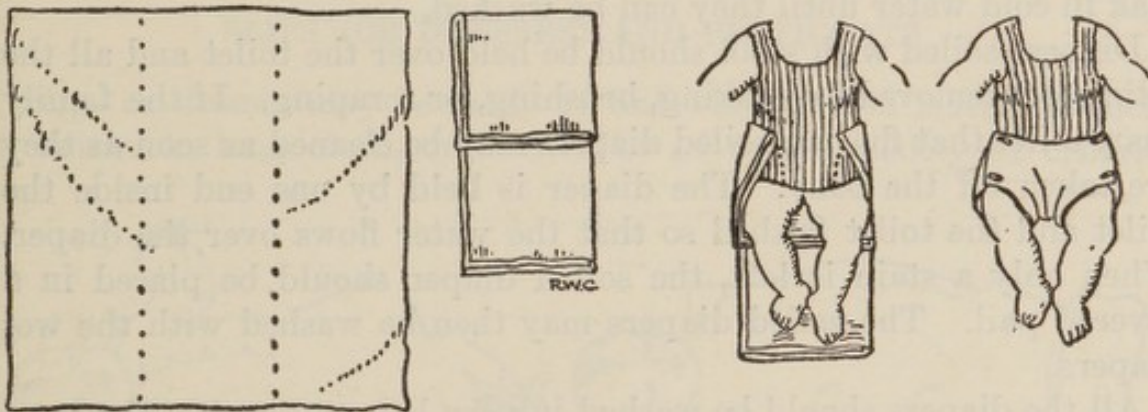
Babies' undergarments may be of cotton, of wool and cotton, of wool and silk, or of silk. Rayon, alone or combined with cotton or wool, is being used more and more. All-cotton garments are used widely. In cold climates or in winter, or for very young or weak babies, the shirts and bands may be at least part wool. All-silk or all-cotton garments may be used if wool irritates the skin.

If ready-made garments are bought, size 2 should be selected, as size 1 will be outgrown soon. If they are made at home they should be made large enough at the start to fit the baby for a few months. They do not need to be longer than to cover the feet—20 to 24 inches.

No garment should have trimming that can scratch or irritate the tender skin of the baby's neck, nor should any garment be starched.

### DIAPERS

Cotton bird's-eye cloth is the best material for diapers. They should be about 24 or 26 inches square after shrinking. Five or six



How to put on diaper

dozen is not too many, but four dozen will keep the baby fairly well supplied. Many mothers use old pieces of cotton goods to place inside the diapers to catch the stool. Care should be taken not to use diapers which are too bulky as they may cause thigh deformities.

### HOW TO PUT ON A DIAPER

For a small baby fold the diaper triple thickness. Then fold one end back about 8 inches, so as to make a pad of six layers of cloth to go under the baby, while the part that passes between his legs is only three layers thick. The folded diaper is now about 16 by 8 inches. Lay the baby on the folded diaper lengthwise, with the thick part under the baby, so that the fold reaches his waist at the back. Draw the other end up between the baby's legs over his abdomen, not too tight, and pin the front and the back together at each side of the waistline, the same pins passing through the band.



Another safety pin at each knee is used to hold the front and back of the diaper together, the same pins holding the stockings to the diaper.

For a somewhat larger baby the size of the folded diaper may be 10 by 16 or 18 inches, and for a 10 or 12 month old baby, 12 by 20 to 24 inches.

Care should be taken not to hamper the free movement of the body and legs by pinning stockings or diaper too tightly.

#### CARE OF DIAPERS

The diaper should be changed as often as it is wet or soiled. At night it should be changed when the baby is taken up to be fed. (See Training the bowels and bladder, p. 58.) Used diapers should be washed once a day. No diaper should be used a second time before being washed. Used diapers should never be left lying about the room nor hung up to dry on radiators.

Wet diapers should be placed at once in a covered pail and left to soak in cold water until they can be washed.

Diapers soiled with stool should be held over the toilet and all the solid stool removed by shaking, brushing, or scraping. If the family has a toilet that flushes, soiled diapers may be cleaned as soon as they are taken off the baby. The diaper is held by one end inside the toilet and the toilet flushed so that the water flows over the diaper. When only a stain is left, the soiled diaper should be placed in a covered pail. The soiled diapers may then be washed with the wet diapers.

All the diapers should be washed in very hot water with plenty of mild white soap, with no washing powder or strong yellow soap. They should be rinsed through four waters to be sure that all the soap is rinsed out and *then they should be well boiled*. Much of the irritation of the thighs and buttocks, which is the source of severe suffering to babies, is caused by insufficient rinsing of diapers or by not boiling them after the rinsing. Diapers should be dried in the sunshine and open air, not in the baby's room. They may be used without ironing if shaken and pulled into shape.

#### RUBBER BLOOMERS OR "BABY PANTS"

Rubber bloomers are bad for the baby. They prevent evaporation of moisture; and as they also cause extra sweating, the diaper becomes wet with perspiration and irritates the baby's skin. Rubber bloomers should never be worn except on special occasions, such as during a short journey. During the journey the diaper should be changed when wet or soiled.



## BANDS AND SHIRTS

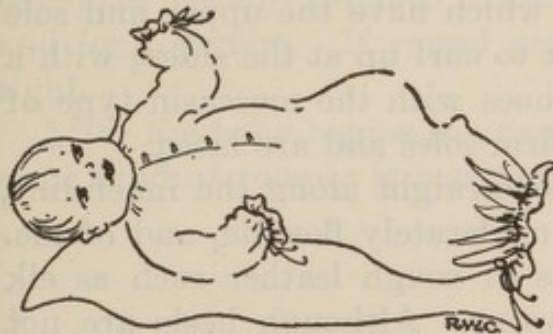
The baby's first band is usually an unhemmed strip of part-wool flannel 6 inches wide and 18 to 20 inches long; its only purpose is to hold the navel dressing in place. This flannel band should be fastened with tiny safety pins, or with tapes, at one side of the front—never at the back. A knitted band with shoulder straps should be substituted for the flannel band as soon as the navel has healed. If the navel dressing is held with surgical-gauze bandages the flannel band is unnecessary, and a knitted band with shoulder straps, reinforced on the sides for diaper pins, may be used from the start.

Whatever sort of band is used it should never be tight enough to bind. The abdominal muscles of a healthy baby need little support; rather they need free play in order to be strengthened. A band drawn tightly about the abdomen may do harm.

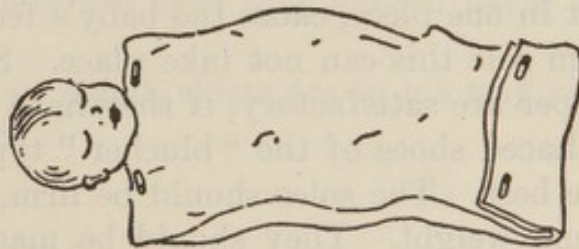
The shirts should open all the way down the front and should be large enough so that the sleeves will easily slip on and off.

## SLIPS (OR DRESSES) AND PETTICOATS

Slips or dresses may be made of fine white cotton materials such as nainsook, long cloth, or batiste, or of a fine quality of crinkle



Nightgown



Sleeping bag

crêpe, or of pongee or other silk. If the material is not transparent the dress can be worn without a petticoat except when one is needed for warmth. Nightgowns that open all the way down the back may be worn day and night during the first few weeks.

Flannel petticoats are unnecessary except in extremely cold climates. Muslin petticoats are needed only for the sake of appearance, when a thin fine cotton dress is worn.

## NIGHT CLOTHING

Any soft material may be used for nightgowns, such as part-wool flannel, or cotton flannel, or single stockinet—or in hot weather thin white cotton goods such as batiste. When cotton flannel is used,



care must be taken to guard against fire, as the fuzzy surface is inflammable.

Winter nightgowns for a very young baby may be made with a string run through the hem so that they may be drawn up at the feet, but they must be long enough to come well below the feet so as not to restrict his freedom to kick.

### STOCKINGS

The best stockings for a baby are of cotton. Others are of wool and cotton, wool and silk, all wool (for use in very cold climates), or a mixture of rayon and cotton, wool, or silk. Stockings, after washing, must be one-half inch longer than the baby's foot, and therefore to allow for shrinking it is wise to buy them at least three-fourths inch longer. Woolen stockings should be washed quickly and dried on stocking stretchers to prevent them from shrinking. A loop of tape may be sewed to the top of each stocking, through which to slip the safety pin that holds them to the diaper.

### SHOES

As soon as a baby tries to stand and before he learns to walk, he should begin to wear shoes that fasten around the ankle and that have soles firm enough to permit his feet to take their natural position. Soft shoes such as moccasins, which have the upper and sole cut in one piece, cause the baby's feet to curl up at the sides; with a firm sole this can not take place. Shoes with the moccasin type of upper are satisfactory, if they have firm soles and are laced.

Laced shoes of the "blucher" type, straight along the inner line, are best. The soles should be firm, moderately flexible, and of medium weight. They should be made of rough leather such as elk hide, so as not to be shiny nor slippery. Although heels are not advisable, the soles should be somewhat thicker at the heel and under the arch; a perfectly flat sole is undesirable.

The shank of the shoe should be narrow, the heel close fitting, the upper full and soft over the child's toes, and the toe of the shoe broad enough for his toes to move easily.

Shoes should always be long enough, so that the toes are not crowded but have complete freedom of motion. Before buying shoes for a baby old enough to stand, make a tracing of his foot on paper, with the baby standing. Select shoes that are one-fourth to one-half inch longer than the baby's foot and at least one-fourth inch wider at the toes. As soon as the baby's foot grows so that his toes nearly touch the end of the shoes, longer ones should be bought. The mother should examine the baby's feet frequently, and if his toes are found to be overlapping or turned under, larger shoes are needed.



### COATS, SWEATERS, AND CAPS

The extra clothing that a baby wears when he goes outdoors depends on the weather and on his age and vigor. When a very young baby is taken outdoors a square of blanketing may be used as a wrap.

In parts of the country where the weather is very variable and may be cold one day and mild the next the baby's clothes must be adjusted accordingly. It is therefore wise to have a sweater to be used as a light extra wrap, indoors or outdoors, as it can be taken off and put on easily.

The baby should have also a lightweight flannel coat for spring and fall and a heavy cloak of warm woolen material, with or without a thick interlining of wool, for winter. An older baby may wear a knitted woolen suit in cold weather instead of a coat.

A warm woolen cap or hood should be provided for winter. In warm weather a soft muslin or silk cap may be used, or, better, none at all. On the hottest days of summer if the baby goes out between noon and 3 o'clock his head should be protected from the sun by a light cotton shade hat.

### ADDITIONAL CLOTHING FOR THE OLDER BABY

Late in the first year, if the baby has been trained to the use of a chamber, he will go into drawers and will then need underwaists and long garters. If round garters are used they should never be tight.

After the baby begins to creep or stand, skirts are in his way and some kind of romper is necessary.



## BATHS

A healthy baby should be bathed every day. During the first two weeks this and all the matters pertaining to the care of the baby usually are under the supervision of the doctor or nurse. For directions for the first bath see the Children's Bureau bulletin, Prenatal Care. The full tub bath may be given as soon as the scar where the navel cord was attached has fully healed. For some weeks a tiny baby may be bathed in a basin or bowl; after that he should have a baby tub.

The mother may find it convenient to give the bath before the mid-morning feeding, after the bowels have moved. Never bathe a baby within an hour after feeding. Sometimes it may be more convenient to give the bath at night, just before the baby's bedtime. The water for a young baby's bath should be slightly above body heat; that is, about 105° F. As the baby gets older the temperature may be slightly lowered. A bath thermometer that floats is useful, but if none can be had the mother may test the temperature with her elbow. When the water feels neither hot nor cold it will be comfortable for the baby. It should be tested after the baby is undressed and ready to be put into the water. Never add hot water to the bath while the baby is in the tub. Never put the baby into the bath while the tub is standing on a stove or heater; he might be seriously burned in this way. Never bathe a baby close to the kitchen stove. Never leave a young baby alone in the tub.

Before beginning to give the bath the mother should wash her hands clean and see that there are no pins or needles in her clothing to scratch the baby. The room should be comfortably warm—about 75° F.—for a young baby. It is not wise to have it so hot that the baby perspires, as there is then danger of his being chilled when taken into another room where the temperature is lower or if the room is cooled rapidly.

Take off all the baby's clothes and wash his face and scalp. Wash the face with water, but no soap, with the small soft cloth kept for this purpose. Then lay the baby on his back in your lap. It is usually more convenient to have his head to your right, and slightly lowered. Rub a little soap on the cloth and wring it out of the warm water so as to make suds. Lather the baby's head completely and quickly rinse several times in clear warm water, all without raising his head. Rub lightly and dry quickly. By this process the head is easily washed without running any risk of getting soap into the eyes. The baby is then turned about so that the mother may more



conveniently use her right hand for the rest of the bath. Do not be afraid to wash the top of the baby's head thoroughly. By daily care "milk crust" or "cradle cap" may be prevented. If it forms rub in petroleum jelly or oil each night and wash the head thoroughly in the morning.

Next go over the entire body (not the head) with a soapy wash cloth; then place the baby in the tub, holding him with the left forearm under the neck and shoulders, the left hand under his arm, and lifting the feet and legs with the right hand. Go over his body with the wash cloth, this time not soaped; then lift him out and wrap him at once in a warmed towel. Dry him carefully with soft warm towels, patting the skin gently.

If the skin is carefully dried after the bath there will be little need for talcum powder, but a little powder may be used in the creases and folds of the skin, under the arms, and around the buttocks. It should be applied only after the skin is dry. After bathing girl babies do not powder between the folds of the genitals. Avoid too much powder as it may cake and cause irritation. If the baby tends to chafe or have a "diaper rash," oil is better than powder as it protects the skin from urine and stool. Mineral oil applied with absorbent cotton may be used instead of powder.

A baby should have his own towels and wash cloths, of old soft material, including a small, soft wash cloth for the face and one for use when the diaper is changed. Castile soap (made of olive oil) is a good type to use. Very little soap is needed, and it is most important that the skin be thoroughly rinsed after a soapy bath.

A baby sometimes dislikes or fears his bath, perhaps because of having slipped from his mother's hands when being put into the tub or of having been put into water which was too hot or too cold. When putting the baby into his tub hold him firmly, and until he is able to sit up steadily by himself hold him all the time he is in the tub to avoid even one accidental slipping. Toys that float will often divert the baby's attention and make him forget his objections to the water. Force or harshness is worse than useless in this as in other matters in the training of the baby. If a baby becomes unwilling to get into the tub do not force him to do so for a day or two but let him sit by the tub and play over the side of it with the water and soap and floating toys.

Dress the baby carefully but quickly, turning him as little and as gently as possible, for a little baby may be tired by a too-prolonged toilet. Everything should be done to make the dressing simple.

Keeping the baby's finger nails short is necessary to prevent him from scratching himself.



## CARE OF SPECIAL ORGANS

### EYES

After the first two weeks of life the baby's eyes may be washed with plain warm water and a soft cloth. Whether the young baby is awake or asleep his eyes should always be turned away from direct light, whether sunlight or artificial light, and shielded from dust and wind. Sunlight will not cause inflammation if the eyes are closed or turned away from the direct rays. When the baby is given a sun bath his head must be turned away from the sun so that it does not shine directly in his eyes, but there is no need to keep his head in the shade except on days when the sun is very hot. If the baby is placed for his sun bath so that he is lying with his feet pointed away from the sun and his head slightly raised his forehead and eyebrows will themselves shade his eyes from the direct rays. Dust and wind are much more likely to cause trouble than sun. In bathing the baby take care not to allow any soapy water to enter his eyes. Swelling or redness of the eyes or any discharge should have a doctor's attention at once. (See p. 19 for care of newborn baby's eyes.)

### MOUTH

The inside of a baby's mouth should never be cleaned before the teeth come, unless the doctor orders it. The saliva is a cleansing fluid, intended to keep the mouth healthy. It is possible to injure the delicate membrane of the mouth by attempting to clean it with a cloth. If the membrane is injured a disease called thrush may develop. (See p. 120.) A drink of water after feedings will keep the mouth clean.

### EARS

Wash the baby's ears with a soft cloth, but never attempt to put any hard instrument inside the ear to clean it. Always dry the ears and the creases behind them very carefully.

### NOSE

The baby's nose should be cleaned as a part of the daily toilet in the same way as the ears. When the baby has a cold his nose should have special attention (see Colds, p. 121), and separate handkerchiefs should be provided.



## GENITAL ORGANS

The genital organs in babies of both sexes should be kept scrupulously clean with as little handling as possible. Boys should be examined by a physician to see whether the penis is normal or whether circumcision is needed. Two or three times a week, at bathing time or as often as is necessary for cleanliness, the foreskin should be drawn back until the raised edge of the glans (end of the penis) is visible and the organ then cleansed. If the mother finds it difficult to draw back the foreskin she should not attempt to do it until the doctor has shown her how. The genitals of a girl baby should be washed carefully twice every day. Any swelling or redness of the parts, or a discharge, however slight, should be brought at once to the doctor's attention. Do not use talcum powder between the folds of the genitals.



## TEETH

The development of the teeth begins at least six months before birth. It is probable that the proper foods in the diet of the prospective mother help to lay the foundation for healthy teeth in the baby and that lack of proper food will deprive both her own and the baby's teeth of some part of their normal vigor. After the baby is born, in order that the teeth may continue to develop normally, it is of utmost importance that he himself receive the best diet possible, namely, his mother's milk. During the period of breast feeding it is also important that the mother should eat the proper foods and get plenty of direct sunlight. (See p. 63.)

The child's first set of teeth are called the deciduous, or "milk" teeth. Most of them come through the gums during the first two years and are replaced, beginning at about the sixth year, with the second or permanent teeth.

At birth every tiny tooth of both sets has already begun to form; nearly all the first set are already partly or wholly hardened. As the baby grows, the teeth grow also; and if the baby is healthy they are ready to cut through the gums, beginning at about the sixth or seventh month of life.

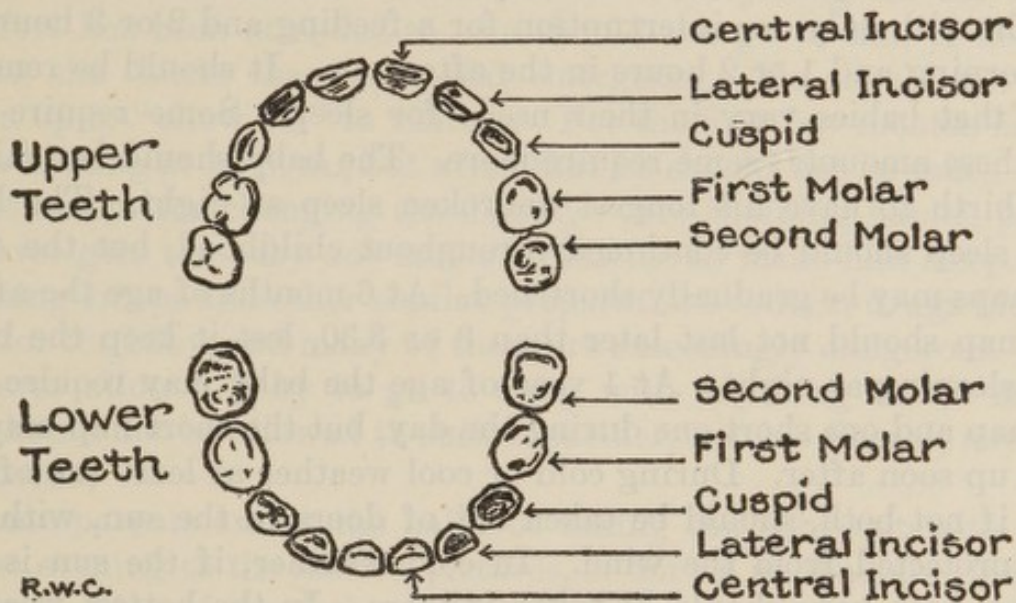
Teething is a normal process which continues from about the age of 6 months to 2½ years. During the time when a tooth is actually coming through the gum the baby may be irritable or fretful and may not eat well, but teething alone rarely accounts for illness or fever. If, during the period from 6 to 18 months when the first 12 teeth are coming through, the baby is feverish or sick, a doctor should be consulted, and the illness should not be attributed to "teething" until all other possible causes such as colds, abscess in the ear, and other diseases have been ruled out by the doctor.

The accompanying illustration shows the position of the milk teeth in the mouth, their names, and the approximate times of their appearance. There are 20 of the milk teeth—10 in the upper jaw and 10 in the lower. By the time a baby is 1 year old he may have 6 teeth; at 1½ years, 12; at 2 years, 16. At 2½ years the entire set of 20 should be cut. There is considerable variation both as to the order in which the teeth appear and in the time they take; and the mother need not be alarmed if her baby does not follow the average stated here; but if he has no teeth at the end of the first year he can hardly be developing properly, and therefore the doctor should be



consulted. The diet may be at fault, or some disease may be retarding the baby's growth. Racial and family traits account for some of the differences.

The first teeth to appear are usually the lower central incisors, followed a little later by the upper central and lateral incisors. Soon after the beginning of the second year the lower lateral incisors will appear, followed in a few months by the lower first molars and then the upper ones. The canines, upper and lower, will appear during the second half of the second year and the second molars in the first half of the third year.



It is generally believed that the health of the second teeth depends largely upon the care that is given to the first ones. The first teeth should be cleansed gently each day with a small soft brush.

During the latter half of the first year the baby should be given dry hard foods on which to chew. Exercise in biting and chewing helps to develop strong, healthy teeth and jaws. There is often a tendency to keep a baby too long on an exclusively soft diet. Begin when he is about 8 months old by giving him some dry, hard toast at the end of a regular meal, but watch him carefully when giving him hard food until he learns how to eat it.

The child's gums should be firm, dense, and a clear light pink in color, and they should hold the teeth firmly in place. Any sign of a gumboil should be regarded as a danger signal.



## SLEEP

### AMOUNT

A very young baby should sleep from 20 to 22 hours out of the 24; during the second and third months about 18 to 20 hours. When the baby is 6 months old he should sleep about 16 to 18 hours—12 hours at night with only one interruption for a feeding and 2 or 3 hours in the morning and 1 or 2 hours in the afternoon. It should be remembered that babies vary in their needs for sleep. Some require less than these amounts; some require more. The baby should be trained from birth to have his longest unbroken sleep at night. The long night sleep should be continued throughout childhood, but the daytime naps may be gradually shortened. At 6 months of age the afternoon nap should not last later than 3 or 3.30, lest it keep the baby from sleeping at night. At 1 year of age the baby may require one long nap and one short one during the day, but the short nap may be given up soon after. During cold or cool weather at least one of the naps, if not both, should be taken out of doors in the sun, with the baby protected from the wind. In cold weather, if the sun is not shining, both naps should be taken indoors. In the hottest weather the naps may be taken outdoors in the shade.

### SLEEPING CONDITIONS

The baby should have the best possible sleeping conditions so that the hours of sleep may be of the greatest value. He should always sleep in a bed by himself and whenever possible in a room by himself, where he need not be disturbed by the presence of other persons and where light and ventilation may be adjusted to his particular needs.

A baby should never be put to sleep in all his clothes. At bedtime and at naptime, his dress, petticoat, shirt, shoes, and stockings should be taken off, his diaper changed, and his nightgown put on. Before going to bed at night he should be sponged off with a wash cloth wrung out of lukewarm water. He will sleep better both day and night if he is comfortable.

The baby should be taught to sleep through the ordinary household noises. It should not be necessary to walk on tiptoe and talk in whispers while he sleeps, but he should have a reasonably quiet place for his daytime naps as well as for his long night sleep.



## ROUTINE

The baby should not be kept up during the family supper. It is too exciting for him. Every mother, whether she must prepare the evening meal or not, should arrange to nurse the little baby by 6 p. m. or just before and have him in his crib soon afterward. When 9 months old the baby can have his supper by 5.30 and be in bed at 6. He must be made comfortable, his covers adapted to the temperature of the room, the light put out, the window opened, the window shade raised to the level of the window sash, and the door shut. After the mother has assured herself that everything for the baby's comfort has been attended to, she should not go to him if he cries unless she thinks there is a real emergency. He should never be taken up to "show off" to visitors. For the first few months he will get a feeding at 10 p. m., but after that he should not be taken up at night except for changing the diaper. (See Sleeping habits, p. 58.)

Never give the baby any sort of medicine to make him sleep. All soothing sirups and other similar preparations contain drugs that are bad for the baby, and many of them are exceedingly dangerous.

Never allow a baby to go to sleep with anything in his mouth. He should not be allowed to suck a pacifier, nor his fingers, nor even his bottle.

Some parents are in the habit of taking the baby out with them in the evening to the motion pictures, or for an automobile ride. In many families if the father and mother both go out there is no one to stay with the baby, and it is a deprivation if one must stay at home, but the baby's welfare should be the first consideration. If the baby is taken out in the evening his habit of going to bed immediately after the 6 o'clock feeding is broken, he loses some part of the long unbroken sleep that he needs, and he is overstimulated by lights and noise. Furthermore, he is likely to be kept for an hour or more in a close, hot atmosphere and may be exposed to some communicable disease. Babies should not be taken into crowds of any sort.

## BEDCLOTHES

### IN COLD WEATHER

To keep a baby warm all night in cold weather and at the same time have sufficient fresh air is somewhat difficult. When the weather is moderately cold several light wool blankets will be needed. If the temperature in the room is below 15° F. the baby should wear a shirt and stockings as well as a warm nightgown; and a soft, roomy sweater may be put on over the nightgown. The baby's hands should be covered, either by the sleeves of the sweater or nightgown or by mittens. A sleeping bag made of an all-wool blanket will help to



keep the baby warm. Additional lightweight wool blankets may be used. A hot-water bottle or warmed bag of sand may be used to warm the bed before the baby is put in; but if it is left in the bed to keep his feet warm it must be well wrapped up and must be only warm, not hot, for the baby's flesh is delicate and is easily burned. Hot-water bottles must be carefully stoppered. Electric heating pads are not safe to leave in a baby's crib.

A nightcap may be needed in very cold weather; a wool stocking cap or a flannel hood, lined with cotton or silk and tied under the chin, may be used. A little cape sewed to the bottom of the cap will help to protect the neck in cold weather. This cape may be fastened to the sleeping bag at the back.

#### IN WARM WEATHER

In warm weather the baby should be put to bed in very light clothes. On the hottest nights a diaper and a lightweight band are enough. On nights a little cooler a thin nightgown and a lightweight blanket will be needed. The room should be made as cool as possible. An electric fan will keep the air in motion and thus relieve the worst of the heat. The fan should be arranged so that the current of air blows upward—toward the ceiling, not toward the baby. If there is a sleeping porch on which the baby may be protected from the wind, the baby's crib may be put on it when the weather is warm enough. Unless the porch is screened the crib should be covered with a netting to keep off flies and mosquitoes. When a baby is sleeping on a porch the mother must be on her guard against a sudden drop in temperature and be ready to put extra covering on him or to bring him indoors if necessary.

#### SLEEPING BAGS

After the baby is 5 or 6 months old, or whenever he can not be depended upon to remain under his blankets all night, he should have a sleeping bag. For the winter the bag may be made of any woolen material, preferably a soft blanket (an old one will do). For ordinary summer nights a bag made of muslin or outing flannel may be used.

The simplest and best plan for making a sleeping bag for a young baby is to cut a slit in the middle of a blanket, wide enough to permit it to slip easily over the baby's head, and bind or stitch the cut edges. The blanket is slipped over the baby's head, smoothed down under and over him, and the lower corners folded toward the middle and fastened with safety pins. This makes it possible to change the baby's diaper without taking him out of the blanket.

In the hottest weather the baby should not be put into a sleeping bag, as it prevents the air from circulating around him. A sheet



may be put over him and pinned so that he will not kick it off, but it should be loose enough to allow him to turn freely. Even a sheet may be unnecessary on some hot nights.

### DISTURBED SLEEP

If the baby sleeps lightly, wakens often, and seems uncomfortable, he may have been overexcited from having been played with too vigorously or roughly in the latter part of the day. All play from 4 o'clock on should be quiet (overstimulation is to be avoided at all times no matter what its source nor what the age of the baby). If the baby is restless he may be wet, or too warm, or too cold; there may be something scratching him, or there may be wrinkles in the bed clothing; he may be lying in a cramped position; the band or the diaper may be too tight; he may have been overfed or may have had something unsuitable to eat or may be hungry or thirsty. It may be, also, that the room is too light, too noisy, or not sufficiently aired.

The conditions that make sleep refreshing to older persons help the baby's sleep also; namely, plenty of fresh air passing in a constant current through the room, no light shining in the eyes, quiet, a clean body, clean, comfortable clothing, a good bed, and suitable covering.

A cool bath or a warm one, according to the weather, will help the baby to sleep quietly. In summer if he is fretful and sleeps restlessly, a tub bath at bedtime will help to relieve him. In the course of a long nap a little baby should be turned over once.

The mother must not be overanxious about these details; but having fed him properly, changed his diaper if necessary, made him comfortable, and arranged the windows, she should leave him and let him go to sleep by himself. She should not go back every time he cries—nor even once, unless she thinks there is some real necessity to be attended to.



## OUTDOOR LIFE

When the baby is 2 weeks old put him out of doors for a short time—a half hour to an hour, every day that the weather is pleasant—increasing the time gradually until he is staying out most of the day. Hardly anything will do more to insure a healthy babyhood than outdoor life, and the result will well repay whatever trouble is necessary to give the baby this advantage. In winter, if the temperature falls below 15° F. the baby must not be outdoors unless he is in the sun. On sunny days he may be put out for several hours in the middle of the day in a sunny corner of the porch or yard, protected from the wind. The temperature in such a protected sunny corner will be found to be 40° or 50° higher than in the shade; and if properly wrapped even a very small baby can go out of doors on every sunny day in winter. In summer the baby should be kept in the shade during the hottest part of the day.

If no porch or yard is available the baby should be placed in a wide-open sunny window for several hours every day in the middle of the day. The room should be well heated and the doors kept closed.

## SUN BATHS

Sunlight is necessary for the proper growth of a baby. The growth of a child's bones is dependent not only upon the food that he eats but also upon the direct sunlight that he receives, for sunlight enables the body to utilize food. If the baby does not get enough direct sunlight and cod-liver oil, his bones will not develop normally, and his muscles will be flabby. He will probably have rickets. (See p. 119.)

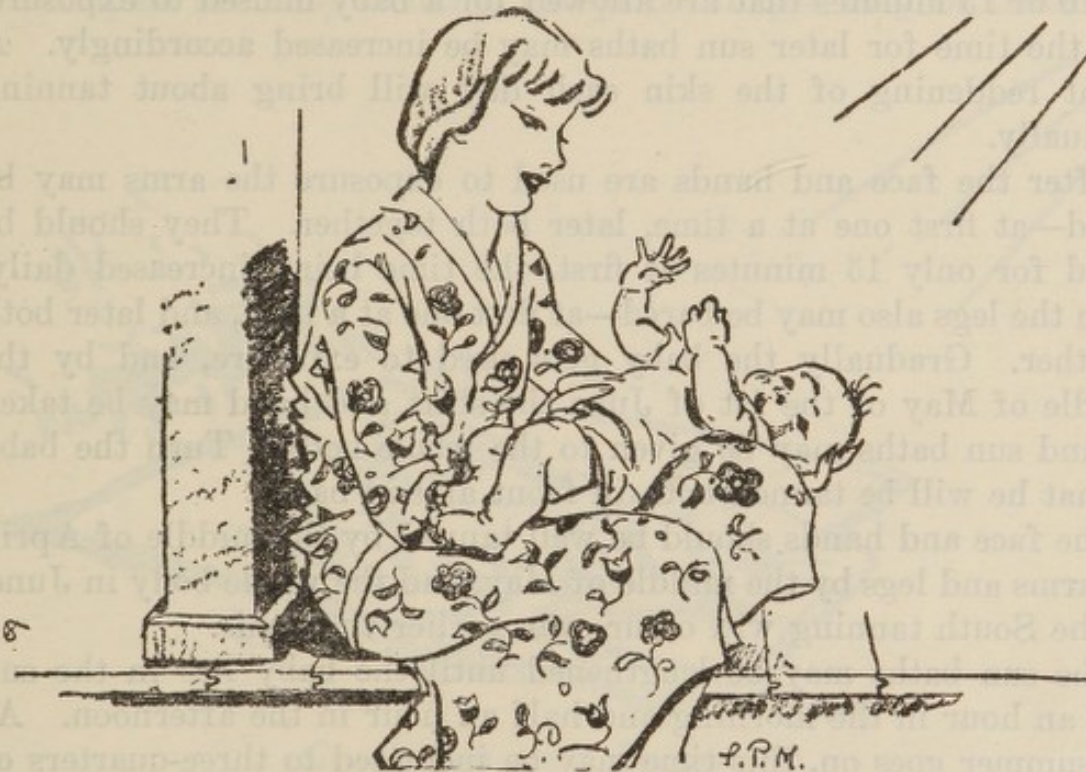
The beneficial effect of sunlight is best obtained when the rays reach the skin directly. Clothing or ordinary window glass keeps out the ultra-violet rays—the rays that prevent and cure rickets. Tanning shows that the sun's rays are reaching the skin directly, but not all babies tan, even though exposed to the sun. Most babies tan quickly; a few tan only after many days of exposure. Some babies burn more easily than others; great care must be taken to prevent burning.

Sun baths may be begun when the baby is about 3 or 4 weeks old—outdoor sun baths for the spring and the summer baby, indoor sun baths given inside an open window for the late fall and the winter baby.

A baby's eyes will not be injured by sunlight unless the rays enter the eyes directly. This occurs only when the eyes are turned directly



to the sun and are open. If the eyelids are closed or if the face is turned away from the sun no harm will be done. While giving the sun bath during the baby's first month of life turn his head so that first one cheek and then the other is turned toward the sun and the eyes turned away from it. After this if the baby lies with his feet directed away from the sun and his head slightly raised, his eyes will be adequately protected from the direct rays by the shadow cast by forehead, eyebrows, and eyelids. A baby that is old enough to sit up during the sun bath will protect his own eyes by the shadow cast by his forehead and bent head.



*The first warm day in spring*

The time when outdoor sun baths may be begun varies with the climate and the weather. In many parts of the United States it is possible for babies to begin outdoor sun baths by the middle of March or the 1st of April, if the place chosen for the sun baths is protected from the wind. In southern parts of the country outdoor sun baths may be started earlier or even given the year around.

#### SUN BATHS THAT BEGIN IN EARLY SPRING

On the first sunny day in early spring the baby may be given an outdoor sun bath for 10 or 15 minutes with the hood of the carriage pushed well back so that the sun will shine directly on his cheeks. The baby's cap should be pushed back or even taken off. He should be turned first on one side and then on the other so that both cheeks will be exposed to the sun and yet the eyes turned away from it.



On this first day the baby's hands also should be exposed to the direct sun for 10 or 15 minutes. The sun bath may be repeated later in the day.

Each day thereafter the time of the sun bath should be increased by three minutes for a fair-skinned baby and five minutes for a dark-skinned baby. Every few days the amount of body surface exposed should be increased, at first slowly, but as the days grow warmer more rapidly. Care must be taken not to burn the skin. If the baby has been getting direct sunlight through an open window and is used to exposure, the first outdoor sun bath may last longer than the 10 or 15 minutes that are allowed for a baby unused to exposure, and the time for later sun baths may be increased accordingly. A slight reddening of the skin each day will bring about tanning gradually.

After the face and hands are used to exposure the arms may be bared—at first one at a time, later both together. They should be bared for only 15 minutes at first, the time being increased daily. Soon the legs also may be bared—at first one at a time, and later both together. Gradually the baby gets used to exposure, and by the middle of May or the 1st of June the shirt and band may be taken off and sun baths may be given to the whole body. Turn the baby so that he will be tanned both in front and in back.

The face and hands should be well tanned by the middle of April, the arms and legs by the middle of May, and the whole body in June. In the South tanning will occur even earlier than this.

The sun baths may be lengthened until the baby lies in the sun half an hour in the morning and half an hour in the afternoon. As the summer goes on, this time may be increased to three-quarters of an hour once or twice a day, and for many babies, especially those over 4 months of age, to an hour once or even twice a day.

In the early spring give the sun baths in the late morning between 11 and 1 and in the early afternoon before 3, and as the spring advances give them between 10 and 12 and between 2 and 3. As summer comes on give the sun baths earlier and earlier until in July and August they are given between 8 and 11 in the morning and after 3 in the afternoon. Between 11 and 3 in midsummer the sun is usually too hot for the baby to lie in it long. If the baby is outdoors during these hours he should be in the shade, or his head should be protected from the heat of the sun by a white cotton shade hat.

#### SUN BATHS THAT BEGIN IN LATE SPRING

If sun baths are begun in the late spring the first one may be given with the baby's face, neck, arms, and legs bare. It should be given



the first time for 10 minutes twice a day, the time being increased daily by 3 minutes for fair-skinned babies and 5 minutes for dark-skinned ones. The shirt and band may be taken off by the middle of May or the first of June, and the sun baths given with the baby wearing only a diaper.

#### SUN BATHS THAT BEGIN IN SUMMER

If a baby is born in the late spring or if an older baby has not yet been started on sun baths, the method of giving the sun bath is different. By the first of June (or earlier in the South), when the weather is warm, all the baby's clothes except his diaper may be taken off



*Give the baby a coat of summer tan*

for the first sun bath out of doors. Give the sun bath some time between 8 and 11 a. m., when the sun is warm but not too hot (earlier and earlier as the summer progresses), and again after 3 o'clock. Allow the sun to shine first for 5 minutes on the front of the baby and then for 5 minutes on his back. The next day do the same thing except that the time of exposure to the sun may be increased 3 minutes for a fair-skinned baby and 5 minutes for a dark-skinned one. Increase the length of the sun bath each day by 3 or 5 minutes until the baby is having half an hour in the morning and half an hour in the afternoon. When this stage has been reached lengthen the time as is done for sun baths begun in spring.

If the weather is very warm when the first sun bath is given, a 2-minute sun bath is long enough to begin with, and it may be lengthened by 1 minute a day.



## SUN BATHS THAT BEGIN IN EARLY FALL

A baby born in the fall needs as much sun as possible. If the days are still warm even a small baby can be given outdoor sun baths with arms, legs, and head bare. Sun baths should be given twice a day if possible, some time between 10 and 1 and between 2 and 3. The first exposure may be from 15 to 20 minutes. The length of exposure should be increased 5 minutes a day until the baby gets half an hour or an hour of sun twice a day. After the first of October, in the colder parts of the country, babies can not be put outdoors entirely undressed, but for a month after this or sometimes later, depending on the climate, they may continue to have sun baths on arms, legs, and head.



*By fall the baby should be well tanned*

## SUN BATHS IN LATE FALL AND WINTER

**Outdoor sunnings.**

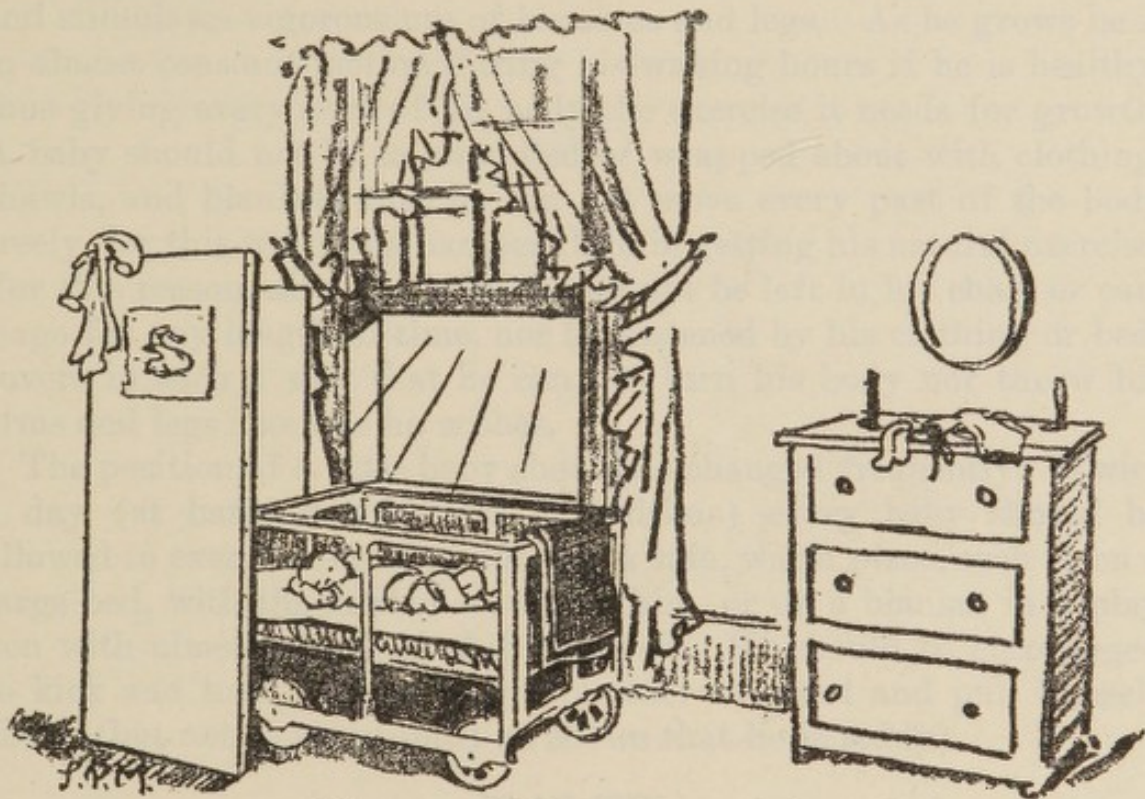
In cold climates real outdoor sun baths exposing more than the face and hands can not be given between the first of November and the first of March. However, on bright winter days the baby can be put outdoors in the middle of the day for a long sunning. Many mothers think that in cold weather a baby may not be put outdoors, not realizing that in the sun the thermometer may register 40° or 50° higher than in the shade. If the baby is protected from the wind the sun will keep him warm. During this season the ultra-



violet rays of the sun are not so strong as in summer, and therefore winter sunnings should be longer than summer ones. The baby's face and hands should be exposed to the direct rays of the sun. In the South winter days are often warm enough to permit the arms and legs also to be exposed.

**Indoor sun baths at an open window.**

A sun bath can be given indoors at a window opened at top or bottom, the baby being placed in the patch of sunlight coming through the open space. If the room is heated and the doors closed to prevent drafts, the baby need not be wrapped up. First the face,



*Winter sun bath at an open window*

hands, and arms and afterwards the legs can be exposed daily for 15 to 20 minutes, and later for increasing periods until the sun bath is given for 1 to 2 hours. It is thus possible to produce tanning. If the sun is sufficiently warm even the baby's shirt may be taken off. The mother should sit beside the baby and watch him. If the sun goes behind a cloud the baby must be covered. By holding her own hands in the sun the mother can tell how warm it actually is.

Babies born in the winter or fall should be given long indoor sun baths throughout the winter. In many localities if a baby is used to indoor sun baths he can be started on outdoor ones by the first of March, or even earlier, depending on the climate and the weather.

In the Temperate Zones, especially in fall and winter, sunlight must be supplemented with cod-liver oil, which is known as "bottled



sunshine." Even though a baby is born in the spring and receives sun baths throughout his first summer he should be given cod-liver oil. In winter a baby can not get enough outdoor sunshine to prevent rickets, so that he needs cod-liver oil at this season especially. It should be given to every baby throughout the first two years of life, beginning at 2 weeks of age, whether he is breast fed or artificially fed. (See p. 80 for amounts of cod-liver oil to be given.)



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## EXERCISE

The normal baby exercises constantly when awake. At a very early age he throws his arms and legs about aimlessly; he closes and uncloses his hands, stretches himself, and twists his neck. He gets a good deal of his exercise by crying; some crying every day does not hurt a baby but is good for him, as it expands his lungs thoroughly and stimulates vigorous use of his arms and legs. As he grows he is in almost constant motion during his waking hours if he is healthy, thus giving every part of his body the exercise it needs for growth. A baby should not be so swaddled or wrapped about with clothing, shawls, and blankets that he can not move every part of the body freely, for this wrapping hampers him in getting his natural exercise. For this reason, also, the baby should not be left in his chair or carriage for any length of time, nor be fastened by his clothing or bed-covers in such a way that he can not turn his body nor throw his arms and legs about as he wishes.

The position of a little baby should be changed frequently. Twice a day (at bathing time and at bedtime) every baby should be allowed to exercise for 10 minutes in a safe, warm place, such as on a large bed, with the mother watching him, or on a blanket in a play pen with almost all his clothes removed. He should be encouraged to kick and turn, and as he grows older to crawl and pull himself about (but not to stand until he shows that he is ready).

## PLAY PEN

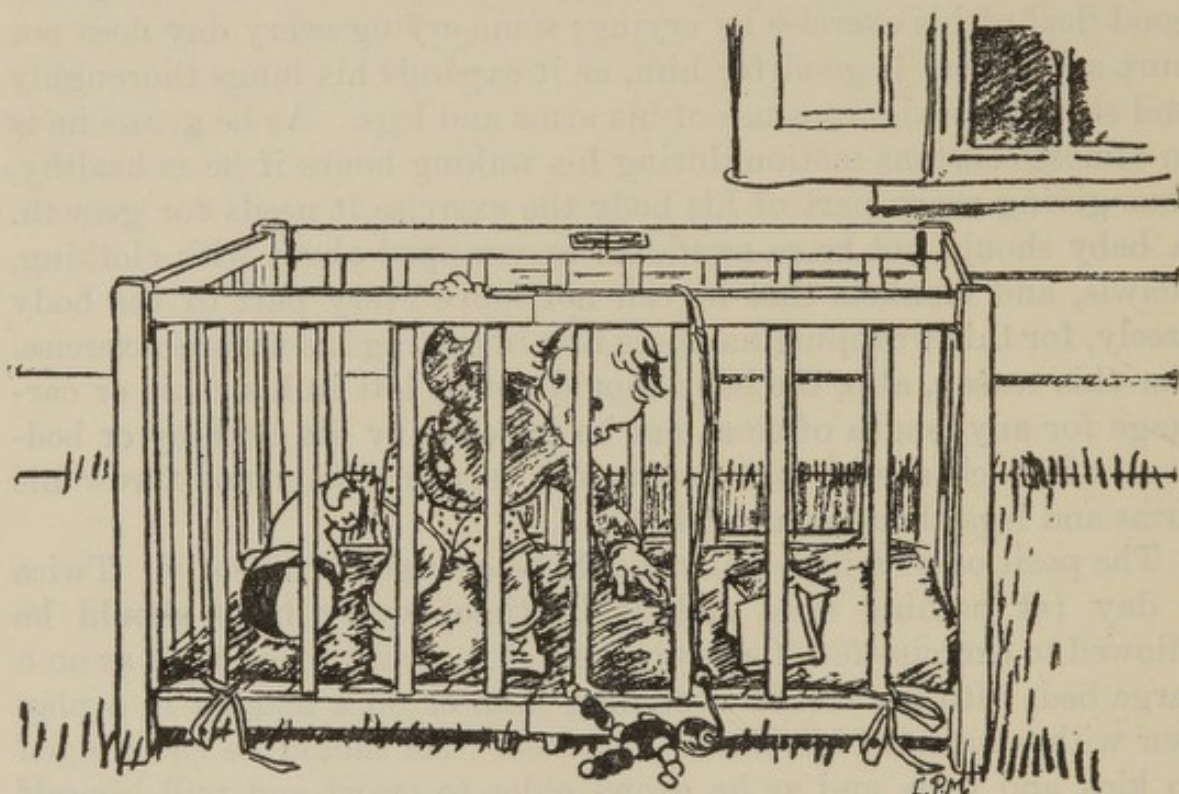
By the time a baby is 9 or 10 months old it is very desirable to have a play pen, either bought ready-made or built at home, so that he may learn to creep and stand and pull himself up while his feet are on a firm surface. Such a pen gives the baby room for exercise and keeps him from creeping into dangerous places, such as that near a heater or the kitchen stove. It consists of a fence made in four sections, each 18 to 24 inches high and 4 feet long, hinged at three corners and latched at the fourth corner or at the center of one side, surrounding a wooden floor raised about 2 inches from the room floor. Ready-made pens have spindles, so that the baby may have something to take hold of when he tries to climb to his feet. These pens fold together, and then can be moved about readily. The floor of the pen should have a cover of washable goods, such as denim or ticking, tied to the corners by strong tapes.



A combination play pen and bed may be used for a baby to play in until he is about 6 or 7 months old, when he begins to try to pull himself up (see p. 25). At this age he needs a firm floor to stand on.

If a pen can not be bought nor built at home, a smooth board 6 or 8 feet long and 1 foot wide may very well be used to fence off a corner of the baby's room as a pen.

A baby should not be taught to walk until he is ready for it and shows that he is. Too early walking may keep the natural bowing



*Baby can amuse himself with toys in a play pen*

of a little baby's legs from straightening out or may actually increase it. (At birth the normal baby's legs are somewhat bowed. As he grows older they straighten unless he has rickets or walks too soon.)

No "baby walker" should be used, nor any other device that forces the baby to walk with the legs spread apart. A baby walker may overtire a child because it holds him too long in a confined space and forces him to take a more or less rigid position.

#### BABY CARRIAGE

The choice of a baby carriage is a matter of great importance. For ordinary use about the home the carriage should be at least 2 feet from the ground. It should have room for the baby, with the necessary wrappings, either lying full length or sitting up. Its



cover should be adjustable, to protect him from wind. The carriage should have strong, well-balanced springs and should stand squarely on four wheels. If it is to be used for the little baby's outdoor naps it should have a good full-length mattress that will lie flat. (The carriage should not be used for sleeping after the baby is too large to stretch out his full length in it.) As a baby is more cramped in a carriage than in a bed, he should be turned once or twice during every nap. He should not be sent out in a carriage in charge of a child or other person not competent to judge of his comfort. The carriage should be covered with a net to keep out flies or mosquitoes.

For the baby that is old enough to sit up, a safety strap that fastens about his waist gives greater protection than the ordinary carriage strap. A small mattress should be used for the baby to sit on so that his feet will be low and hence more comfortable.

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The morning is the best time for play. Play in the late afternoon must be quiet and gentle; otherwise the baby will be overexcited and his night rest may be disturbed. He will learn to play at the right time if a special time is set aside two or three times a day for this purpose. Play periods should be very short when the baby is little. He should learn early that feeding and sleeping times are pleasant but serious occasions, not meant for play.

The older baby should learn to play for half an hour to an hour without interruption by the mother. He should be put in his pen or crib and given one or two toys, tied by long tapes to the crib, and then left alone. As he grows older this becomes more and more important. It is not good for a baby to be entertained or amused or waited on all the time. He must learn to do things for himself. A hole in the nursery door through which his mother can watch him without opening the door will be a convenience; she can thus reassure herself without letting the baby know that he is being watched.

## TOYS

Since a baby wants to put everything into his mouth, all his toys must be of the kind that can safely be used in this way. They must be washable and must be without sharp points or corners to hurt his eyes. They must not be small enough to be swallowed, nor



## PLAY

If the baby is to grow up with a happy and cheerful disposition, those about him must be happy and cheerful.

A few minutes of gentle play now and then is good for the baby. However, all babies need a great deal of rest and quiet, and much of the play that is commonly indulged in is too exciting. It is a great pleasure to hear the baby laugh and crow in apparent delight; but often the method used to produce the laughter, such as tickling, punching, or tossing, makes him irritable and restless. Rocking the baby, jumping him up and down on the parent's knee, tossing him and shaking his bed or carriage form bad habits, as they make the baby dependent on attention. This does not mean that the baby should be let alone completely. When he is awake, preferably for a few minutes before feeding, he should be taken up and held quietly in his mother's arms, in a variety of positions, so that no one set of muscles may become overtired.

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have loose parts, such as bells, that may come off and be swallowed. All toys should be washed frequently. Rubber or bone toys are excellent. Painted articles (if the baby bites them) are unsafe.

A baby should never have more than one or two kinds of toys at one time, and they should be simple. A few clothespins or spools on a string or a little rubber doll that squeals will please him more than an expensive toy. Give him time to explore one toy thoroughly before giving him another. Floating toys of celluloid for the bath are of great interest, but the older baby will bite them unless he is watched.

As the baby gets a little older he will need toys with which he can learn to do things, such as a few blocks, a cup and spoon, a pie pan, a box with a cover which he can take off and put on easily, a large ball, a small horse and wagon to pull along the floor, a string of large wooden beads, and a cloth picture book with large colored pictures of animals or common household objects.

Tie the toys to the crib or pen with short pieces of tape and let the baby find out for himself how to get them back when he has dropped them. Do not constantly pick up toys, or he will throw them down just to see you pick them up. It is a good plan to have a box or basket in which to keep empty spools and other household objects that will interest the baby.



## HABITS, TRAINING, AND DISCIPLINE

Habits are the result of repeated actions. A baby, like a grown person, has a tendency to do again something that he has done before, if he has found satisfaction in doing it the first time. The health, happiness, and efficiency of the older child and of the adult depend largely on the habits formed in early childhood. The habits of the little child are begun in the first year of life, some of them directly after birth. The parents can not postpone planning the child's training until he is "old enough to understand." If the child is to have desirable habits of health and of behavior and grow into a healthy, happy, useful adult, training must begin immediately after birth and be regular throughout infancy so that certain attitudes and acts may become habitual.

Though some habits seem to relate more closely to health and others to behavior the principles that underlie them are the same. Desirable habits must be established consciously by the efforts of the parents and undesirable habits replaced by better ones. The problems of discipline in infancy are part of the general program of habit formation. The important habits that may be established in the first year have to do with eating, sleeping, and elimination. Good habits in all these aspects of the baby's life may be built up if perfect regularity is observed in the performance of each act, if the parents are consistent and logical in their demands and absolutely honest with the baby, and if the baby can find some satisfaction in the act.

### BEGINNING TRAINING AT BIRTH

The first three months of life are perhaps the most important of all. The habit of regularity in feeding and sleeping can be begun on the third day of life; and, once established, it must not be interrupted or broken for any reason except a real emergency. If the baby wakes between feedings and begins to cry (as it is natural that he should if he is hungry), turn him over, change his diaper, give him water to drink, and put him back into bed. Do not hold him nor rock him to stop his crying, and do not nurse him until the exact hour for the feeding comes. It will not hurt the baby, even the tiny baby, to cry. Crying is the younger baby's one means of expressing his needs and his dislikes. No baby likes to be hungry, but every baby can be trained to wait his full interval of three or four hours (whichever the doctor has ordered) before his hunger is satisfied. (There is no danger that crying will cause rupture.)



Every now and then when the baby is lying quietly in his crib, awake, the mother or the father should pick him up and play with him. The baby will learn before long that he is likely to be picked up when he is not crying and ignored when he is crying.

If a baby is picked up every time he cries he will soon develop the habit of crying insistently each time he wakes until the mother does pick him up and fondle him or rock him. This is not a good habit either for the baby or for the mother. It interferes with the baby's sleep and with the mother's work or rest. It teaches the baby that crying will give him control over his parents, whereas a baby should learn that such habitual crying will only cause his parents to ignore him.

Sometimes crying because of colic will start the habit of crying to be picked up. As one of the methods of treating colic is to pick the baby up and raise him over the shoulder to make him belch and as it is difficult for the mother to tell whether the baby is crying with pain or not, it is only too easy for him to form the habit of crying to be picked up. If she is doubtful whether he is in pain, she should try to make him comfortable (see Colic, p. 75) and then put him back in his bed. There is nothing to be gained by walking the floor with him.

When a baby cries very hard he sometimes holds his breath so long that he gets blue, and may even get stiff and lose consciousness for a moment. This is a breath-holding spell and is one form of tantrum. It is terrifying to parents and usually makes them give in to the baby at once. The baby who has such spells is usually old enough to get a good deal of satisfaction from the anxiety and excitement that he has caused. If he has gained his own way by having this form of tantrum, he will repeat it whenever his wants are not immediately supplied to his taste. To handle such a spell, show no anxiety or excitement when it occurs, leave the baby alone in his bed, and see to it that the spell does not accomplish for the baby the thing that he wants.

If the little baby learns that crying does not accomplish what he wants he will not use it as a means of controlling his parents later on. He will discover also in the same way that temper tantrums will not get him what he wants.

#### THE FORMATION OF HABITS

When a desirable habit is to be formed the act must be done in the best way possible the first time and repeated with absolute regularity and consistency until it becomes "second nature." If the baby gets satisfaction from the act, such as having his hunger satisfied or his



desire for pleasure and attention gratified by a pat or a smile or a word of approval, the habit will be established more readily. For example, if the baby is fed and put to bed at the same time every day he will learn to expect these things regularly and will form his first important health habits—regularity in eating and sleeping. If, on the other hand, an act is not performed with unvarying regularity an undesirable habit will be formed. Thus if a baby is usually put to bed right after his 6 o'clock feeding but is sometimes kept up to be shown off to friends or is taken to the movies with his parents, the routine is broken, the baby begins to stay awake in the evening, and then he objects to being put to bed early. As he grows older and wiser his objections to going to bed become more insistent, and soon his mother will say, "The baby just won't go to bed at 6," or "The baby won't go to bed until I do."

Babies get much satisfaction from their parents' words and smiles of approval and from any kind of attention. They dislike being ignored and left alone. If they do not get attention by being good they will try to get it by being naughty. Therefore, if the mother does not give the baby attention and approval when he is doing what she wants him to do but scolds him and makes a scene over him when he is naughty, he is sure to enjoy being naughty more than being good. This is one of the reasons for crying, breath-holding spells, and tantrums.

If an undesirable habit has been formed the way to get rid of it is to substitute some desirable habit in its place. First of all, the parents must see that the baby gets no satisfaction of any kind for doing the undesirable thing, even through being the center of attention because he is scolded, and that he does get satisfaction through praise for doing the desirable thing.

When the baby is naughty pay as little attention to him as possible and when he is good show him by words and acts of approval (but not by candy or such rewards) that he is doing right. The baby will quickly learn the difference between right (acceptable) behavior and wrong (unacceptable) behavior and will be willing to do the right thing for the sake of praise and approval.

Punishment has little place in the first year of life, but whatever punishment is given must be given consistently. If parents demand one form of behavior to-day and another to-morrow, laugh at the baby to-day for doing a "cute trick" and to-morrow punish him for the same thing, the baby will be completely confused as to what he should or should not do. The problem of discipline is part of the problem of regular habit formation. Slapping or other corporal punishment should never be resorted to with babies.



## FEEDING HABITS

Good habits of eating should be established from the start. Feedings from the second or third day of life must be given with great regularity, by the clock. If this is done the tiny baby will wake at feeding time and sleep between times. A definite schedule of feedings must be followed. (See p. 8, Baby's daily time cards.) The baby's diet must be carefully planned. As soon as he is able to eat foods other than milk, these should be added to the diet. (See p. 78.) When semisolid or solid foods are given they should be given with the breast milk or cow's milk and not between feedings. At first they will be new and strange to the baby. He must learn how to manage solid foods and to eat many kinds.

Mealtime should always be a happy time, but fooling and boisterousness have no place at this time. The business of a baby's eating is a serious one. A baby should be fed alone, without distractions from visitors or from other members of the family.

A mother's desire to have her baby gain weight and grow may make her overanxious if he does not eat anything she offers him. The baby may learn early that he can create excitement and get attention from his parents and power over them by refusing to eat some particular food. Do not coax the baby to eat, for he is likely to enjoy the coaxing and will continue to refuse to eat just as long as he can command this pleasant form of attention. Do not show anxiety nor excitement, but quietly take the food away after he has had ample opportunity to eat it.

If, however, the baby persistently refuses a food which he should be eating for his health's sake, more definite steps must be taken to teach him to eat it. At the beginning of the meal offer a small amount of the kind of food that he refused before. Show him without excitement that he can have the rest of his meal after he eats the special food, but unless he eats it he can not have anything else, not even his milk. This can be done even if he is only 7 or 8 months old. If he refuses give him nothing but water. At the next meal offer him again a small amount of the same kind of food. If he again refuses it give him nothing but water. It is perfectly safe to allow a well baby to go 48 hours without food if he has water to drink. (No milk or other foods should ever be given between feedings.) The baby will finally give in and eat the food. When he does give in, praise him and give him the rest of his meal. Show no anxiety nor excitement throughout. If no fuss is made over him, he will get no satisfaction out of refusing and his appetite will soon make him give in.



## SLEEPING HABITS

As with feeding, regularity is of first importance in teaching a baby good sleeping habits. Every night at exactly the same time, immediately after the 6 o'clock feeding, the baby must be put into bed while still awake. The mother should see that he is comfortable and warm enough (as cool as possible in hot weather), that his room is well aired, and the lights are out. Then she should leave him alone and shut the door of his room. If this routine is followed without interruption from birth, the baby will always go to bed without complaint and will not cry to be picked up. Sleeping habits formed in early childhood may continue through adult life.

If the baby is allowed to go to sleep in his mother's arms or if he is rocked to sleep before being put into his bed, he will not associate the act of going to bed with going to sleep. He must therefore be awake when put in his bed and must go to sleep there. If, moreover, he is occasionally kept up late to see visitors or to go out with his parents, or is taken up after he has once been put to bed he will soon learn to enjoy the evening excitement and will not want to go to bed as usual.

Parents must not start the habit of coaxing a baby to sleep by rocking him, walking with him, holding him, lying down with him, or holding his hand after he is put in bed. He should not be put to sleep with his bottle. He should never be given a nipple to suck nor anything else to put in his mouth. If any of these habits is started it will be hard to break and may some time interfere with the child's sleep.

If a baby becomes ill irregular sleeping habits may result. As soon as possible the regular routine must be started again and held to all the more strictly because of the illness.

The daytime naps must be just as regular as the night sleep.

## TOILET HABITS

**Training the bowels.**

Training of the bowels may be begun as early as the end of the first month. It should always be begun by the third month and may be completed during the eighth month.

The first essential in bowel training is absolute regularity. The task of training is one that requires patience, but the result is well worth the effort involved. Almost any baby can be so trained that there are no more soiled diapers to wash after he is 6 to 8 months old.

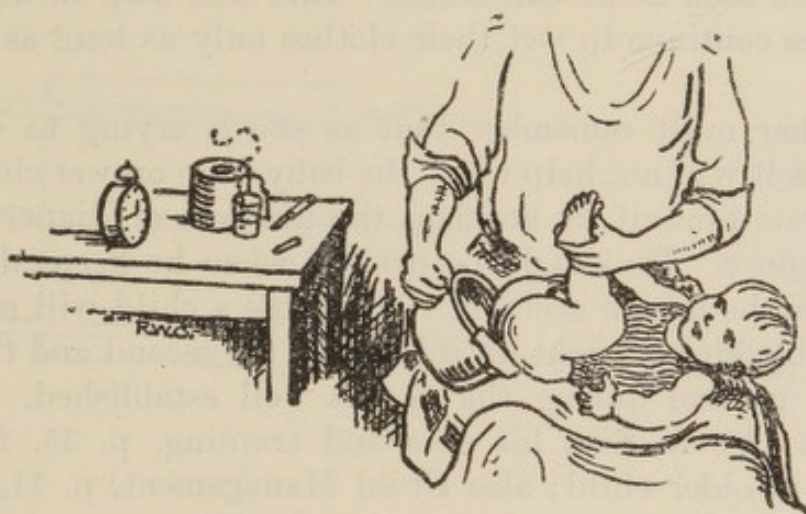
To begin the training the mother should notice at what time the baby soils his diaper. The next day at that hour she should hold him over the chamber, using a soap stick, if necessary, to start the movement, and continue this day after day, not varying the time by



five minutes, until the baby is fixed in this habit. As the baby grows older he can be taught to grunt, to bear down a little, or to show his desire by some other sign. A convenient time for a stool is just before the baby is undressed for bathing. By the time the baby is 8 months old he should have learned to have a stool regularly each morning.

One method of training the little baby in regular bowel habits is as follows:

Hold the baby in your lap or lay him on a table with his head toward your left, in the position for changing his diaper. Lift the feet with the left hand and with the right insert a soap stick into the rectum to act as a suppository.<sup>1</sup> Still holding the feet up, press a



*Start the baby with regular habits*

small chamber gently against the buttocks with the right hand and hold it there until the stool is passed. The first time the soap stick is used the stool will come in 5 or 10 minutes. Later the time will be shortened. After the first three or four days or as soon as the baby's bowels will move without a suppository, give up the soap stick.

A method for babies 3 months old who can hold up their heads is as follows: Hold the chamber in your lap and place the baby over it with his back against your chest. This makes it possible for the mother to support the young baby before he is strong and able to sit alone.

As soon as a baby is able to sit up alone (about 6 to 8 months) he should be taught to use the nursery chair.

<sup>1</sup> To make a soap stick take a piece of firm white soap half an inch thick and about 2 inches long and shave it down toward one end until the point is about one-fourth of an inch thick. Round the end, making it perfectly smooth. Wet the soap stick or dip it in petroleum jelly. Hold the stick by the thick end; insert the other end into the baby's rectum.



**Training the bladder.**

When the baby is 10 months old begin training him to control his bladder. It takes longer to teach the baby the control of his bladder than of his bowels, but the method to be followed is the same. The baby should be given the chamber regularly, at first once an hour while awake, and gradually the periods between should be lengthened. Some one simple word should be used each time he is given the chamber so that he may associate the word with the act and learn to use it himself a little later.

Most babies should learn daytime control of the bladder by the time they are 2 years of age. By this time also the baby may have learned to indicate his need. He should be put into drawers instead of diapers as soon as he can stand. This will help in his training. Many babies continue to wet their clothes only as long as they wear diapers.

The mother must remember that as she is trying to establish a "dry" habit it will not help to let the baby keep on wet clothing. If the child wets himself by accident the drawers or diaper should be changed at once. He should be praised when he keeps dry but not scolded when he has an accident. As a rule a child will not learn to control his bladder at night until between the second and third birthdays, after control during the day is well established. (See *The Child from One to Six; his care and training*, p. 35, for control of bladder in older child; also *Child Management*, p. 11, for treatment of bed wetting.)

**UNDESIRABLE HABITS****"Pacifiers."**

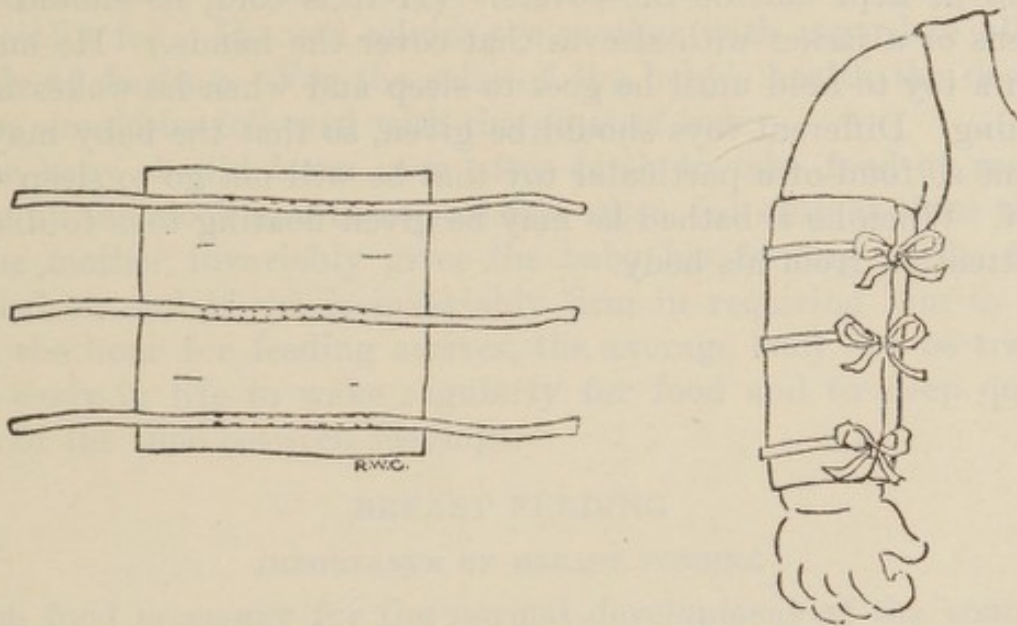
The habit of sucking on a rubber nipple, a pacifier, or any other article of this kind is extremely bad for the baby, but he does not teach himself this habit; the mother or nurse or some one else in the family is to blame for giving him this kind of thing. Some of the evil effects of this habit are that it spoils the natural arch of the mouth by causing protrusion of the upper jaw; it causes constant flow of saliva and keeps the baby drooling; it may readily carry the germs of disease into the baby's mouth; and it is a habit which is particularly disfiguring to the baby's appearance. If he has formed the habit it must be broken at once by taking away the pacifier and never letting him see it again. He will cry for it at first but will forget it eventually.

**Thumb sucking.**

Thumb sucking or finger sucking may begin soon after birth, and if it is not stopped early it may persist for months or years. It is a natural habit for the baby to acquire, but it is undesirable because it may deform the mouth and because it increases drooling. It may



become a very bad habit if carried over into childhood. It is more easily prevented than cured. Though it is important to prevent it, or to overcome it if it does start, it should not excite parents unduly. When a baby first discovers his thumb or finger he naturally starts sucking it. At this time, and every time he does this thereafter, the mother should remove his thumb or finger from his mouth and put a toy in his hand to divert him. If the baby sucks his thumb when he goes to sleep, stiff cuffs bound about his elbow, or mittens, may be put on when he goes to bed. These should not be used continually, as they may keep the baby from learning to do other things with his



Stiff cuff to prevent thumb sucking

hands. The best way to break this habit is to keep his hands occupied with some toy. Do not punish the baby for thumb sucking, as this will only keep his attention on it and may strengthen the habit.

#### Masturbation.

Frequently at an early age—sometimes as early as 6 months—children learn that pleasurable sensations can be aroused by handling or rubbing the genitals, squeezing the thighs together tightly, riding on some one's foot, or in other ways accidentally discovered. This handling or rubbing of the genitals is called masturbation. This early period of what may be called sex awareness will pass away unless it is emphasized by unwise treatment on the part of adults. It should play no more important part in the life of the child than does the early habit of bed wetting.

Whenever a child is found to have this habit a careful examination by a doctor should be made to determine whether there is any physical cause, such as irritation, constipation, or intestinal worms.



The genitals must be kept free from dirt or any foreign matter. (See p. 35.) Local irritation is more often the starting point of masturbation in girls than in boys. The urine should be examined.

Punishment and physical restraint are of little value in dealing with this habit, as they tend to fix the baby's attention on what he is doing and may strengthen the habit rather than stop it. Masturbation in infancy may be prevented if the mother is watchful and keeps the baby's attention focused on other things. The best method of treatment is occupation and diversion. The baby's attention should be turned to some other activity. When he is put to bed his hands should be kept outside the covers. (If it is cold, he should wear mittens or a jacket with sleeves that cover the hands.) He may be given a toy to hold until he goes to sleep and when he wakes in the morning. Different toys should be given, so that the baby may not become so fond of a particular toy that he will not go to sleep without it. When he is bathed he may be given floating toys to distract his attention from his body.



## FEEDING

The way the baby is fed during the first year of life may make him either strong and healthy or weak and sickly; wrong feeding may even be the cause of his death. For this reason a physician experienced in the care and feeding of infants should be consulted as soon as the baby is born and at regular intervals thereafter; at least once a month if the baby is breast fed and more frequently if he is artificially fed. He will advise the mother with regard to all the details of feeding. For the sake of the baby's health the doctor's advice should be followed with the greatest care.

The baby should learn soon after birth to take food at regular hours by the clock and to be satisfied when fed only at these times. If the mother invariably gives the baby his feeding at the times decided on and if she is invariably firm in requiring him to wait until the hour for feeding arrives, the average baby can be trained very early in life to wake regularly for food and to sleep quietly most of the time between feedings.

### BREAST FEEDING

#### IMPORTANCE OF BREAST FEEDING

The food necessary for the normal development of the young of every mammal, including man, is secreted for it by its mother. The milk of each animal is different from that of every other, and each is especially adapted to the needs of its own young. This is why cow's milk is good for newborn calves but not so good as human milk for newborn babies. The best method of feeding a baby for his first six or seven months is at his mother's breast.

Breast milk is easily assimilated, cheap, clean, and convenient. No other thing has a greater influence on the development and health of the baby than breast feeding. Breast feeding gives a baby a better chance for life and for steady and normal growth. The death rate of babies not breast fed is higher than the death rate of breast-fed babies.

Practically every mother, with proper instruction as to the care of her own health and proper stimulation of the breasts, can nurse her baby and thus provide him with the food exactly adapted to his needs.

#### PRODUCTION OF BREAST MILK

The baby is not placed at the mother's breast until both he and the mother have had a number of hours' rest—6 to 12, depending on the doctor's orders. For the first few days after the baby's birth the



mother's breasts do not begin to secrete milk; instead they secrete a thick yellowish fluid called colostrum. When the baby is first put to the breast he draws the colostrum, and this supplies his early needs. After the first nursing he must be put to the breast regularly, every four hours by the clock, unless the physician advises that he be fed at more frequent intervals. The regular sucking stimulates the mother's breasts and gradually the true milk, which is thin and blue, comes into the breasts, taking the place of the colostrum.

By the third or fourth day there is usually enough milk for the baby. The time of the feedings must be absolutely regular (see p. 8); and if the baby is asleep when nursing time comes he must be wakened, except that a baby who is still getting a 2 a. m. feeding need not be wakened for it. The 2 a. m. feeding should be dropped as soon as the baby will sleep through the night without it; it is seldom needed after the first two months.

As the baby grows and sucks more strongly the amount of milk secreted gradually increases. At the beginning of a nursing some milk is in the breast, but most of it is actually formed during the act of nursing. The quantity that the baby obtains at a feeding depends largely on the energy, strength, and persistence with which he sucks. Emptying the breast completely by regular nursing helps more than anything else to produce milk.

The amount of milk produced and its quality depend not only upon the demands of the baby but also on the diet and hygiene of the mother and on her determination to nurse her baby.

#### HYGIENE OF THE NURSING MOTHER

##### Diet.

For the first two weeks or so after delivery, while the mother of a newborn baby is not yet up and around, she should have a light, nourishing, varied diet. This should consist of not more than four meals in 24 hours. After the mother is out of bed she may take her accustomed diet, if the doctor considers it sufficiently nutritious. A nursing mother needs an abundance of food that is nutritious, laxative, and appetizing.

The daily diet should include as a minimum a quart of milk, a leafy vegetable, a citrus fruit (orange or half a grapefruit), and an egg.

The following is a sample day's food plan for a nursing mother:

##### BREAKFAST

Fruit: Half grapefruit, whole orange, or whole banana.

Cereal (well cooked): Oatmeal, farina, or corn meal, with whole milk and sugar.



**Bread and butter:** Two slices of bread, with two pats of butter.

**Milk:** One cup, or one cup of cocoa made with whole milk.

An egg, or bacon and egg, may be added to this meal. (The egg should be boiled, coddled, or poached.) One cup of coffee may be taken if desired.

10 A. M. LUNCHEON

**Milk:** One glass of whole milk (if this does not interfere with the appetite for dinner).

DINNER

**Meat, fish, or egg.**

**Salad:** Lettuce, romaine, endive, cress, raw cabbage, tomato, celery and nut, fruit, with mayonnaise or French dressing.

**Vegetables:** Baked potato with butter, tomatoes, carrots, peas, or string beans; properly cooked cabbage, spinach, or other greens, creamed.

**Bread and butter:** Two slices of bread, with one pat of butter.

**Dessert:** Custard, gelatin, canned or raw fruit, milk pudding.

**Milk:** One glass of whole milk.

SUPPER

**Soup or other hot dish (made with whole milk):** Creamed pea, tomato, or other vegetable soup, or a scalloped vegetable, or macaroni and tomatoes, or rice and cheese.

**Bread and butter:** Bran or graham muffins or toasted raisin bread, with two pats of butter.

**Dessert:** Stewed fruit and cake or baked apple with top milk or cream.

**Milk:** One glass of whole milk.

One cup of tea may be taken in addition to the milk.

Every effort should be made to get fresh vegetables, as no other food can adequately replace them in the diet of the nursing mother. Turnips, carrots, parsnips, cabbage, cauliflower, beets, eggplant, celery, and squash can usually be bought all winter. Canned tomatoes may be used frequently and canned spinach occasionally.

When fresh fruit is too expensive or out of season, dried or canned fruit may be used, but small oranges for squeezing can usually be obtained cheaply all the year round.

Evaporated or dried milk may be used instead of fluid milk. If a full quart of milk has not been consumed with the three meals, either plain or in cooking, another glass should be taken in the midmorning, in the midafternoon, or before going to bed. The mother must not depend on milk alone to make milk for the baby. One quart of milk a day is enough. The diet should be varied.

At least one quart of water should be taken daily. One cup of coffee or tea a day at one meal is allowable. Beer and other alcoholic beverages do not increase the supply of breast milk.

Cod-liver oil is excellent to take under a doctor's direction. Viosterol, a medicine made by treating a chemical called ergosterol



with ultra-violet light, is sometimes ordered by a doctor; it should never be taken except under a doctor's direction.

The mother may eat anything that does not upset her nor the baby. The old-fashioned belief that a nursing mother can not take certain classes of food, such as acid fruits or vegetables, for fear of upsetting the baby is no longer held, though occasionally a certain food in the mother's diet may cause distress to a particular baby. If the mother is sure of this, the food should be cut out of her diet. Sometimes food causes indigestion because it has not been cooked properly.

#### **Bowels.**

Constipation in the nursing mother is very common and must be guarded against. Every effort should be made to regulate the bowels through the food and by exercise. Coarse vegetables are helpful, and also fruits, particularly figs and prunes. Eating whole-grain bread and cereals, bran bread or bran muffins, or a tablespoonful of bran added to the morning cereal will usually correct constipation. A glass of cold water taken the first thing in the morning every day often helps. Regularity of habits is most important, and a definite daily hour for the stool should be established. Exercise such as a daily walk or setting-up exercises is helpful in regulation of the bowels.

#### **Baths.**

Baths should be taken often during the nursing period, when the mother perspires very freely. She should make special effort to keep the body free from odors of perspiration and stale milk. For the same reason frequent changes of underclothing are desirable.

#### **Sleep and rest.**

Sufficient sleep is most necessary for the nursing mother. As soon as possible—certainly by the end of the second month of the baby's life—the 2 a. m. nursing should be given up. Only one nursing should be given between 6 p. m. and 6 a. m., so that the mother may have a long, unbroken sleep after this night feeding, which is best given at 10 p. m. At least eight hours' sleep at night and one hour's rest during the day are desirable for every nursing mother. A tired mother can not produce the proper food for her baby.

If the baby has not yet been trained to sleep all night, or if he is fretful, it is better for some one else to get up with him at night, in order to save the mother's strength. Even when the mother must take charge of the baby at night the baby must always sleep in a bed by himself, and it is better for him to sleep in the next room.

#### **Work.**

The mother should not overwork during the nursing period. Often mothers who have plenty of milk for their babies at first find that the



amount of their milk becomes greatly reduced when they go back to their household duties. Many mothers are not strong enough to undertake their regular duties until at least six weeks after childbirth. By this time the milk flow is established. Many mothers must work hard during the nursing period, but they should resume their duties gradually.

Fatigue from overwork should be avoided by taking short rests between tasks. Lying down for five minutes several times a day may enable the mother to accomplish much more work than she would otherwise be able to do safely. To get more rest it is well for the mother to nurse her baby in a semireclining or other comfortable position. This will give the mother 15 or 20 minutes' complete relaxation every few hours.

#### **Fresh air and exercise and sun baths.**

Moderate exercise in the open air and sunshine, especially walking, is necessary to good health and quiet nerves in a nursing mother. Mothers who enjoy gardening or a vigorous walk will find either of these good exercise, but it should not be carried to the point of weariness. If a mother has much work to do inside the house she will not have strength for much walking or other exercise outdoors. She should make it a practice, however, to spend some part of every day outdoors in the sun, preferably at midday in the winter and before 12 and after 3 in the summer. Her milk will be more nutritious for her baby if she gets plenty of sun. She should get so much direct sunlight that her skin becomes tanned.

Fresh air indoors is needed for good health, and sleeping and living rooms should be kept well aired.

#### **Recreation.**

Some form of recreation is good for everyone. The overconscientious mother who stays at home watching her baby all the time does not do the best thing for her child. Outdoor life and pleasant recreation help to keep the mother happy and contented. A moderate amount of social diversion favors contentment of spirit, which is one of the essentials in maintaining the supply of breast milk. The mother who can lead an even, regular life without emotional upsets will probably nurse her baby more successfully than the anxious, excitable mother.

#### **The care of the mother's breasts.**

Upon the care given the breasts, in many cases, depends the success of breast feeding. Thousands of infants' lives have been lost through early weaning as a result of flat, inverted, or cracked nipples. These conditions can be prevented, or if they occur, they can be so remedied as to make nursing possible.



*Before the baby is born.*—The mother can prepare to nurse the baby by seeing to it that the breasts themselves are in the best possible condition. By wearing loose clothing she can allow them plenty of room to develop; a tight, flattening brassiere may do harm by preventing free circulation. Perhaps the breasts and nipples will require special attention. The doctor will examine them to see whether special treatment is necessary, and the mother who has made up her mind to nurse her baby will notice if anything seems wrong with her breasts at any time and report it to the doctor at once. If a little dried scale appears on your nipples do not pick it off. Rub a little cold-cream ointment over them carefully at night to soften the crust, which will probably be washed away by the bath. If the cold cream does not soften the scale ask the doctor what to do.

*After the baby is born.*—The nipples should be washed with boiled water before and after each nursing. Between nursings they should be covered with clean linen. The care of the nipples should be given only with very clean hands.

In some cases, when the milk first comes in, the breasts may become painful. Usually this condition rights itself without difficulty as soon as the regular emptying of the breasts is established. During this period of adjustment the mother can help to relieve the pain by wearing a brassiere that lifts and supports the breasts and by drinking less water and other fluids than usual. Regularity in nursing the baby helps to prevent pain in the breasts.

If a supporting brassiere is used in time and the mother takes little fluid in her diet for a few days it is rarely necessary to empty the breasts by hand in order to relieve pain. Emptying the breasts by hand tends to increase the production of milk, which is just what is not desired when the breasts are painful. Unnecessary handling of the breasts should be avoided. If the trouble does not disappear and the breasts become more painful and tense ("caked"), a doctor should be consulted. With proper care caked breasts will soon get well. A baby should never be weaned because of caked breasts, as it is only a temporary condition.

The baby's first efforts to nurse often make the nipples sore. Great care must be taken to keep the nipples free from infection, or the tiny cracks of a sore nipple may develop into a fissure, resulting sometimes in a breast abscess. A doctor should be consulted if the nipples are sore or cracked or the breasts are abscessed or if anything else interferes with satisfactory nursing. Never allow the baby's mouth to come in direct contact with a sore nipple. Let him draw the milk from the breast through a shield. If the baby will not or can not do this the mother should express the milk from her breast by hand and feed it to the child from a nursing bottle. The nipple



shield should be cleaned thoroughly after nursing and boiled before being used again. If an abscess develops emptying the breasts by hand at regular intervals will keep up the supply of milk, so that in most cases when the breasts are well again the mother can resume nursing.<sup>1</sup>

*How to empty the breast by hand.*—Scrub the hands and nails with soap and warm water for one full minute, using a brush. Wash the nipple with fresh cotton and boiled water. Dry the hands on a clean towel. Have a sterilized glass and bottle ready to receive the milk. If the glass you are using has no lip, you should have ready a sterilized funnel also.

Place the balls of the thumb and forefinger on opposite sides of the breast  $1\frac{1}{2}$  inches from the nipple. This is usually at the edge of the pigmented area. Press deeply and firmly into the breast until the resistance of the ribs is felt. Then bring the thumb and fingers tightly together well behind the base of the nipple. When the fingers and thumb are pressed deeply into the breast keep them there and repeat the "together" motion 60 to 100 times per minute. Speed is important and is attained after some practice. The fingers should not slip forward on the breast lest the skin be irritated. It is not necessary to touch the nipple. If the stripping of the breasts is done in this way it will cause no discomfort. If the milk expressed is not to be used at once it should be kept on ice in a stoppered sterilized bottle.

#### WET NURSES AND BREAST-MILK AGENCIES

Some newborn babies, especially those prematurely born, and some babies who are very delicate or who suffer from chronic digestive disturbances can not be made to thrive on artificial food. If such babies can not be nursed by their mothers it is wise to provide breast milk, either by engaging a wet nurse or by buying breast milk from a hospital or a breast-milk agency. In some large cities there are agencies where breast milk can be bought or wet nurses engaged. In small towns or in the country wet nurses or breast milk can be had by advertising or by inquiring at a maternity hospital in some near-by city. Sometimes breast milk may be obtained from a friend or a relative. It is often more satisfactory to buy breast milk than to employ a wet nurse in the home. If it is bought from an individual, it is desirable that the woman should come to the baby's home, so that there may be supervision of the expression of the milk. All breast milk obtained from an agency or hospital or from a wet nurse or other individual should be boiled and kept on ice in sterile bottles.

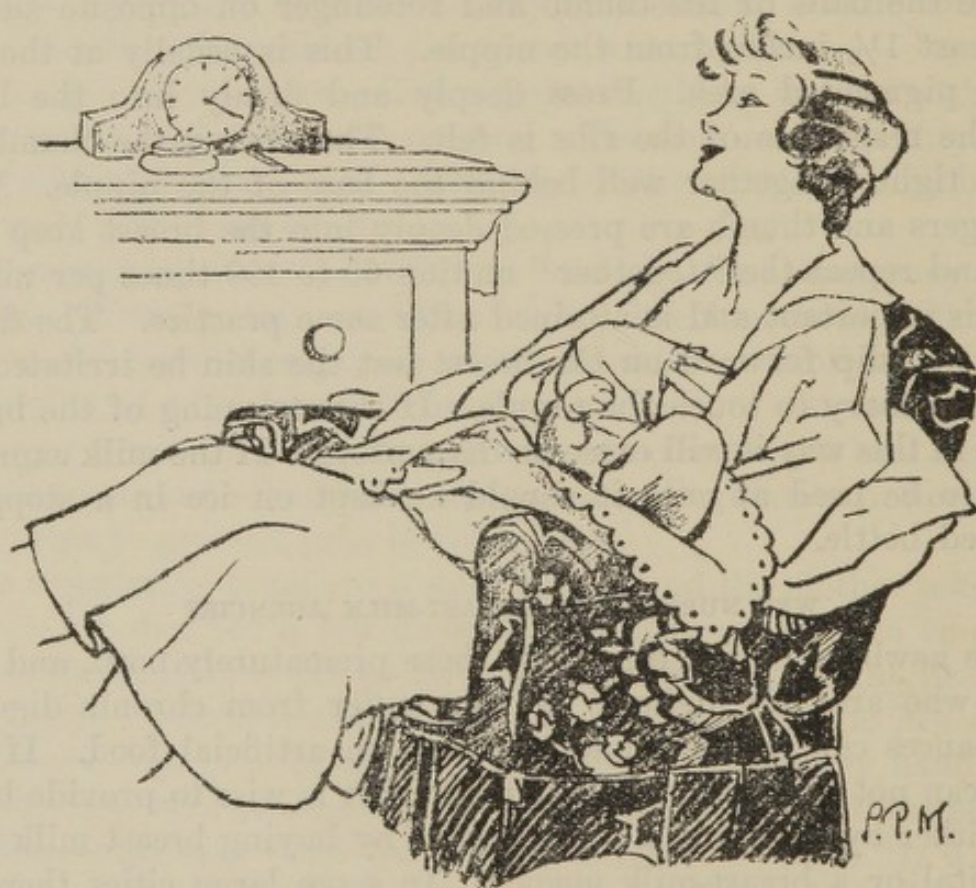
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<sup>1</sup> The breasts may be emptied by hand, by an electric breast pump, or by a hydraulic breast pump. These pumps may be rented through your doctor.



When a wet nurse is employed it is not necessary that her own baby should be of the same age as the baby to be nursed. It is best to engage a nurse whose baby is at least 6 weeks old and not more than 9 months old. The baby's condition should be such as to indicate that the mother can produce an abundant milk supply.

The general health of the wet nurse and of her child should be considered before she is engaged. Good health in her child usually indicates that she has an adequate supply of breast milk. The wet nurse must not have any disease that she could transmit to the nursling. Both the wet nurse and her baby should be given a complete examination by a doctor, including examination of the lungs, the blood



*Feed the baby regularly*

test for syphilis, and examination for gonorrhea, whether or not the woman shows symptoms of tuberculosis, gonorrhea, or syphilis. No nurse should be employed who has a cough or a cold or who has had tuberculosis. The wet nurse should follow the rules of hygiene (including diet) for a nursing mother that are given on pages 64-69.

Every wet nurse should nurse her own baby as well as the baby she is engaged to nurse. Her peace of mind will insure a better supply of breast milk. Also, if the baby to be wet-nursed is small and weak, it may be a help to the milk supply to have the wet nurse's breasts emptied afterwards by a more vigorous child. Professional wet nurses in hospitals often furnish enough milk for several babies at a



time; there need be no fear that a wet nurse can not supply milk for two if she has good breasts and follows the rules of hygiene.

#### HOW TO NURSE THE BABY

During the first two weeks after the baby's birth the mother necessarily nurses him while lying down. While nursing in this position the mother should place the baby on the bed at her side. The baby must always be able to breathe freely while nursing, and therefore the mother should keep the breast from covering his nostrils.

After the mother is up and about the position for nursing should be as comfortable as possible, so that she may relax during the nursing period. It is best that the mother should sit in a comfortable chair and hold the baby in a reclining position so that his head rests against her arm and his body in her lap. It is wise for her to hold the baby up over her shoulder both before and after nursing and pat him on the back for a minute or two to help him raise or belch any air that is in his stomach. This will help to prevent "spitting up."

Neither the mother nor the baby should be disturbed while nursing, and the baby should not be encouraged to play nor be allowed to sleep while at the breast.

The usual time of nursing should be between 10 and 20 minutes. Occasionally a vigorous child may take enough milk in 5 minutes, and a feeble baby may nurse so slowly that it will take him the full 20 minutes to obtain a meal. It is usually not wise to allow a baby to nurse more than 20 minutes. It is important that each breast be emptied completely at least twice every 24 hours in order to keep up the supply of milk. If the milk is plentiful, only one breast should be given at a feeding, the other being given at the next feeding. If the baby is not strong enough to empty the breast completely, it should be emptied completely by hand. As the time for weaning approaches, or whenever the milk supply is scanty, it is often necessary to give both breasts at each feeding in order to satisfy the baby, but the breast given first should be alternated so that one at least is emptied completely at each nursing. Give either the first breast for 15 minutes and the second for 5, or each for 10 minutes.

#### AMOUNT OF FOOD

The amount of food a normal breast-fed baby takes in the 24 hours varies with the age and size of the baby and also varies with the individual baby. During the first week the baby may take from 10 to 16 ounces of food a day, according to his weight; after that from 2 to 3 ounces a day for every pound of his weight.

Regular gain in weight is the most satisfactory measure of whether the baby is getting enough food. If his gain is not satisfactory (see



p. 73) it may be necessary to determine how much milk he is getting in 24 hours by adding together the amounts taken at each feeding in the 24-hour period.

To find out the amount of milk a breast-fed baby gets at a feeding, weigh him just before and just after each feeding; the increase in weight in ounces gives the number of ounces of food taken. No change should be made in clothes; the diaper should not be changed. The amounts taken at different feedings vary. Conclusions must not be drawn from weighing the baby before and after a single nursing; but he should be weighed before and after each feeding for one or two full days until it can be settled how much he receives in 24 hours.

#### FEEDING INTERVALS

The baby should be put to the breast about 6 to 12 hours after birth, according to the physician's directions. After this first nursing the baby should be started on a regular schedule of feeding every four hours, unless the physician advises feeding at shorter intervals, such as every 3 hours. Convenient hours for feeding are 6 a. m., 10 a. m., 2 p. m., 6 p. m., 10 p. m., and 2 a. m. The 2 a. m. feeding may be dropped as soon as the baby learns to sleep through the night. It is seldom needed after the first two months. The baby should be fed by the clock and wakened for each feeding (except the one at 2 a. m.). The 4-hour schedule may be continued throughout the first year. The 10 p. m. feeding may be dropped when the baby is 9 months old.

#### DRINKING WATER

A breast-fed baby should be offered boiled water (unsweetened) regularly between feedings—in winter two or three times a day, in hot weather four or five times, since he perspires freely then and needs more. Some breast-fed babies get enough water from the milk and will refuse water from a bottle. Even if water is refused it should be offered regularly.

#### STOOLS

The first stools from a newborn baby's bowels are known as meconium. They are very dark green, thick, and sticky, with little or no odor. They soon change to the normal yellow stool of the healthy baby as he begins to feed at his mother's breast. If any blood is seen in the stool of a newborn baby the fact should be reported to the doctor immediately.

A well breast-fed baby ordinarily has one to three stools a day; he may even have four. Some well babies have infrequent stools; they may have one only every other day. Such a baby is not to be considered constipated, if his stools are large, soft, and pasty. If



they are hard and dry and the baby passes them with difficulty or if they are streaked with blood, he is constipated and the doctor should be told. Do not give any drugs except on the advice of a doctor.

The normal stools of a breast-fed baby are bright orange-yellow though occasionally they may be greenish. They are soft and mealy, contain very small soft curds, and are often loose.

#### WEIGHT

The weight of a baby at birth averages about 7 pounds. For the first few days the mother's milk is not sufficient to allow the baby to gain or even to maintain his weight. Therefore most babies lose about one-tenth of the birth weight during the first days of life.

There is only one reliable indication of whether or not a baby has sufficient food and that is whether or not he is gaining weight. Weighing the baby once a week will definitely settle this point. A normal breast-fed child gains from 4 to 8 ounces a week the first 5 months of life, and after this from 4 to 6 ounces a week. The younger he is the more rapid should be the gain. Many infants gain from 6 to 8 ounces a week for several months. A simple rule is that a baby doubles his birth weight by the end of the fifth or sixth month and trebles it by the end of the first year. The average weekly gain during the first five months should be about 6 ounces; during the remainder of the year, 4 ounces. It is best to take the baby to your doctor or to a well-baby conference to be weighed once a week for the first six months of the baby's life and every two weeks from 6 months to 1 year. During the second year he should be weighed once a month.

No two infants are exactly alike in their development or in their power to make use of food; but it is a fairly good indication that a baby is not having the proper kind or amount of food if he fails to make any gain for a 2-week period or if his gains are unsatisfactory for a period longer than two weeks. (See pp 15-16 for weight-height-age tables.)

#### UNDERFEEDING

A baby who shows no gain in weight or shows a loss in weight may be underfed. Such a baby either nurses for a short time and then gives up and falls asleep, or he cries after an exhausting attempt to obtain food. The stools are scanty, often only brown stains. The child seems weak and his body may feel flabby and his skin look pale. He may cry very little and may sleep a great deal.

The fact that a breast-fed baby is not gaining in weight or is actually losing suggests immediately that he is not getting enough food. To find out whether he is getting enough food weigh the baby before and after feeding for 24 or 48 hours. (See p. 13.) It may be that



the mother has not enough milk, or it may be that he is not able to nurse properly, either because he is not vigorous enough or because he has a deformed mouth. If the milk is scanty, steps must be taken to increase the supply, and until this is brought about artificial food must be given to the baby in addition to the breast milk. (See Mixed feeding, p. 75.) If the baby is not able to suck properly, the mother's milk should be expressed by hand regularly, and a medicine dropper used to feed this milk to the baby.

#### **Increasing the supply of breast milk.**

To increase the milk supply attention should be paid to the diet and hygiene of the mother. She must have plenty of rest and sleep, and she must take the proper amount of food and liquid. (See p. 64.) The breasts must be emptied thoroughly at regular intervals either by the baby or by hand expression (see p. 69) in order to stimulate the action of the milk glands. To increase the supply of milk both breasts should be given at each feeding. Persistent efforts to increase the amount of milk will usually be successful.

#### **Restoration of milk supply.**

It is frequently possible to bring back the flow of breast milk even if it seems to have entirely ceased. This is done by putting the baby to both breasts for 7 to 10 minutes each at regular intervals every four hours and by following each nursing with expression of milk to insure complete emptying and adequate stimulation of the breasts. The daily routine and hygiene of the mother must be regulated to insure sufficient rest, proper diet, and a quiet normal life.

Such restoration of breast milk is frequently of greatest importance to a baby who has been weaned too early and has done badly on cow's milk mixtures. In such cases, if the mother is well, the milk may often be restored even though she has not nursed the baby for a month or six weeks or sometimes even longer.

#### **OVERFEEDING**

Overfeeding is rare in the breast-fed baby. When it occurs it usually means that the nursing periods are too frequent or that the quantity taken at one time is too large. To remedy it, the time at the breast should be decreased and the interval between feedings increased if it is less than four hours. (Less frequent feedings will automatically regulate the overabundant supply of milk.)

#### **SPITTING UP**

Spitting up or spilling over (not the same as vomiting) is usually caused by pressure of air in the stomach. It may be due to feeding too much or too often. If the baby belches while lying down he is likely to spit up milk with the air. It is very common in breast-



fed babies. It can nearly always be prevented by holding the baby in an upright position over the mother's shoulder before and after feeding, and patting him on the back until belching occurs. If it is due to overfeeding, lengthening the interval between feedings or shortening the period at the breast may be all that is necessary.

#### HICCUGHS

Hiccoughs sometimes result from feeding the baby too often or from his taking his food too rapidly. They usually follow a feeding and may occur when the baby has air or gas in his stomach (or too much food). Giving the baby a few spoonfuls of warm water usually stops them. It may be necessary to lengthen the interval between feedings if it is less than four hours.

#### COLIC

Colic (pain in the abdomen) in breast-fed babies is usually due to the pressure of air in the intestines. It is most common in the early months of life and in breast-fed babies. It may be due to overfeeding or it may occur in babies who are constipated. Regulation of the feeding is important in the control of colic. Sometimes colic occurs in breast-fed babies who apparently are being fed very satisfactorily. Colic is usually not serious; but if it is persistent, the advice of a doctor should be sought with regard to the regulation of the feedings. Colic usually disappears as the baby grows older. Treatment of the immediate symptoms consists in getting rid of the gas. The baby may be held up over the shoulder to aid belching.

Colic is frequently relieved when the baby passes gas by rectum or has a stool. Sometimes it is necessary to give a small enema (see p. 117) to relieve colic. An enema is much more effective than medicine. Medicine for colic should never be given except on the advice of a doctor.

#### MIXED FEEDING (BOTH BREAST AND ARTIFICIAL)

Before mixed feeding is begun every effort should have been made to keep up the supply of breast milk by giving both breasts at every nursing and expressing the milk after nursing to stimulate the breasts. If the baby is not getting enough breast milk, either because the mother has not enough milk or because the baby does not nurse vigorously enough, the doctor should be consulted and may advise "mixed feeding"—part breast feeding and part bottle feeding.

The method that is usually most satisfactory is to give a small bottle feeding—1 to 3 ounces of cow's milk mixture—immediately after the breast feeding. This may be done at as many feedings a day as the doctor recommends. The amount and strength of milk



mixture to be given at each feeding will depend on the age and weight of the baby and the amount of breast milk that he is getting. To calculate how much additional food must be given to make up the usual amount for the baby's age (see p. 71) weigh the baby before and after each nursing for two days.

The other method of mixed feeding is to omit one or two breast feedings a day and replace them with a bottle feeding suitable to the baby's age. This method should not be used except on the doctor's advice, for omitting breast feeding may dry up the breasts, partly or wholly.

Babies receiving mixed feeding rarely have digestive disturbances if the cow's milk mixture is boiled.

In order to accustom the baby to taking a cow's milk mixture, because of the possibility of having to wean him rapidly later, some physicians advise the introduction of one bottle feeding a day by the fourth month of age. This may work to the advantage of the baby, in that it gives the mother a longer period for rest or recreation and so indirectly keeps up her supply of breast milk. If the mother has plenty of breast milk, two bottle feedings a day should not be given until it is time to begin weaning, as the amount of mother's milk is likely to decrease if each breast is not emptied at least twice every 24 hours.

#### Stools.

When boiled cow's milk feedings are added to the diet of a breast-fed baby the stools begin to change in character and gradually become more pasty, darker yellow or brownish in color, and less frequent. If the stools become loose and green and too frequent (more than three a day) or if they become hard and dry, the doctor should be consulted.

#### WEANING

Breast feeding should be continued until the baby is 7 or 8 months old, even if only one or two breast feedings a day are given and the other feedings are artificial. Then, with the doctor's advice, weaning may be begun. It is of great importance that a baby should not be fully weaned in the first six months of life unless it is absolutely necessary, as it is during this period of rapid growth that digestive disturbances resulting from artificial feeding are most serious. (For directions as to artificial feeding see p. 84.)

Weaning should be done gradually, and it should be completed by the end of the ninth month or the beginning of the tenth month. It is not wise to start weaning in very hot weather, but it can be done if it is carried on gradually and the cow's milk mixture given is always boiled. Most of the difficulties of weaning in the summer come from the use of unboiled milk.



**Insufficient reasons for weaning.**

Failure to gain in weight or decrease in the supply of breast milk is not a good reason for weaning the baby before he is 6 months old. Even though the mother does not have enough breast milk to satisfy the baby and allow him to gain weight, he should not be weaned but should be given a cow's milk formula in addition to breast feeding (see Mixed feeding, p. 75), and an effort should be made to increase the supply of breast milk by attention to the mother's diet and general hygiene. Many babies are weaned unnecessarily because the breast milk looks blue or is thought to be "too thin." Breast milk is always thinner and bluer than cow's milk. Its quality can not be determined by looking at a few drops, nor can it be satisfactorily told even by a laboratory examination. Rarely, if ever, does analysis help. If difficulties arise during the breast-feeding period, they are much more likely to be caused by a shortage of milk than by poor quality.

Colic, spitting up, increase in the number of stools, and green stools are not in themselves causes for weaning. Menstruation may return during the nursing period, but it should not be considered a reason for weaning. The baby may be slightly irritable and may fail to gain during the mother's menstruation or for a few days previous to it, but these symptoms are transient and often only due to a temporary decrease in the supply of breast milk. During this period a supplementary feeding of boiled cow's milk mixture may be given.

**Temporary removal from breast.**

Temporary removal of the baby from the breast may be necessary if the mother contracts an acute illness such as pneumonia or some other communicable disease. In such cases, if the mother is not too ill, it is wise to make every effort to keep up the supply of breast milk by emptying the breasts completely by hand or by breast pump at regular intervals. During the mother's illness, while the baby is off the breast, regular feedings of cow's milk mixture should be given, prepared according to a formula given by the doctor. The baby should be returned to the breast at the first possible moment.

**Early weaning.**

There are only a few good reasons for permanently weaning an infant under 6 months. Among them may be classed the following conditions of the mother: Another pregnancy; any chronic illness of a debilitating nature, such as cancer, chronic Bright's disease, chronic heart disease, or severe anemia; severe prolonged infectious diseases, such as typhoid fever and tuberculosis of the lungs; and epilepsy.

A mother with active tuberculosis of the lungs should never come in contact with her baby, and therefore should neither nurse nor



take care of him, because of the great susceptibility of the baby to the disease. A mother who is the subject of epileptic attacks or dementia should not be left alone with her baby; therefore, unless there is some one in the house who can take charge of the baby, it may be necessary to separate him from the mother while he is still very young, and therefore to wean him.

#### **How to wean the baby.**

Before the baby is weaned consult a physician with regard to the formula for the cow's milk mixture to be used. A mixture of cow's milk, water, and sugar, boiled, usually is satisfactory. (See p. 90.) The following plan for weaning, covering three weeks, can be used for most babies:

For a week give one feeding of cow's milk a day and four breast feedings. Then for four or five days give two feedings of cow's milk a day and three breast feedings. For the next four or five days give three feedings of cow's milk a day and two breast feedings. For four or five days after that give four feedings of cow's milk a day and one breast feeding. After that (21 or 22 days after the beginning of weaning) the baby should get no breast feedings, but should get five feedings of cow's milk a day, as well as the additional foods mentioned on pages 78-82.

Rapid weaning may occasionally be necessary. Additional bottle feedings instead of breast feedings may have to be given oftener. The rapid method of weaning should not be used except for some very urgent reason. Sudden weaning, when the baby has to be taken off the breast all at once, is frequently very difficult, especially with young babies, and of course should be done only in an emergency.

When a baby 7 or 8 months old is being weaned his milk may be given him in either a bottle or a cup. If he already has had water from either a bottle or a cup, he will probably like whichever one he is used to. Many babies at 8 or 9 months can learn at once to drink from a cup and will thus not need to learn to give up the bottle a few months later. All babies should drink from a cup at 1 year.

If the baby refuses the bottle or cup the mother must not give in and allow him to nurse. If the weaning is to be successful she must offer the cup or bottle regularly at the time decided on and must omit breast feedings according to the foregoing plan. Soon the baby will be hungry enough to give in and take the cup or bottle. The mother must not get excited nor upset if the baby refuses, because he will finally yield.

#### **ADDITIONAL FOODS**

To help the baby's body to develop properly, with well-formed bones, good teeth, strong muscles, and rosy cheeks, to rebuild worn-out tissues, to warm him and provide him with energy, to prevent



"deficiency diseases," which are caused by lack of certain food factors, and to regulate the discharges of waste from the body a number of food factors are needed. The factors that the baby's diet should contain are:

Starches and sugars, which supply energy for muscular activities, warm the body, and build body fat.

Proteins, which repair worn-out tissue and build new (proteins also supply energy and warm the body).

Fats, which supply energy, warm the body, and build body fat.

Minerals, such as iron (which helps to build red blood cells), calcium and phosphorus (which help to build bones and teeth), and many other minerals. Minerals are needed in the body for many purposes.

Vitamins, which are the factors that control growth and health. The body must be provided with vitamins if health and normal development are to be assured. Certain of these are called by the letters A, B, C, and D. All these vitamins, and possibly others not yet well known, are necessary for the growth and health of babies. The vitamins prevent and cure certain diseases. For example, vitamin C prevents and cures scurvy, and vitamin D prevents and cures rickets.

Water, which is necessary for good health in babies. Some babies get enough water in the breast milk and additional foods, but water should be offered regularly to every baby, whether he takes it or not.

Breast milk, if the baby gets enough of it and if the mother's hygiene and diet are good, supplies enough fat and sugar and some of the other food elements needed by the baby for health and growth in the first months of life. But some elements are likely to be scarce or lacking in milk, and therefore at the proper ages the baby should be given additional foods to supply these elements.

The foods that the baby needs during his first year, in addition to breast milk, are as follows:

Orange juice or tomato juice, which are given chiefly because they supply vitamin C, the factor that prevents scurvy. They also supply vitamins A and B and certain minerals.

Cod-liver oil, which is given chiefly because it supplies vitamin D, the factor that prevents rickets. It also supplies vitamin A.

Egg yolk, which is given chiefly because it supplies iron; it also supplies vitamins A and D.

Cereals and bread, which are given because they supply starch, protein, and minerals. Dark wheat cereals and bread are especially valuable for minerals, vitamin B, and roughage.

Dark-green leafy vegetables and also carrots, which are given chiefly because they supply iron. They also supply other minerals, and also vitamins A and B.



Stewed fruits, such as prunes and apples, which are given chiefly because they help to regulate the bowels. These fruits also supply iron and other minerals and vitamins A and B and roughage.

Potatoes, which are given because they supply starch, minerals, and vitamin B.

#### **Fruit juices.**

Orange juice or tomato juice (strained) should be started for the breast-fed baby by the end of the first month of life. Tomato juice may be obtained by straining the pulp of fresh or canned tomatoes; or canned tomato juice may be used. Orange juice should be diluted with an equal amount of cool boiled water; tomato juice is given without water.

If orange juice is used, begin with 1 teaspoonful twice a day. Gradually increase the amount until by the third month and thereafter 1 tablespoonful is given twice a day.

If tomato juice is used give twice as much as you would of orange juice. Begin with  $\frac{1}{2}$  tablespoonful, twice a day, and increase until by the third month 2 tablespoonfuls are given twice a day.

Orange juice and tomato juice contain vitamin C, which prevents scurvy. Prune juice can not be substituted for them.

#### **Cod-liver oil.<sup>2</sup>**

Cod-liver oil should be begun before the end of the first month of the baby's life, preferably by the end of the second week. Begin with one-half teaspoonful twice a day of pure plain cod-liver oil tested for vitamin D (the antirachitic vitamin). It is important that only tested oil be bought. During the second month increase the amount of oil given to 1 teaspoonful twice a day and during the third month to  $1\frac{1}{2}$  teaspoonfuls twice a day. This may again be increased during the fourth month to 2 teaspoonfuls twice a day and continued in this amount through the first two years of life.

Cod-liver oil, like direct sunlight, prevents rickets. In climates where children can not have enough direct sunlight the year around, cod-liver oil should be given regularly twice a day. It should be given throughout the first two years of the child's life.

*How to give cod-liver oil to a baby.*—With the baby lying across her lap, the mother pours out the cod-liver oil in a spoon held in her right hand. With her left hand she opens the baby's mouth by pressing the cheeks together with her thumb and fingers. The oil may then be poured little by little into the baby's mouth. If his mouth is not held open until the oil entirely disappears the baby will spit out what is left. The mother must not let him know by her facial expression that she does not like the smell of the oil because that will teach the baby not to like it. She must take for granted

<sup>2</sup> Viosterol is sometimes ordered by the doctor instead of cod-liver oil. It should never be given except under a doctor's direction.



that he will like it even if she herself does not. The cod-liver oil may be followed by orange juice, but it is better not to try to disguise the taste of the oil by adding anything to it. If it is given regularly the baby will accept it and like it as he does other foods. As he grows older he can be given the oil sitting up.

Keep a special towel or two for protecting the baby's clothes, as cod-liver oil leaves a stain; or, better, give the oil when the baby is undressed for the bath and again when he is undressed for bed.

#### **Cereals.**

Cooked cereals may be started for breast-fed babies at the beginning of the fifth month. Farina, oatmeal, and other forms of cooked cereals may be given. The darker-colored cereals should be used frequently. Begin with one-half to 1 tablespoonful twice a day just before the 10 a. m. and 6 p. m. nursings and increase until by the seventh month the baby takes 3 or possibly 4 tablespoonfuls twice a day. The cereal should be cooked 1 to 2 hours. At first make it thin, but gradually thicken it to teach the baby to take semisolid foods.

#### **Egg yolk.**

Egg yolk may be added to the baby's diet in the fifth month. Some physicians add it as early as the third month or even earlier. The egg may be soft boiled, hard boiled and mashed, or coddled (cooked in hot water, not boiling, for 6 to 10 minutes).

The first time egg yolk is given give a very small amount (one-fourth teaspoonful or less) at the 2 p. m. feeding. Increase the amount gradually each day until the baby is getting a whole egg yolk daily.

A very few babies are made sick by eggs. If your baby seems sick after the first time he gets egg yolk, do not give it again until you have told the doctor about it.

#### **Green vegetables.**

Green vegetables, cooked and mashed through a strainer, should be started in the sixth month and given once a day at the 2 p. m. feeding just before the nursing or with the bottle feeding. Give spinach three times a week, as it is the best vegetable for the baby. On the other days he may have carrots, chard, new green peas, fresh green lima beans, fresh asparagus, string beans, young beet greens, or cooked lettuce. Begin in the sixth month by giving 1 teaspoonful of mashed vegetable once a day and increase the amount fairly rapidly to 1 tablespoonful by the seventh month, 2 tablespoonfuls by the eighth month, and 3 tablespoonfuls by the ninth month. From this time on give 3 tablespoonfuls daily. When the baby is 1 year old he may have also summer squash, Hubbard squash, celery, beets, cauliflower, kale, and cabbage.



Cook leafy vegetables in a saucepan for 10 to 15 minutes without the addition of any water except a little for cabbage (the water that is left on them after washing is sufficient). Stir frequently to prevent burning. When soft, mash through a strainer.

Root and stalk vegetables chopped fine—such as carrots, celery, and beets—should be cooked until soft in as little water as possible in a double boiler covered to prevent the evaporation of water (30 to 45 minutes). (The length of the cooking time depends on whether the vegetables are young or old.) When soft put through a sieve or strainer. The water in which vegetables are cooked contains valuable minerals and should be served with the vegetables.

#### Potatoes.

When a baby is 10 months old, baked white potatoes (2 tablespoonfuls) may be given three or four times a week at the 2 p. m. feeding. After a month or so he may have potatoes every day, but they must not take the place of green vegetables. If a child does not eat the green vegetables that are offered him it is wise to withhold potatoes, as many babies like potatoes best and will not eat green vegetables as long as they can get potatoes.

#### Bread.

After the baby's first tooth has come, give him bread dried in the oven, or zwieback. If commercial zwieback is used it is better to buy the unsweetened kind.

#### Stewed fruits.

Apple sauce or prune pulp, passed through a sieve or strainer, may be given for supper beginning at the tenth month. Prunes should be soaked all night and cooked until soft enough to mash through a strainer.

### TEACHING THE BABY TO EAT SOLID FOODS

When you give the baby his first taste of cereal you are offering him the first of a series of new experiences which he will eventually meet with satisfaction and enjoyment but which are as yet entirely unknown to him. Much of his future health, both physical and mental, depends on how you teach him to meet new experiences.

Up to the age of 5 months, when most babies should begin to eat semisolid foods, the average baby has never taken any food except liquids, and knows but one way of satisfying his appetite—namely, sucking, from which he gets his greatest satisfaction. When you put a small amount of cereal in his mouth he does not know what to do with it. When the spoon touches his lips it at once stimulates sucking movements, but sucking movements do not necessarily result in his swallowing the cereal. They are more likely to result in his spitting it out, not willfully but because he does not yet know how to



swallow it. If the cereal stays in his mouth, you can see his feeling it with his tongue, turning it over, finding out for himself what it is. His face often shows an expression of surprise or curiosity. If now you will encourage him by looking pleased and speaking of the "nice cereal" and by telling him to "swallow the cereal," you will let him see that you are pleased with his attempt. If he pushes it out of his mouth with his tongue, do not look surprised nor scold him—say nothing. Give him another small portion to try again. Do not laugh at him because he makes funny faces, but treat the situation as a serious but pleasant lesson in eating. Praise him for trying; do not scold him for not doing it right the first time. He will thus learn



*He is learning to like cereal*

to associate eating with pleasant words and looks. Remember that it is a new experience to him.

On the first day a new food is given do not try to make the baby eat very much. Give two or three tastes the first day and four or five the second. Gradually the baby will get used to the new food and learn to swallow it. If he continues to make faces and push it out, it is because it is still new to him, not because he does not like it. He must learn how to eat the new food. Whether he learns to like a food or not depends upon whether he learns to associate pleasure and satisfaction with eating it or not. This association depends largely upon your attitude toward the food. Take for granted that he will like every new food. Offer it to him in small amounts every day until he eats it well. Never ask him whether he likes it or not.



Do not say in front of him that you do not think he likes it. Do not let the expression of your face show that you think he does not like it. Do not suggest to him in any way that he may not like it. A little baby is not too young to understand your attitude, even though he may not understand your words.

Many babies learn very quickly and well to eat new foods, but some babies learn slowly. Do not be anxious nor worried if your baby is slow in learning or if he refuses to eat. If you are, the baby will know it, and he will soon learn to get extra attention from you by continuing to refuse. All babies want attention, and this is one of the ways they get it. Be patient and persistent. Do not coax. If the baby refuses to eat a food, take the food away without showing any excitement, but offer the same kind of food every day until he learns to take it. Always give the new food before the nursing or bottle feeding, which the baby likes. If a baby 8 or 9 months old persistently refuses a new food, it may become necessary to keep his milk or other food that he does like away from him for several feedings until he eats the new food. (See Feeding habits, p. 57.) Even under these circumstances do not get excited or coax, but let him understand plainly that when he eats a little of the new food he may have his milk. Give plenty of water when you are withholding milk. Do not make his mealtime unhappy by scolding him and forcing him to eat foods that he has not yet learned to like, but let him go without his other foods until he is hungry enough to eat a little of the new one. Praise him and then give him his milk.

A baby can learn to like all the foods that are good for him. He will not cry for foods that he has never tasted, so do not give him tastes of foods that you know are not good for him.

#### ARTIFICIAL FEEDING

Every baby should be under the supervision of a doctor, and at no time is this more necessary than when artificial feeding is begun.

During the first six months of a baby's life there is no perfect substitute for breast feeding. Therefore no baby should be taken off the breast during this time unless there is a very good reason (see p. 77). After the baby is 6 months old artificial feeding can be begun more safely, but it is best that a baby should be at least partly breast fed until he is 8 or 9 months old.

The most important problems in connection with artificial feeding are: (1) The choice of a good milk supply; (2) the planning of the milk mixture so that it may be adequate in quantity and quality; (3) preparation of the milk mixture so that it may be safe and digestible. The problem of the milk supply may be met by buying a good grade of milk (certified or grade A) that has been pasteurized.



Cow's milk is most commonly used, but in some sections of the country goat's milk is more abundant and may be used satisfactorily. The doctor should decide upon the ingredients of the feeding and upon the amounts to be used. It is the consensus of opinion among child specialists to-day that any milk or milk mixture fed to a baby should be boiled to render it absolutely safe and at the same time more digestible.

#### THE PROBLEM OF A GOOD MILK SUPPLY

The problem of the milk supply varies greatly, depending on whether one lives in a large city, a small city or town, or a village or rural district. In most large cities and in many small cities and towns, laws have been passed regulating the production and care of all milk sold and establishing standards for certain grades of milk. These standards take into consideration the composition of the milk (especially the percentage of fat), the conditions under which it is produced, the number of bacteria present in it at the time of delivery, and whether it is to be sold raw or pasteurized.

Several grades of milk are on the market in cities. Milk labeled "certified" has been produced under such good conditions that it meets the requirements of a medical milk commission or board. These requirements include absolute cleanliness of cows, barns, dairy, and milk handlers, certain standards of washing and sanitary facilities, medical inspection of milk handlers, veterinary inspection of cows—including tuberculin testing of the cows every six months—and a final resulting low bacterial count in the milk. Certified milk is of very high quality, but it is expensive. It is often sold raw, but for complete safety it should be pasteurized. Grade A milk is milk from tuberculin-tested cows, which is produced under very good conditions and which has a low bacterial count. Grade A milk, either pasteurized (see p. 87) or raw, is sold in most cities and towns. Other grades of milk are of poorer quality and have higher bacterial counts. When properly pasteurized they may be satisfactory for family use, but for babies every effort should be made to get pasteurized grade A milk.

In villages and rural districts where milk is supplied from small herds or single cows, public regulation of production and care of the milk is more difficult. It is as important, however, to regulate the supply of milk in small towns and rural districts as in cities because the majority of epidemics of milk-borne diseases such as typhoid fever, septic sore throat, and scarlet fever occur in small towns. All milk-borne epidemics, whether in cities, towns, or villages, are preventable if the milk supply is properly cared for.

Bottled milk should always be bought, as "dipped" milk, dispensed from a large container, is likely to be contaminated.



## CARE AND HANDLING OF MILK ON THE FARM

Milk is a very perishable food and is easily contaminated with disease germs from cows or from human beings. As much care should be taken with milk which is to be used on the premises or for distribution to neighbors as is taken in the larger dairies.

Milk must be chilled immediately after milking and kept clean, cold, and covered until delivery. It should be taken only from healthy animals. A sick animal should be immediately isolated and its milk discarded. To be healthy, animals must be well fed and well cared for in clean, healthful surroundings. Well-built, well-aired stables are necessary. The udder and teats of the cow should be washed and wiped dry before milking. This prevents dust and hair from dropping into the pail during the milking. Cows are very susceptible to tuberculosis, and if a cow has this disease the milk may be contaminated. If such milk is given raw to babies they may develop tuberculosis, which in babies is even more serious than in adults. If the owner is to be certain that the herds or even single animals are constantly free from tuberculosis, they should be examined and tested every six months. Goats are not so likely to have tuberculosis as cows, and therefore goat's milk is much less likely to be contaminated with tuberculosis germs; but goat's milk, as well as cow's milk, may contain the germs of undulant (Malta) fever.

**Milk handlers.**

Milk should be handled only by perfectly healthy persons. If a milk handler has tuberculosis, septic sore throat, typhoid fever, scarlet fever, diphtheria, or infantile paralysis he may contaminate the milk and be the cause of a severe epidemic if the milk is consumed raw. Frequent examinations of milk handlers by physicians should be required as part of the routine. The milkers should wash their hands with soap and dry them carefully before milking. Milking with wet hands is almost certain to carry impurities into the milk. A clean washable suit should always be worn while milking. The milker should be very careful not to raise dust nor permit anything to fall into the milk.

**Milk utensils.**

The pail, strainers, milk cans, and all other utensils should be washed clean and sterilized by boiling or with steam before being used.

The water supply used in washing the utensils and bottles, the udder of the cow, and the hands of the milker—everything touching the milk—must be clean and uncontaminated by disease-producing bacteria. Serious outbreaks of disease have been caused by use of contaminated water for washing.



**Refrigeration.**

After milking, the milk must be cooled quickly by placing the cans in a cooler or in cold water. Milk should be kept at 50° F. or below.

**Bottles.**

The bottles must be thoroughly washed and sterilized daily. Clean caps should be used. The type of cap which covers the whole top of the bottle is the best as it insures perfect cleanliness of the lips of the bottle over which the milk flows. When milk is to be used on the premises where it is produced it should be kept in sterilized, covered bottles or glass jars.

**PASTEURIZATION**

Because of the great danger of transmitting diseases through milk, all milk—even certified milk—should be properly pasteurized before it is delivered to the householder. Proper pasteurization—heating for 30 minutes at a temperature that kills disease germs (142° to 145° F.) is necessary to make milk safe. It does not make poor milk a good food, nor does it justify the use of dirty milk—the quality and conditions of production should be as good for milk that is to be pasteurized as for milk that is to be sold raw—but it adds an important factor of safety to any milk. In some small cities and towns conditions of production are so insanitary that pasteurization is doubly necessary if the milk is to be given to babies. Milk should not be used for babies more than 36 hours after pasteurization.

Pasteurization does not take the place of boiling milk before giving it to a baby; all milk given to a baby must be boiled.

**CARE OF MILK IN THE HOME**

Milk must be given proper care after it is delivered. It frequently becomes spoiled by being allowed to stand in the sun on the doorstep or in a warm kitchen. Milk for the baby should be boiled as soon as delivered, and put into the nursing bottles. The nursing bottles should be covered at once with caps and should then be placed in the ice box, where the temperature should be below 50° F. (See pages 100–101.) If ice is not available, the bottles of milk may be placed in running spring water or in a spring house or well if the water is sufficiently cold. The bottles must be covered with water up to the neck, but care must be taken not to wet the caps. In cool climates the bottles may be placed in a can or pail of water in an open window on the cool side of the house. If the bottle is placed in a shallow pan of water and covered by winding a strip of cloth around it, with one end of the cloth in the water, the damp cloth will keep the bottle of milk cool.



Before milk is poured out the cover or cap of the bottle should be wiped off so that no dust may fall into the milk when the cap is removed, and the edge of the bottle or jar should be wiped off with a clean dish towel wrung out of hot water. All bottles and utensils and the ice box itself must be kept scrupulously clean. Milk bottles must not be used for any other purpose.

#### WHAT MILK TO USE FOR BABIES

##### **Fresh milk.**

In cities and towns pasteurized grade A milk or pasteurized certified milk should be bought if available: In places where pasteurized milk can not yet be had only bottled milk from tuberculin-tested cows, produced and handled under good conditions by healthy workers (see p. 86) should be used. As a rule it is better to use milk taken from a herd rather than from a single cow since that from a herd is more uniform in quality. Milk averaging  $3\frac{1}{4}$  to 4 per cent fat is best for babies.

If good fluid milk can not be bought, canned whole milk, either evaporated or dried, may be used.

##### **Evaporated milk.**

Evaporated milk is whole milk cooked until reduced to less than half its original bulk and canned without the addition of sugar. The long cooking makes evaporated milk a very digestible and safe substitute for fresh milk. After the can is opened the contents must be kept on ice and must be used within 24 hours. It should be diluted with boiled water according to the directions on the can to make whole milk and then used as if it were fresh milk—sugar and boiled water added according to the doctor's formula. As it has already been well cooked in preparation it need not be boiled.

##### **Dried milk or milk powder.**

Dried milk is whole, skim, or half-skim milk with the water removed and with nothing added. After a can has been opened it should be kept tightly covered and should be put in a cool place away from dust. Scrupulously clean utensils should be used to dip it out and prepare it for use. The powder should be made liquid by adding enough water (see directions on the package) to have the value of the liquid milk from which it was made—whole milk, skim milk, or half-skim milk. It may be used then as if it were fresh milk—water and sugar added according to the doctor's formula and boiled.

#### BUTTERMILK OR LACTIC-ACID MILK

Some doctors recommend buttermilk or lactic-acid milk for certain babies. If buttermilk is to be given to a baby, it must be made



from boiled milk, and therefore ordinary farm buttermilk can not be used. Buttermilk for babies should be prepared by adding either lactic-acid bacilli or lactic acid to boiled milk, as follows:

Obtain a fresh preparation of lactic-acid bacilli at the drug store. Boil a day's supply of milk and allow it to stand at room temperature until the milk is at about 80° or 90° F. Either whole or skim milk may be used, according to the doctor's directions. Fill a vacuum bottle, or other vessel that can be corked, with boiling water and allow it to stand 10 minutes. Empty this but do not wipe it. When the milk has cooled to 90° F. stir the culture into it and pour it into the vacuum bottle. Cover a cork, which has been boiled, with a fresh piece of waxed paper and stopple the bottle tightly. If a vacuum bottle can not be had, the milk may stand in a covered receptacle at room temperature. Allow to stand until milk is thick and creamy but not separated (about 12 hours). Save about one-half ounce on ice to use as culture for the next supply. If buttermilk is made daily, a new culture need not be bought oftener than once a month. When the doctor directs that the buttermilk be made with lactic acid (not the bacilli) obtain a small bottle of United States Pharmacopoeia lactic acid (75 to 85 per cent) at a drug store. Boil the milk and then cool it to 98° F. Using a medicine dropper, add 1 teaspoonful of lactic acid, a drop at a time, to each pint of boiled milk. If the milk is too warm or if the acid is added too rapidly the milk will form curds that are too large. Keep the buttermilk in the ice box.

If the doctor directs that buttermilk or lactic-acid milk be given to the baby, he will give instructions for preparing the feedings.

#### PROPRIETARY OR PATENT INFANT FOODS

There are two kinds of proprietary or patent infant foods. One kind, commonly called a "milk modifier," contains no milk. It consists largely of sugar and should be used only as sugar and not as a substitute for milk. This type of patent food may be added to milk as a substitute for other sugars only under a doctor's order. Another kind contains dry milk, sugar, and other ingredients and is not intended to be mixed with liquid milk. Most patent foods of this second type contain a great deal of sugar, and for this reason a baby may like them. A high proportion of sugar may be desirable under certain conditions, but the average baby does better on a diet in which the doctor can regulate at will the proportion of sugar, by reducing or increasing the amount added to fresh milk, rather than on a feeding in which the amount of sugar is fixed, as in patent foods. Babies fed entirely on patent foods are sometimes fat, but even then they often show symptoms of anemia and of rickets, and they may have little power to resist disease. Scurvy frequently follows the exclusive use of patent foods.

All proprietary foods are expensive. If the sugar and starch that they contain are bought separately and added to fresh milk, the total cost of the feeding is much less and the results usually better. No



proprietary food should be given to a baby except under the direction of a doctor.

#### THE MILK MIXTURE

Artificial feeding should be planned with the advice of a doctor. His advice is especially important during and after the weaning period. If the baby is not weaned until after he is 6 months of age, adjustment to cow's-milk feeding will probably be made easily. If, however, weaning has had to take place earlier the feeding should be closely supervised by the doctor. It is more difficult to feed a young baby successfully on a cow's-milk mixture than an older one, and the plan for this feeding often requires the doctor's most careful judgment.

No single method of feeding can possibly meet the needs of all infants. The methods given in the following pages are adaptable to the needs of the average well baby:

Cow's milk (or goat's milk) should be the principal food of the baby who is not being nursed. A boiled mixture of whole cow's milk, water, and sugar—the amounts varying according to the doctor's directions—is usually suited to the baby under 9 months of age. After the baby is 9 months old whole boiled cow's milk can usually be given without mixing it with water and sugar.

For the very young baby it is usually better to use milk that does not have a very high percentage of fat, not over  $4\frac{1}{2}$  per cent. Jersey and Guernsey milk are sometimes too rich for young babies, and, if used, should have about half the cream removed from the top of the bottle.

#### Importance of boiling milk mixture.

It is of utmost importance to any baby who must be artificially fed that the milk mixture be boiled to make it safe. Boiling milk kills all the disease-producing germs that the milk contains. It also makes milk more digestible. The curds formed in the baby's stomach in the process of digestion of raw cow's milk are large, tough, and leathery and frequently are found undigested in the baby's stool. Such undigested raw-milk curds found in stools look very much like white or yellowish lima beans. After milk has been boiled for 3 minutes in a single boiler or cooked for 20 minutes in a double boiler it is made more digestible. The curds that are formed in the baby's stomach from boiled milk are small and soft and more like the curds from breast milk. When a baby is fed boiled milk no large tough curds appear in the stools. Because boiling makes milk both safe and more digestible, many of the digestive disturbances and other difficulties of artificial feeding disappear when this procedure is rigidly followed in preparing the baby's feedings.



(See p. 97 for preparation of feedings.) It is perhaps the one rule which can be laid down for all artificially fed babies. The constipation that occasionally accompanies the use of boiled milk is unimportant in comparison with the more serious disturbances that may follow the use of raw milk. (See p. 119 for dealing with constipation.)

#### Planning the formula.

To plan a formula intelligently for an artificial feeding, the mother or the doctor must know the baby's weight. This must be found once a week. The following points must be varied according to the age and weight of the baby:

1. The quantity of milk to be used in the total amount of milk mixture given in 24 hours.
2. The quantity of sugar to be used in the total amount of milk mixture given in 24 hours.
3. The number of feedings a day and the interval between feedings.
4. The amount of milk mixture to be given at each feeding.
5. The total amount of milk mixture to be given in 24 hours (amount at each feeding multiplied by the number of feedings).
6. The total amount of water which must be added to the milk to bring the quantity up to the total amount of mixture required.

1. *Quantity of milk.*—The formula for the artificial feeding of a baby on the first day of life includes no milk, but only water and sugar. (See p. 94 for proportions.) From then on, milk is added to the formula, the amount given each day depending on the age and weight of the baby.

On the second and third days of life 1 ounce of milk is given for each pound of the baby's weight; that is, a 7-pound baby gets 7 ounces of milk in 24 hours, with water and sugar added as described on page 94.

From the fourth to the seventh day a baby needs  $1\frac{1}{4}$  to  $1\frac{1}{2}$  ounces of milk daily for each pound of his weight, the average baby needing  $1\frac{1}{2}$  ounces for each pound of his weight.

During the second, third, and fourth weeks the average baby needs not less than  $1\frac{1}{2}$  ounces of milk daily for each pound of his weight.

From the beginning of the second month to the end of the ninth month most babies need  $1\frac{3}{4}$  ounces of milk daily for each pound of their weight. Some babies, as they grow older, need even as much as 2 ounces of milk daily for each pound of their body weight, but no baby should be given more than 32 ounces (1 quart) of milk in 24 hours. By the time this quantity is reached, the baby should be



receiving a diet so varied that 1 quart of milk, with the other foods recommended on pages 103-104, will supply him with enough of all the food elements necessary for growth and health.

After the beginning of the tenth month, whether the baby has been breast fed or artificially fed, he should be given daily 32 ounces of cow's milk (boiled) unmixed with water or sugar.

2. *Kind and quantity of sugar.*—Three kinds of sugar are commonly used in feeding babies: Cane sugar (common granulated sugar), malt sugar, and milk sugar. For most babies cane sugar is perfectly satisfactory. One tablespoonful of cane sugar weighs the same as  $1\frac{1}{2}$  tablespoonfuls of malt sugar or of milk sugar—half an ounce.

Young babies need more sugar added to their food in proportion to the amount of milk than do older babies. During the first week of life the average 7-pound baby will need 1 level tablespoonful of cane sugar added to the whole day's allowance of milk mixture. During the first month this may be gradually increased to 2 level tablespoonfuls, during the second month to  $2\frac{1}{2}$  level tablespoonfuls, and during the third or fourth month to 3 level tablespoonfuls. The average baby will not require more than 3 tablespoonfuls of cane sugar a day at any time. If malt sugar or milk sugar is used, it must be remembered that  $1\frac{1}{2}$  tablespoonfuls of either of these is the same in weight as 1 tablespoonful of cane sugar. When the baby is 7 months old the amount of sugar should be decreased gradually, until by the time he is 9 months old no sugar will be added to his milk.

3. *Number of feedings and intervals between feedings.*—The average baby will do well if fed every four hours regularly from birth. This interval between feedings should be used and adhered to with absolute regularity unless the doctor orders more frequent feedings. The very young baby may need six feedings in 24 hours—at 6 a. m., 10 a. m., 2 p. m., 6 p. m., 10 p. m., and 2 a. m. The feeding at 2 a. m. should be given up as early as possible and rarely continued after two months. Five feedings will therefore be given when the baby is 2 months old (or before) and this number continued until he is 9 months of age. After the ninth month give only four feedings a day—at 6 a. m., 10 a. m., 2 p. m., and 6 p. m.—leaving out the 10 p. m. feeding.

4. *Amount of milk mixture to be given at each feeding.*—The amount of milk mixture given to a baby at each feeding is small at first and is gradually increased as the baby gets older. The baby who is fed at 4-hour intervals receives larger feedings than the one who is fed at 3-hour intervals. The number of ounces given at each feeding to babies of different ages is as follows:



	Baby fed at 4-hour intervals	Baby fed at 3-hour intervals
	Ounces	Ounces
First week	2½	2
Second week	3	2½
Third week	3	2½
Fourth week	3½	3
Second month	5 (or 4 if 2 a. m. feeding is given)	4
Third month	5½	4½
Fourth month	6½	5½
Fifth and sixth months	7	( <sup>3</sup> )
Seventh to twelfth months <sup>4</sup>	8	( <sup>3</sup> )

5. *Total amount of milk mixture in 24 hours.*—It is important to calculate the total amount of mixture that should be given to a baby in a day in order to know how much water must be added to the milk to make up the total quantity of the feeding for the 24-hour period. This is done by multiplying the amount that has been decided on for each feeding by the number of feedings. For example, if a baby who is 4 months old has five feedings of 6 ounces each, the total amount for 24 hours will be 30 ounces.

*Amount of water to be added to milk.*—After calculating the total amount of milk mixture to be given in 24 hours, subtract from it the amount of milk to be given during the same time; the result will be the amount of water that must be added.

For example, in planning the feeding for a 4-month-old baby weighing 13½ pounds, the following subtraction will be made:

	Ounces
Total amount of mixture given in 24 hours: Amount given at each feeding (6½ ounces) multiplied by the number of feedings (5)	32½
Milk required: 1¾ ounces multiplied by the baby's weight (13½ pounds)	24
Water to be added	8½

#### PLAN FOR ARTIFICIAL FEEDING OF BABY OF AVERAGE WEIGHT FOR HIS AGE

The following plan for the artificial feeding of a baby of average weight for his age is suggested as a guide to the mother in following her doctor's instructions, not as a substitute for them; the doctor should be consulted very frequently with regard to the artificial feeding of any baby.

The baby should be weighed frequently (see p. 13) and the formula for his feeding should be adjusted with his increase in weight, not merely with his increase in age.

The formulas for milk mixtures have been calculated according to the instructions on pages 91–93. For a discussion of the foods suggested in addition to the milk or milk mixture, see page 103.

<sup>3</sup> After the fourth month most babies are fed at 4-hour intervals, even if they have been fed at 3-hour intervals up to then.

<sup>4</sup> In the tenth, eleventh, and twelfth months the feedings are of milk unmixed with water or sugar.



## FIRST MONTH

*First day (average weight, 7 pounds)*

Boiled water, 10 ounces.

Cane sugar, 1 level tablespoonful.

Offer  $\frac{1}{2}$  to 2 ounces every 4 hours (6 feedings in 24 hours).

*Second and third days (average weight, 7 pounds or slightly less)*

Whole milk, 7 ounces.

Water, 8 ounces.

Cane sugar, 1 level tablespoonful.

Offer  $2\frac{1}{2}$  ounces every 4 hours (6 feedings in 24 hours). If baby is fed at 3-hour intervals, offer 2 ounces every 3 hours (7 feedings in 24 hours).

*Fourth to seventh days (average weight, 7 pounds)*

Whole milk, 9 ounces.

Water, 6 ounces.

Cane sugar, 1 level tablespoonful.

Offer  $2\frac{1}{2}$  ounces every 4 hours (6 feedings in 24 hours). If baby is fed at 3-hour intervals, offer 2 ounces every 3 hours (7 feedings in 24 hours).

*Second week (average weight,  $7\frac{1}{2}$  pounds)*

Whole milk, 11 ounces.

Water, 7 ounces.

Cane sugar,  $1\frac{1}{2}$  level tablespoonfuls.

Offer 3 ounces every 4 hours (6 feedings in 24 hours). If baby is fed at 3-hour intervals, offer  $2\frac{1}{2}$  ounces every 3 hours (7 feedings in 24 hours).

*Third week (average weight, 8 pounds)*

Whole milk, 12 ounces.

Water, 6 ounces.

Cane sugar, 2 level tablespoonfuls.

Offer 3 ounces every 4 hours (6 feedings in 24 hours). If baby is fed at 3-hour intervals, offer  $2\frac{1}{2}$  ounces every 3 hours (7 feedings in 24 hours).

Orange juice,  $\frac{1}{2}$  tablespoonful twice a day (or tomato juice, 1 tablespoonful twice a day). (See p. 103.)

Cod-liver oil,  $\frac{1}{2}$  teaspoonful twice a day.

*Fourth week (average weight, 9 pounds)*

Whole milk, 14 ounces.

Water, 7 ounces.

Cane sugar, 2 level tablespoonfuls.

Offer  $3\frac{1}{2}$  ounces every 4 hours (6 feedings in 24 hours). If baby is fed at 3-hour intervals, offer 3 ounces every 3 hours (7 feedings in 24 hours).



Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil,  $\frac{1}{2}$  teaspoonful twice a day.

SECOND MONTH (AVERAGE WEIGHT, 10 POUNDS)

Whole milk,  $17\frac{1}{2}$  ounces (or 20 ounces).

Water,  $7\frac{1}{2}$  ounces (or 7 ounces).

Cane sugar,  $2\frac{1}{2}$  level tablespoonfuls.

Offer 5 ounces every 4 hours (5 feedings in 24 hours), or, if 2 a. m. feeding is still given,  $4\frac{1}{2}$  ounces every 4 hours (6 feedings in 24 hours). If baby is fed at 3-hour intervals, offer  $4\frac{1}{2}$  ounces every 3 hours (6 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 1 teaspoonful twice a day.

THIRD MONTH (AVERAGE WEIGHT, 12 POUNDS)

Whole milk, 21 ounces.

Cereal water or plain water,  $6\frac{1}{2}$  ounces.

Cane sugar, 3 level tablespoonfuls.

Offer  $5\frac{1}{2}$  ounces every 4 hours (5 feedings in 24 hours). If baby is fed at 3-hour intervals, offer  $4\frac{1}{2}$  ounces every 3 hours (6 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil,  $1\frac{1}{2}$  teaspoonfuls twice a day.

FOURTH MONTH (AVERAGE WEIGHT,  $13\frac{1}{2}$  POUNDS)

Whole milk, 24 ounces.

Cereal water or plain water,  $8\frac{1}{2}$  ounces.

Cane sugar, 3 level tablespoonfuls.

Offer  $6\frac{1}{2}$  ounces every 4 hours (5 feedings in 24 hours). If baby is fed at 3-hour intervals, offer  $5\frac{1}{2}$  ounces every 3 hours (6 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

FIFTH MONTH (AVERAGE WEIGHT,  $14\frac{1}{2}$  POUNDS)

Whole milk, 25 ounces.

Water, 10 ounces.

Cane sugar, 3 level tablespoonfuls.

Offer 7 ounces every 4 hours (5 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

Cooked cereal, 1 to 2 tablespoonfuls twice a day.

Egg yolk once a day (for amounts when first given, see p. 81).



## SIXTH MONTH (AVERAGE WEIGHT, 15½ POUNDS)

Whole milk, 27 ounces.

Water, 8 ounces.

Cane sugar, 3 level tablespoonfuls.

Offer 7 ounces every 4 hours (5 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

Cooked cereal, 2 to 3 tablespoonfuls twice a day.

Egg yolk, 1, once a day.

Mashed green vegetables, one-half tablespoonful once a day.

## SEVENTH MONTH (AVERAGE WEIGHT, 16½ POUNDS)

Whole milk, 29 ounces.

Water, 11 ounces.

Cane sugar, 3 level tablespoonfuls.

Offer 8 ounces every 4 hours (5 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

Cooked cereal, 3 to 4 tablespoonfuls twice a day.

Egg yolk, 1, once a day.

Mashed green vegetables, 1 tablespoonful once a day.

## EIGHTH MONTH (AVERAGE WEIGHT, 17½ POUNDS)

Whole milk, 31 ounces.

Water, 9 ounces.

Cane sugar, 2 level tablespoonfuls.

Offer 8 ounces every 4 hours (5 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

Cooked cereal, 3 to 4 tablespoonfuls twice a day.

Egg yolk, 1, once a day.

Mashed vegetables, 2 tablespoonfuls once a day.

Dry toast or zwieback occasionally.

## NINTH MONTH (AVERAGE WEIGHT, 18½ POUNDS)

Whole milk, 32 ounces.

Water, 8 ounces.

Cane sugar, 1 level teaspoonful.

Offer 8 ounces every 4 hours (5 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

Cooked cereal, 3 to 4 tablespoonfuls twice a day.

Egg yolk, 1, once a day.

Mashed vegetables, 3 tablespoonfuls once a day.

Dry toast or zwieback occasionally.



TENTH, ELEVENTH, AND TWELFTH MONTHS (AVERAGE WEIGHT, 19 TO 22 POUNDS)

Whole milk, 32 ounces.

Offer 8 ounces every 4 hours (4 feedings in 24 hours).

Orange juice, 1 tablespoonful twice a day (or tomato juice, 2 tablespoonfuls twice a day).

Cod-liver oil, 2 teaspoonfuls twice a day.

Cooked cereal, 3 to 5 tablespoonfuls twice a day.

Egg yolk, 1, once a day.

Mashed vegetables, 3 tablespoonfuls once a day.

Dry toast, zwieback, baked white potato, apple sauce, prune pulp may be given. Add to diet one at a time (see p. 82).

WHAT MILK MIXTURE TO USE DURING WEANING

When a breast-fed baby is to be weaned, it is well to begin with a milk mixture that is not full strength for his age, increasing soon to the full strength; at the start of weaning, the amount of milk required is calculated on the basis of not more than  $1\frac{1}{2}$  ounces a day for each pound of the baby's weight. As has been told in the section on Weaning (p. 76), only one artificial feeding a day is given at the beginning of weaning, the other four feedings being given at the breast. The amount of milk to be given in this single feeding can be found by multiplying  $1\frac{1}{2}$  ounces by the number of pounds in the baby's weight and dividing the resulting number of ounces by the number of feedings (usually five) that he receives during the day.

For instance, if a baby in his eighth month, weighing  $17\frac{1}{2}$  pounds, is to be weaned, find the amount of milk needed for one feeding as follows: Multiply  $1\frac{1}{2}$  ounces by  $17\frac{1}{2}$ , which gives  $26\frac{1}{4}$  ounces. Divide this by 5, the number of feedings received by a baby in the ninth month. The result, about  $5\frac{1}{4}$  ounces, is the amount of milk to be given in the one artificial feeding at the beginning of weaning.

As a baby in the eighth month should receive 8 ounces of milk mixture at each feeding, enough water must be added to make up 8 ounces— $2\frac{1}{2}$  ounces of water.

As time goes on, and the baby gets used to cow's milk, not only is he given more artificial feedings a day, as shown on page 78, but he is given a stronger milk mixture. The mixture is gradually strengthened until the baby receives 32 ounces of whole milk a day, unmixed with sugar and water, as suggested in the section above.

PREPARATION OF MILK MIXTURE

Equipment.

If possible, a mother should buy the proper utensils for preparing artificial food, and these utensils should be kept together and not used for anything else. To do this may cost a few dollars extra, but



it will save much time and trouble every day. The following utensils are needed:

Nursing bottles holding 8 ounces. It is cheaper to buy them by the dozen. At least there should be two or three more than the number of feedings in 24 hours, as they will be used for water also.

Nipples. Freshly boiled nipple for each feeding and for each bottle of water.

Two small, wide-mouthed, covered glass jars such as mason jars or mayonnaise jars (one for boiled nipples and one for used ones).

Teaspoon to take boiled nipples from jar (to be kept in jar with boiled nipples).

Rubber caps, rubber corks, or waxed paper to cover nursing bottles. Rubber caps are the most satisfactory covers.

Bottle brush.

Bottle rack for holding bottles when boiling and filling them and for keeping them in the ice box. If this can not be had, a pail or pan may be used for keeping bottles in the ice box.

Measuring glass holding 8 or 16 ounces, marked off in half ounces, for measuring milk and water (sometimes called a graduate).

Pitcher to hold milk mixture after boiling.

Tablespoon and teaspoon for measuring sugar. Accurate measuring spoons may be purchased very cheaply and are best.

Knife for leveling spoonfuls of sugar.

Fork for removing cap from milk bottle.

Two-quart saucepan for boiling milk.

Saucepan for boiling water (the teakettle may be used instead).

Strainer to strain milk mixture if scum forms.

Covered flat-bottomed kettle or pail, large enough to hold bottle rack and utensils to be boiled.

Long-handled spoon for removing utensils from sterilizing kettle and for stirring milk mixture.

*Bottles.*—A kind of bottle should be bought that can be cleaned thoroughly with the bottle brush; there should be no corners that are hard to clean. (The neck of the bottle should gradually slope into the body and the bottom should slope into the side without a sharp corner.) After each bottle is used, it should be well rinsed at once with cold water, and then filled with cold water and put in a clean place away from flies and dust until all the used bottles for the day's feeding can be conveniently washed in hot soapsuds and rinsed in clear hot water.

*Nipples.*—The most important thing about choosing nipples is to select the kind that can easily be turned inside out to be cleaned. It is best to buy nipples without holes and to make one hole near the top with a red-hot fine sewing needle. If nipples with holes are bought, it is often necessary to enlarge the holes with a heated needle. The holes should be large enough to allow the milk to drip rapidly when the bottle is turned upside down but not to flow in a steady stream. New nipples should be washed and boiled before being used.

As every nipple must be boiled before it is given to the baby, and as a baby gets five or six bottles of milk every day and several bottles



of water, it will save trouble to have 8 or 10 nipples on hand. They can be boiled together once a day with the bottles and other utensils. After each feeding turn the nipple inside out and rinse it in cold water or brush it out with the bottle brush, making sure that the hole is not plugged with milk. Then put it away in the jar for used nipples until time for sterilizing.

#### Cleanliness.

Everything that touches or comes near the baby's food should be perfectly clean. Clean milk can be spoiled by dirty handling. The mother must wash her hands before beginning to prepare the feeding, and if she has a cold she must wash her hands with special care and must not cough nor sneeze over the baby's food.

*How to sterilize bottles, nipples, etc.*—Every utensil that is to be used after the milk mixture is boiled must be boiled five minutes. This includes the bottles, nipples, strainer, mixing spoon, and pitcher into which the boiled milk mixture is measured. The glass jar that holds the boiled nipples must be boiled, as well as the teaspoon used to take boiled nipples from the jar. Utensils to be used before the mixture is boiled need only be washed.

Sterilization of the bottles and other utensils should not be done until the mother is ready to make up the day's feeding. They should be placed in water in a covered kettle or pail large enough to allow the water to cover them completely. The large mixing spoon also should be placed in the pail, the handle resting on the edge of the kettle, so that when sterilization is complete, the spoon may be used to take out the articles one by one. It is convenient to have the bottles stand upside down in a rack. They should be filled with cold water and turned upside down in the rack, which is standing in the kettle of water, and the whole heated and allowed to boil five minutes. When sterilization is complete the rack may be lifted out and the bottles drained without being touched. After the milk mixture has been prepared and cooled turn the bottles right side up in the rack, being very careful not to touch the neck or lip. They can be filled and placed in the ice box while standing in the rack. If the mother has no rack the bottles must be filled with water and placed in the kettle lying on their sides with the other utensils. When sterilization is finished some of the water may be poured off and the bottles taken out with the long-handled spoon which has been boiled with them.

The nipples, as well as the rubber caps or corks for the nursing bottles should be boiled for five minutes before they are used, either in a small tightly covered saucepan or with the other articles in the large sterilizing kettle. After the boiling take the nipples out of the water with the large spoon, drain them without touching them with the fingers, drop them into the empty sterilized glass jar, and



then cover the jar. The nipples should be kept dry. When one is to be used take it out of the jar with a teaspoon, which has been boiled and which can be kept in the same glass jar.

**Preparing the feeding.**

Always have a copy of the doctor's written order for the feeding pinned up in a convenient place so that you may refer to it every day. Have all utensils ready. The bottles, strainer, pitcher to hold the boiled milk mixture, and large mixing spoon should have been boiled already in the large sterilizing kettle. A single saucepan for boiling the milk mixture is usually most convenient, although a double boiler may be used.

The feeding should be prepared as soon after the milk has been delivered as possible. Take the bottle of milk from the ice box and, before removing the cap, wipe the top carefully with a clean cloth dipped in hot water. Shake the bottle, to mix the cream well. Have at hand the sugar and any other ingredients ordered by the doctor, such as flour or cereal water (this should have been already prepared; see p. 101 for recipe for cereal water). Measure into the saucepan the required amount of sugar in level spoonfuls, smoothing each with a knife. Measure carefully in the graduated measuring glass the required amount of milk and of water or cereal water and pour these also into the saucepan. (The total amount of mixture—milk, water, and sugar—should be noted, since during boiling some will boil away and this amount must be made up by adding boiled water.) Stir the mixture to dissolve the sugar. Place the saucepan on the stove; allow the mixture to boil (bubble) actively for 3 to 5 minutes, stirring it constantly. Take the saucepan off the stove and set it in a pan of cold water, stirring the mixture constantly until it is cool. The pan of cold water must be changed frequently until the milk mixture is cool. Stirring the mixture while it is cooling helps to prevent scum from forming.

While the milk mixture is boiling and cooling put the graduated measuring glass into the large sterilizing kettle, which is still on the stove, and boil it for five minutes. When the milk mixture is cool, measure it a second time, with the sterilized measuring glass, pouring it into the pitcher that has been boiled for this purpose. Then measure into it enough water, freshly boiled (and cooled so as not to break the glass), to bring up the total amount of mixture to the number of ounces noted at the first measuring. Measure the water in the measuring glass. If there is any scum strain the milk mixture while pouring it into the pitcher.

When filling the bottles it is better to measure the number of ounces to be given at each feeding in the measuring glass and pour this amount directly from the measuring glass into the bottle than to



depend on the ounce marks on the nursing bottles, which are not always accurate.

Cover the bottles at once with rubber bottle caps or rubber stoppers or with squares of waxed paper held down by rubber bands. Rubber caps or stoppers must be boiled every day before they are used.

After the milk mixture has been prepared and boiled and the bottles filled, place the bottles in the rack, and place this in the ice box close to the ice.

A double boiler may be used if it is not convenient to boil the milk or milk mixture in a single saucepan. Milk cooked in a covered double boiler is held at a temperature just under the boiling point. If it is cooked for 20 minutes in this manner disease-producing germs will be killed and also the milk will be made more digestible, as in boiling. Fill the lower part of double boiler with cold water so that the water outside and the milk mixture inside are at the same level. Place the double boiler on the stove. When the water begins to boil note the time and allow the mixture to cook 20 minutes, with the double boiler covered tightly. A scum will form on the milk. When finished, cool the milk mixture by setting the upper part of the double boiler into a pan of cold water and stirring the mixture. Strain the mixture and measure it into the feeding bottles.

*Addition of flour to formula.*—Sometimes the formula ordered by the doctor calls for stated amounts of flour—barley or wheat—to be cooked into the milk mixture. For this a double boiler should be used. Mix the required amount of flour with a little cold water, rubbing it to a perfectly smooth paste. Add more water until the paste is thin. Pour this thin paste into a measuring glass and add water to make up the total quantity needed. Mix this with the required amounts of milk and sugar in the top part of the double boiler. Place the top of the double boiler directly on the stove and heat rapidly to a vigorous boil, stirring the mixture constantly to prevent lumping of the flour. Then place the top over the lower part of the double boiler, which contains boiling water, and allow the mixture to cook for 30 minutes, stirring occasionally. As some water will boil away it is necessary to measure the mixture after boiling and add boiling water, as directed on page 100.

*Cereal water in formula.*—Sometimes the doctor directs that cereal water instead of plain water be used in the formula. Cereal water is usually made of barley or wheat flour. To make it take 1 to 2 level tablespoonfuls of flour (or the amount ordered by the doctor), rub this to a smooth paste with a little cold water, then add a pint of cold water. Put this mixture into a saucepan and boil it, stirring it constantly. After it has boiled, place it in a double boiler and cook it at least half an hour. If it lumps, strain it, mashing the lumps through the strainer.



## GIVING THE FEEDING

**Warming the feeding.**

At feeding time take the baby's bottle of milk mixture from the ice box, shake to mix well, remove the rubber cap or stopper, and put on instead a clean sterile nipple from the covered sterile jar. The mother's hands should be freshly washed before handling the nipple. She should touch only the rim of the nipple in putting it on. Stand the bottle of milk mixture in a deep vessel of warm water such as a tin pint cup or a small deep saucepan. Special bottle warmers may be purchased in hardware stores, but they are no better than the homemade kind. Heat the mixture rapidly over the flame. It is not necessary to wait until the water in the vessels boils. Usually the contents of the bottle becomes sufficiently warm (100° F.) in a few minutes. The warmth of the milk in the bottle may be tested by letting a few drops trickle from the nipple on the mother's wrist, where it should feel pleasantly warm but not hot. The nipple should not be touched by anyone nor come in contact with anything until it reaches the baby's mouth.

If the bottle of milk is to be given in addition to a breast feeding as in "mixed feeding" (p. 75) it should be prepared and warmed before the nursing is started so that it will be ready to give as soon as the nursing is finished.



How to hold the bottle

**How to give the bottle.**

Hold the baby in a partly upright position in your lap while he is taking the bottle. Hold the bottle in place for him. The bottle should be so held that the nipple is constantly full of milk and not half full of air. If the mother allows the bottle to drop to a horizontal position so that air enters the nipple, the baby as he sucks will swallow large quantities of air which later must be belched up. If the baby belches when lying down he is likely to spit up some of his food. This spitting

up is not the same as vomiting but is due to swallowing of air. To prevent this all babies should be raised carefully to the mother's shoulder after feeding and patted on the back with the flat of the hand for two or three minutes. The baby will bring up the air which he has swallowed and the belching can often be heard. Then lay him down gently in his bed. Do not handle a baby too much or quickly after a feeding as such treatment tends to make him spit up. Even when not being fed some babies swallow air by



sucking on their fingers or hands and will belch air at any time if held up and patted on the back. Such babies should be held up regularly before feeding as well as after. Occasionally a baby must be raised up and patted for this purpose in the middle of a feeding.

Twenty minutes is the longest time and five minutes the shortest time that should be allowed for taking a bottle. If there seems to be delay about taking the feeding be sure that the holes in the nipple are not clogged. If at the end of 20 minutes the baby has not finished, remove the bottle quietly. He may refuse it because he is not well. If he is just playing with it, he will be hungry before the next feeding and take it well when the time comes. Do not give him anything but water until the next regular feeding time.

Do not go off and leave the baby sucking his bottle as he may fall asleep before it is finished. A bottle should not be given to a baby with the idea of putting him to sleep. If this is done, the baby will learn to associate going to sleep with taking his bottle; and when the time comes to wean him from the bottle there will be difficulty in getting him to go to sleep without it. Never let a baby go to sleep over his bottle. It is better for the same reason that he should not be given his bottle while he is in his bed, but sitting or half reclining in your lap. After he has finished his feeding, pick him up to get rid of the air in his stomach, and then put him into his bed to sleep. He must associate sleep with being put to bed and not with a bottle.

#### ADDITIONAL FOODS

The artificially-fed baby needs to have foods other than milk added to his diet even more than the breast-fed baby, as the tendency toward the development of deficiency diseases (scurvy and rickets) is greater in the artificially-fed baby and he is more likely to be malnourished. The foods to be added to his diet are the same as those added to the diet of the breast-fed baby. (For foods see p. 78.)

Cod-liver oil and orange juice (or tomato juice) should both be begun at the end of the second week. For the artificially fed baby orange juice (or tomato juice) is begun somewhat earlier than for the breast-fed baby. If orange juice is used begin with  $\frac{1}{2}$  tablespoonful twice a day in an equal quantity of water. If tomato juice is used begin with 1 tablespoonful a day without water. Increase the quantities as described on pages 94-95. The artificially-fed baby is given the same amounts of cod-liver oil as is the breast-fed baby. (See p. 80.)

Barley, oat, wheat, or rice flour may be added to the baby's formula in the second month (see p. 101 for method of preparation), or cereal water instead of plain water may be used to dilute the milk in the bottle feedings. At the beginning of the fifth month cooked breakfast cereals and egg yolk may be begun, new ones being given



four or five days apart so that the baby will get used to one at a time.

During the sixth month mashed green vegetables may be started and baked white potatoes at the tenth month. These are not to be given instead of green vegetables but in addition to them.

At the tenth month stewed fruit, such as apple sauce and prune pulp, may also be started.

Dry toast may be given as soon as the first teeth have come through.

#### DRINKING WATER

Drinking water should be offered to the artificially-fed baby frequently, just as it is to the breast-fed baby (see p. 72). Water should be boiled before being given to the baby, and it should not be sweetened.

#### STOOLS

The stools of an artificially-fed baby are different from those of a breast-fed baby. They are almost always fewer in number, frequently only one in 24 hours. The material passed is much firmer, often formed, and with slight odor. The color varies from lemon yellow if cow's milk is the sole food, to dark or light brown if malt sugar or cereal is used. It should be smooth and somewhat pasty in character as this shows that the food is well digested. It may be either formed or unformed. Loose, green, frequent stools are symptoms of disturbance, and a doctor should be consulted at once so that some change in diet may be made. Diarrhea is often a symptom of some serious disease, and it should not be neglected. Constipation may occur in the artificially-fed baby but is not to be looked upon as a serious condition. It can nearly always be dealt with by changing the formula for his food. Ask your doctor to correct the constipation. Do not give castor oil or other cathartics except on the doctor's order. Mineral oil may be given temporarily.

#### DAILY SCHEDULE

The daily schedule for the artificially-fed baby must be just as regular as for the breast-fed baby. For many babies the intervals between feedings must be longer for the artificially-fed than for the breast-fed baby, as cow's milk may take longer to digest than breast milk. On the whole, the same daily program can be adopted. The artificially-fed baby must be taught to eat solid foods in the same way as the breast-fed baby. It is of great importance to his future health that the baby learn early in life to eat cereals, vegetables, and egg yolk. (See p. 82 for suggestions on how to teach him to eat these foods and p. 8 for Baby's daily time cards.)



## WEIGHT

The standards for growth of the artificially-fed baby should be the same as for a breast-fed baby, but it is often more difficult to reach them. If an artificially-fed baby receives a diet such as has been outlined on pages 84-104, including all the additional foods, his growth may be satisfactory. His gain in weight may not be quite so rapid as that of the breast-fed baby, especially during the early months, and unless his diet is adjusted very carefully he may not thrive so well. An artificially-fed baby should be expected to make the same average weekly gain as a breast-fed baby. He should double his birth weight in five or six months and treble it in a year.

It is of greatest importance that an artificially-fed baby should be weighed once a week to make sure that his gain in weight is adequate. He should be taken to a doctor trained in the care of babies once a week during the first six months to be weighed, or if he is weighed at home the weight should be reported to the doctor. The feeding should be discussed with the doctor at frequent intervals to insure the addition of the proper foods at the right time and the proper modification of the formula.

Child-health conferences are provided in many cities and towns for mothers who can not afford to go to a private doctor for these weekly weighings and consultations.

## UNDERFEEDING

Underfeeding may mean that the baby is not getting enough of the right food or is getting the wrong kind of food. Some underfed infants sleep for short periods and fret and cry before the regular feeding period, and others may sleep a good deal. If the baby fails to make regular gains in weight, the food needs to be increased in quantity or properly modified to suit the baby's needs. Ask the doctor.

## OVERFEEDING

If a baby after a feeding spits up, vomits, has colic, or is fretful, it is likely that his stomach is overloaded. A baby's appetite will usually regulate fairly satisfactorily the quantity of food taken; and if his milk mixture is a weak one he will want a large amount of it and may have to take more than his stomach will comfortably hold to satisfy his hunger. After he has taken a large amount of weak milk mixture he may cry either because he is still hungry or because his overloaded stomach is distended and he feels pain. He may spit up or even vomit part of the feeding or occasionally all of it to relieve the distention. Giving smaller feedings containing the



same amount of milk and sugar but less water will usually overcome this difficulty.

Sometimes as the bulk and strength of feedings are repeatedly increased the milk mixture will exceed the needs of a baby both in food value and in quantity, and the same signs of overfeeding may result. The baby, though taking a large amount of food, may vomit some of it and possibly make a poor gain in weight. He may refuse part of the feeding. Smaller feedings should be given so that the baby will be really hungry for them. The amount may be increased again very gradually.

#### SPITTING UP AND COLIC

Spitting up and colic occur in the artificially-fed baby less frequently than in the breast fed. They are usually caused by pressure of air in the stomach or of gas in the intestines or by overfeeding. The methods of treatment are the same as for the breast-fed baby. (See pp. 74-75.)



## THE SMALL, DELICATE, OR PREMATURE BABY

A baby who is born before the proper time (see Prenatal Care, p. 50) is called a premature baby; he is not so well developed at birth as the baby who is born at full term (that is, after nine months). The eighth and ninth months of his prenatal life are very important in the growth of the baby, and every effort should be made to prevent premature birth. However, in spite of such effort and for some causes that are unavoidable, a certain number of babies are born prematurely. The earlier the baby is born, the more difficult it is to keep him alive. A baby born only two or three weeks before the expected date of birth may be quite strong and little different from a full-term baby. A baby born seven or eight or more weeks early may be very small and difficult to save. Occasionally a baby born at full term is exceptionally small and feeble. All babies weighing less than 5 pounds at birth should be treated as if premature.

Many babies weighing only 2 or 3 pounds at birth can be saved if the proper care is given them. Premature babies born at home are often cared for best at home unless a hospital suitably equipped for the care of such babies is available. Such a hospital will have special rooms for these babies and will have doctors and nurses on the staff who are trained to care for them and who will be able to feed them properly. Great care should be taken to keep the baby warm while he is being carried to the hospital, as chilling at this time decreases the chances of saving his life. He should be wrapped immediately after birth in wool flannel or cotton batting and in several soft wool blankets; and, if the hospital is more than a short distance away, warm-water bottles should be used to keep him warm during the trip.

Most premature babies are born unexpectedly, and it is wise for every expectant mother to have her equipment for the birth ready two months before the baby is due.

If, as is the case in many communities, a properly equipped hospital is not available, the premature baby must be cared for at home. The advice of a physician specially trained in the care of babies should be obtained at once and followed closely. If a nurse who has been trained in the care of premature babies can be engaged, her experience will be a great help to the mother.



In caring for a premature baby there are three main problems which must be kept in mind constantly:

1. How can he be kept at normal temperature?
2. How can he be protected from infections?
3. How can he best be fed?

### TEMPERATURE

As the premature baby's heat-regulating power is very slight, his body temperature must be maintained for him by having the room in which he is born kept warm (80° F.), by preventing exposure, by using proper clothing to prevent loss of heat, and by applying external heat. All this is most important in the first hours and days of life.

### CARE IMMEDIATELY AFTER BIRTH

A premature baby may die from exposure unless proper care is given him at once after birth. As soon as he is born he should be wrapped in wool flannel or cotton batting, covering his entire body except his face (the cord must be protected with a sterile dressing). This is necessary in order to keep him from losing any of his body heat. He should be put at once into a warm bed which has been already prepared for him (see p. 110 for homemade heated bed) in a warm room. His temperature should be taken by rectum soon after birth, and he should not be bathed until his temperature is normal (98.6°–99.6° F.), and then only if his general condition is good and the room temperature is not lower than 80° F. His skin may then be cleaned with oil, one part of his body at a time being uncovered. It is much more important to keep him warm than to give him a bath. The complete oil bath need not be given for several hours or even a day or two after birth.

### GENERAL CARE

A premature baby should be exposed and handled as little as possible—only when it is necessary to bathe him, feed him, give him drinking water, and change his diaper. He may be turned over as often as every hour or two, but should not be picked up and handled unnecessarily.

The room in which the premature baby is kept should be well ventilated by means of a narrow cloth screen (2 inches or more, according to the climate) at the top of one window. (See p. 23 for construction of screens.) A temperature of 75° to 80° F. should be maintained steadily, day and night. The temperature inside the crib should be between 80° and 90° F. A thermometer should be kept in the crib with the baby so that the temperature in the bed can be known at any time. The baby's body temperature should



be taken by rectum every four hours and recorded on a chart. It should be kept between 98.6° and 99.6° F.

#### CLOTHING

The first clothing that a premature baby wears is usually the wool flannel or cotton batting in which he is wrapped at birth and soft wool blankets. The clothes that have been prepared for him are as a rule much too large, and the mother or nurse must prepare substitutes at once which can be put on and taken off with the least possible handling of the baby. The clothes must fit the body snugly to provide the necessary warmth but must not be tight. For a week or two after the baby's birth it may be best to continue the use of the cotton batting or wool flannel wrapped closely about the baby's body and to use small squares of cotton batting as diapers. Soon after that, however, small shirts and bands of wool flannel or knitted-wool material and small diapers may be used. A few of the regular-sized diapers can be cut down to fit the tiny baby. If the diapers can not be changed without considerable handling of the baby, it is better to continue to use the cotton-batting squares, which can be removed easily.

A sleeveless padded jacket may be used as a wrap. The jacket may be made of two squares of cheesecloth or of some very thin cotton material (18 inches square) with a thick layer of cotton batting stitched between, having a piece of the padded material arranged as a hood, and should be long enough to cover the feet well and wide enough to lap over and be pinned in front. It may be opened at the bottom for changing the baby's diaper. When soiled such a jacket may be burned and a new one substituted.

A small square of wool flannel or soft old blanketing may be used as a wrap instead of the cotton-padded jacket; but, though it is warmer, it is less convenient for changing the diaper without disturbing the baby. A small-sized sleeping bag made of a double thickness of flannel or very lightweight soft wool material may be used. (See p. 40 for directions for making a sleeping bag.)

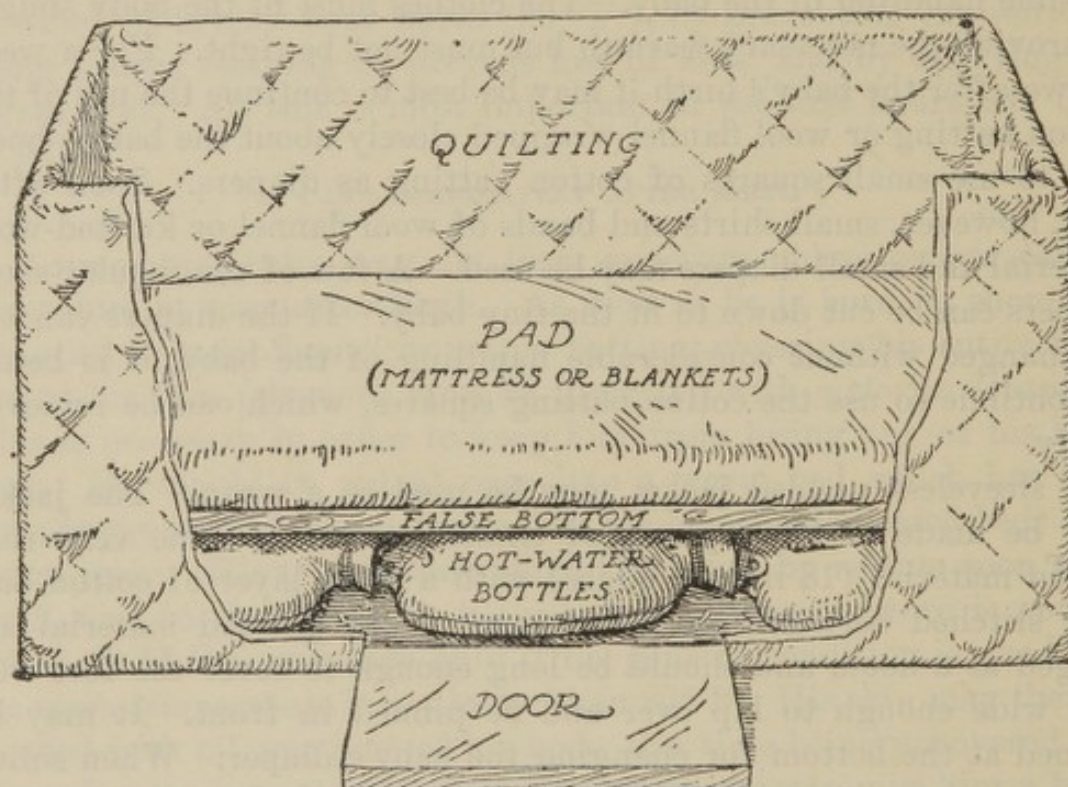
None of the baby's wraps should be so tight that his movements are hampered.

#### HOMEMADE HEATED BED

It sometimes is necessary to prepare an emergency heated bed during the delivery of a premature baby. Such a bed may be a small clothes basket or a wooden box arranged for this purpose as follows: Place a pillow or several layers of folded blanket in the bottom and cover this with a piece of thin rubber sheeting. Spread a cotton sheet or an old blanket over the rubber sheeting, and provide soft small



wool blankets with which to wrap and cover the baby. Three warm-water bottles should be filled with water at 115° F., placed in the bed before the baby is born, and kept in the bed to warm it and the blankets. (Warm bricks may be used instead.) The bed should not be allowed to get cold before the baby is put into it. After the baby is wrapped in warm blankets and put into the bed the temperature inside the bed must be kept at 80° to 90° F., but no higher. The warm-water bottles should be refilled (at different times) with water 110° to 115° F. and kept in the bed, but outside the baby's wraps. If warm



*Heated bed for premature baby*

bricks are used, they must be wrapped up and placed outside the baby's wraps. Care must be taken not to have them too hot. Such a bed will serve at first until a better one can be arranged.

A better bed can be arranged by using a small clothes basket (or still better, a box) well padded inside and outside by quilting, into which is fitted a removable platform about 4 inches above the padded floor of the basket. A thin flat hair pillow or several layers of wool blanketing should be used as a mattress to cover the platform. Beneath the platform, on the floor of the basket, three hot-water bottles are placed, which must be refilled whenever necessary to keep the temperature in the bed between 80° F. and 90° F. It is best to refill one bag at a time, so as not to cool the bed too much. An opening should be cut in the side of the basket below the platform, so that the hot-water bottles can be removed for refilling without disturbing the



baby. The bottles beneath the platform should be at 115° F. to 125° F. If warm-water bottles are placed beside the baby in the bed they should never be warmer than 115° F.

If the baby's bed is too hot, his temperature will rise above normal.

#### BATHING

For very small and weak babies it is frequently advisable to give no bath for two or three days. It may, however, be necessary for the doctor or nurse to use the warm bath to stimulate the baby when he does not breathe well. If the complete daily bath can not be undertaken without danger of chilling the baby, it should be dispensed with; a partial bath may be given daily—washing only the face, buttocks, and genitals—without removing the baby from the heated bed and without exposing the rest of the body.

The baths should consist of a rapid sponging with oil or with water at 105° F. in a room 75° to 80° F., only one part of the body being exposed at a time to prevent chilling.

#### INFECTIONS

Premature babies have very little resistance to disease. They are particularly subject to infections, especially colds. A cold is serious in a premature baby because it is very likely to develop into pneumonia, which may prove fatal. Every persons who cares for a premature baby or comes in contact with him in any way must be careful to wash the hands before touching him lest some infection be carried to him. No one who has even a slight cold or other infectious illness should be allowed to care for a premature baby. No visitor should ever be permitted in the room where a premature baby is kept. These rules can not be kept too strictly. Colds, pneumonia, and ear infections are common causes of death in premature babies.

#### FEEDING

##### HUMAN MILK

The feeding of a premature baby is a most serious problem. Until the mother's milk is established every effort should be made to get at least a few ounces of milk daily from some other mother nursing her own child or from a breast-milk agency or to obtain a regular wet nurse. Any milk except that of the premature baby's own mother should be boiled for one minute.

The premature baby may be too weak to nurse at the breast or to draw milk from a bottle, and in that case the mother's milk must be expressed by hand and fed to the baby slowly by means of a medicine dropper or by a stomach tube. Feeding with a stomach tube (so-



called "catheter feeding") should be undertaken only by a trained person. If a medicine dropper is used, it is well to slip a short piece of soft-rubber tubing over the end to prevent injury to the baby's mouth. Occasionally a strong premature baby may be able to nurse or to take breast milk from a bottle.

As it may be some weeks before the baby is able to draw even small amounts of milk from the breast, it will be necessary for the mother to empty her breasts by hand at regular intervals, not only to obtain milk for the baby during the early weeks of life but to keep up the milk flow until the baby is strong enough to nurse. (See p. 69.)

If breast milk can not be obtained, artificial feeding will become necessary. (See p. 84.) The doctor will order the formula.

Care should be taken that the baby is not overtired during feeding.

#### NUMBER AND AMOUNT OF FEEDINGS

The first day of the baby's life it is best to withhold food for 12 hours. During the second 12 hours the baby may receive three feedings. Expression from the mother's breasts should be begun at the end of 12 hours; and the colostrum—and the milk when it comes—should be given to the baby. From then on he should be fed regularly day and night. Small babies fed with a medicine dropper should receive their food at 2-hour intervals during the day and 3-hour intervals during the night (10 feedings in 24 hours). Larger babies, whether fed with a dropper or with a bottle, may be fed from the start at 3-hour intervals or even 4-hour ones.

The baby needs daily a total amount of fluid (milk and water) equal to about one-fifth to one-sixth of his body weight in pounds. For instance, if the baby weighs 3 pounds he will need daily one-fifth of 3 pounds, or three-fifths of a pound of fluid. As 1 pound is equal to 16 ounces, three-fifths of a pound will be equal to about  $9\frac{1}{2}$  ounces. The 3-pound baby's full requirement of fluid, therefore, during 24 hours will be  $9\frac{1}{2}$  ounces.

Such quantities, although needed, can not be given to the premature baby during the first days of life. The amount given daily will at first be small and the increases gradual. In fact, it is fortunate if the baby can take one-eighth of his body weight in total fluid (2 ounces for each pound of body weight) by the fourth day.

The quantity of milk given in 24 hours at first will be half an ounce to an ounce of milk for each pound of body weight. This will be divided into 10 feedings; each feeding will therefore be very small—1 to 3 teaspoonfuls of breast milk. The total amount of milk given in 24 hours may be increased daily by one-eighth to one-fourth ounce for each pound of body weight, until usually by



the tenth day the total amount of milk taken in 24 hours will be 2 to 3 ounces per pound of body weight. The rapidity with which the amounts can be increased will vary with the size and development of the individual baby.

#### DRINKING WATER

During the period when the baby is receiving very small feedings of breast milk, special care must be taken to give him small quantities (2 to 4 teaspoonfuls) of boiled water between feedings. He will need this to bring his total intake of fluid up to even the lowest requirement—2 ounces for each pound of body weight. As he takes more milk he will require less water, but it is well to offer water to him between feedings even when he is strong enough to take an adequate amount of fluid at his feedings.

#### WEIGHT OF BABY

Although occasionally premature babies will hold their birth weight, most of them will lose weight and should not be expected to regain their birth weight until the second week or—what is more likely—the end of the third week. In very small premature babies an average daily gain of one-third to one-half ounce, with a doubling of birth weight in from 75 to 100 days, may be considered satisfactory.

#### ADDITIONAL FOODS

Premature babies are likely to develop rickets, and therefore it is important that antirachitic treatment in the form of pure cod-liver oil, tested for vitamin D, should be begun at the end of the first week of life. Begin with one-fourth teaspoonful of cod-liver oil twice a day and after two or three weeks increase this amount to one-half teaspoonful twice a day. When the baby is six weeks old this amount may be again increased to 1 teaspoonful twice a day, and in the third month to 1½ teaspoonfuls twice a day. (See p. 80 for method of giving cod-liver oil.)

Orange juice—one-half teaspoonful in water once a day—should be begun when the baby is 2 weeks old and the amount increased gradually so that at 2 months the baby receives one-half tablespoonful twice a day and at 3 months 1 tablespoonful. Other foods should be added to the baby's diet as he grows older, as they are to the diet of the normal baby. (See p. 78.)

#### SUN BATHS

Sun baths can not be given to small premature babies until they are strong enough to have part of their clothing removed and lie in the sun without chilling. In summer when the sun is very warm



premature babies may be given sun baths at an earlier age than in winter. Because sun baths can not be given to premature babies when they are very young, special effort must be made to see that the full amount of cod-liver oil, tested for vitamin D, is given with great regularity. In hospitals artificial sun baths of ultra-violet light may be advised by the doctor.

#### LATER DEVELOPMENT

As he grows older a premature baby should become more and more like a small edition of a healthy full-term baby. Though small, he should have good color in his cheeks, his muscles should be firm, and he should gradually become more and more active and alert. He may be slower in learning to do some things like holding up his head or sitting up, but if he gets the right kind of food and plenty of sunlight he will usually catch up to the full-term baby of the same age by the time he is 2 or 3 years old.



## THE SICK BABY

### WHAT A MOTHER SHOULD NOTE

When the baby is well the mother should observe the normal position of his body, his normal activity and wakefulness, the expressions of his face, the color of his skin, also the color of his tongue and the condition and temperature of his skin, so that signs of discomfort, pain, unusual drowsiness, or irritability can be noticed quickly. The character and number of bowel movements and the amount and color of the urine should be watched.

The mother should learn to read a clinical thermometer. She can purchase a rectal thermometer (one with a thick bulb) at any drug store, and the doctor or the druggist will be glad to show her how to read it. It is best not to make a practice of taking the temperature unless the baby seems to be ill.

Before using the thermometer shake it down until the mercury is below 97° F., and smear the bulb with petroleum jelly or oil. To take the baby's temperature place him face downward on your lap and put the bulb end of the thermometer 1 inch into the rectum (the lower part of the bowel). Hold it there for five minutes. Keep the baby quiet and hold his legs firmly so that the thermometer will not be broken. Do not leave the baby nor even let go of the thermometer while it is in the rectum.

A baby's temperature normally ranges from 98.6° to 99.5° F. If it is higher than 100° F. the doctor should be notified. A baby is more likely to have fever when he is ill than an adult, and when he has fever it is more likely to be high than with an adult. A rise in temperature frequently accompanies even a slight upset in children. A daily rise of temperature, even if slight, lasting for a long period, is often just as important a symptom as a higher temperature for a short period, or even more important. A baby who is sick may have fever at any time of the day or night, but it is likely to be higher in the evening than in the morning.

### EARLY SIGNS OF ILLNESS IN A BABY

If a baby develops any of the following signs he should be put to bed, his temperature taken, and the doctor called:

1. **Fever.** If the baby's face is flushed or his skin is hot to the touch—the whole body, not merely the hands or feet—he may have fever and his temperature should be taken.

2. **Irritability or drowsiness.** If a baby shows unusual restlessness, is irritable and cries considerably, or if he is unusually drowsy and wants to be let alone, he may be ill.

3. **Vomiting.** Any sudden or unusual vomiting should be considered a sign of illness. It may be the first sign of a contagious disease or of a digestive upset. It should not be confused with mere spitting up of food. (See p. 74 for spitting up.)

4. **Diarrhea.** A sudden increase in the number of stools, especially if they are loose and watery (diarrhea), is a sign of illness. Such diarrhea may mark the beginning of a digestive disturbance or of an acute infection. Pus, blood, or an unusually large amount of mucus in the stools is a sign of disease of the intestines (bowels).



5. Refusal of food. Sudden refusal of the accustomed food may be the first sign of illness. This is not the same as refusal to eat a particular food from dislike of it. Pain in the throat may be the cause. Food should never be forced on a child, whether he refuses it through illness or for any other reason, even mere temper. (See p. 84 for method of dealing with refusal to eat.)

6. Pain. If a baby cries and is restless and pulls his legs up over his abdomen he probably has pain in the abdomen. If he holds his legs or arms very still, he may have pain in them. The legs may be held in one position, and when the mother touches them the baby may cry. Pain in the ear may be shown by constant turning of the head from side to side or by pulling at the ear. Very often the mother can not tell just where the pain is, as the baby shows it only by sharp crying and general irritability.

7. Cold in head with fever. A running nose or redness or discharge from the eyes, coughing, or unusually rapid breathing is a sign of illness. It may be the beginning of a cold or of a contagious disease such as measles, or of some other severe infection. In a baby a cold is frequently a severe illness.

8. Hoarseness or croupy cough. If a baby's voice becomes in the least hoarse, the doctor should be called at once, as this may be an early sign of diphtheria.

9. Rash with fever. Any rash or breaking out on the baby's skin should be considered a sign of illness, and his temperature should be taken.

10. Convulsions. Spasms, spells, or twitching of face or arms or legs may be a very early sign of disease in a baby.

### WHAT TO DO BEFORE THE DOCTOR COMES

Follow these rules while waiting for the doctor to come:

1. Keep the baby quiet and leave him in his bed in a cool room away from the other children.

2. If there is vomiting or diarrhea, stop all food.

3. Give boiled water frequently, at least every hour, unless the baby vomits persistently; in that case do not give even water for two hours. If the doctor has not arrived by the end of that time, begin giving small amounts of water (one-half ounce to 1 ounce) every hour. If the vomiting has stopped, increase this amount gradually to 2 or 3 ounces or more.

4. Keep a record on paper of the baby's temperature, the number and kind of his stools, and the number of vomiting spells.

5. Save the baby's stools for the doctor to see.

6. If the baby has a fever of 104° F. or over, give him a cool sponge bath.

7. If the baby has pain in the abdomen or if it is distended (puffed out) and the doctor is long in coming, give a small enema of warm water (see p. 117). Never give a cathartic.

8. If the baby has a convulsion, give a warm wet pack, as described on page 117.

### CARING FOR A SICK BABY

A sick baby should be kept in bed in a cool (60°-65° F.), quiet, well-ventilated room and should be allowed to sleep or rest undisturbed as much as possible. The sick room should not be a gathering place for the family or the neighbors. Even if no contagious disease is suspected, a sick child should be kept away from other children.

The doctor's orders should be carried out carefully and exactly.

The following are general directions for nursing care, which should be observed unless the doctor orders otherwise:



**BED CARE**

A baby should be kept in bed as long as he has a temperature higher than 99.5° F. If his illness has been at all severe, he should stay in bed from three days to one week after his temperature has remained normal (98.6° to 99.5° F.) for 24 hours. The after effects from many diseases may be largely prevented by this precaution.

The baby's position in bed should be changed often, not only to rest him but also to prevent congestion of any part of his body.

**BATHS**

A sponge bath should be given daily instead of his usual tub bath. If the baby has a high fever (over 104° F.), a sponge bath with water at about 90° F. may be given once or twice a day or oftener. Every precaution should be taken in bathing a sick baby not to chill him. If the fever is high, a cold compress or ice cap may be kept on his head while he is being bathed or given a warm wet pack. If his hands and feet are cold, well-wrapped hot-water bottles may be used.

To give a warm wet pack, cover the bed with a large rubber sheet or piece of oilcloth and wrap the baby in a blanket wrung out in warm water, not over 105° F. If a bath thermometer is not at hand, test the water with your bare elbow to be certain that it is not hot enough to burn the baby. Take plenty of time to test the water carefully, wring the blanket out as dry as possible, wrap it quickly about the baby and then wrap him in another blanket, which is dry. Place an ice cap or cool wet cloth on the baby's head. Allow him to remain in the warm pack 15 to 30 minutes. Then dry him well, put on his nightgown, and wrap him in a dry blanket. If his fever is high do not wrap him too warmly.

**ELIMINATION**

The bowels of a sick baby should move daily; if necessary, an injection, or enema, of warm water may be used for the purpose. If the baby urinates less frequently than usual more water should be given him to drink.

**How to give an enema, or injection.**

For an enema, or injection, buy a bulb syringe holding 1 to 3 ounces. Prepare warm, soapy water, using a mild Castile soap or other white soap. To fill the syringe, squeeze the bulb while holding the tip under water; then release it and it will fill with water by suction. Let the baby lie on his back across your lap or on a table with the buttocks somewhat raised by a folded towel under his hips. (This position will cause the water to run up into the bowel more readily and the towel will catch any drip.) Grease the tip of the syringe with petroleum jelly. Lift the baby's legs with the left hand and with the right introduce the tip into the rectum for about an inch, directing it toward the baby's back, and slowly squeeze 2 or 3 ounces of the water from the bulb. If gently and slowly done this causes the baby little or no discomfort. If he is badly constipated the starting of the bowel movement may be somewhat painful.

When the liquid has been injected, remove the syringe and press the towel against the opening of the bowel to keep the water in until the baby can be placed over the chamber. The water sometimes comes out as the syringe is withdrawn and therefore the mother's clothing should be well protected. If the first injection does not bring about a bowel movement, give another.



A soap stick or other suppository may be used instead of an enema. Neither enemas nor suppositories should be used over long periods of time, as they may cause irritation of the rectum.

#### FOOD

If the baby has fever the amount of milk or milk mixture should be reduced, and all solid foods cut out of the diet until the nature of the illness is known. If a bottle-fed baby vomits or has diarrhea all food should be stopped and small amounts of boiled water given every hour. The doctor should be consulted, if possible, before the feedings are given again. If a doctor can not be seen soon and the vomiting or diarrhea stops small feedings may be begun. If a breast-fed baby vomits or has diarrhea, one or two feedings should be omitted and a small amount of water given every hour. As soon as the vomiting or diarrhea stops the breast feedings may be started again at the regular hour. For a few feedings it may be wise to allow the baby to nurse only 5 or 10 minutes. (See section on Diarrhea, below.)

In illness involving no digestive disturbance the baby should have the regular amount of milk or milk mixture, and he may have solid foods, such as cereal, vegetable, egg, and the pulp of stewed fruits, if he is already used to them.

#### WATER

Drinking water is of the greatest importance in illness. Boiled water should be offered at very frequent intervals while the baby is awake, possibly every hour, and the amount taken in 24 hours should be written down. If there is no digestive disturbance, orange juice may be added to the water in order to increase the amount of liquid taken. A sick baby should take from 16 to 32 or more ounces of water a day, depending on his age and the amount of milk mixture taken.

### COMMON DISORDERS

#### VOMITING

Vomiting should be distinguished from spitting up or spilling over, which has been discussed on page 74. Vomiting is the sudden throwing up of the previous feeding or a large part of it, or of water, and may occur immediately after a feeding or even several hours later. It may be a symptom of digestive disturbance or an early symptom of an infectious disease. When a baby that has been previously well vomits, it is best to stop the food, giving only boiled water until the cause is determined. In all cases of repeated vomiting or sudden vomiting with fever a physician should always be consulted.

Explosive or "projectile" vomiting in a very young baby may mean that there is an obstruction in the stomach. Such an obstruction may require an operation.

The loss of body fluids from persistent vomiting, especially when accompanied by diarrhea, may rapidly reduce the child to a critical condition that is due to the development of acidosis. Extreme restlessness or drowsiness in a vomiting child is a sign of this condition. There should be no delay in seeking medical advice in any case of repeated vomiting.

#### DIARRHEA

Diarrhea is looseness of the bowels. Serious attacks of diarrhea may occur in any season, but they are especially common in warm weather. They may accompany fever due to any infection. Severe diarrhea may result in acidosis. (See second paragraph of section on Vomiting, above.)



Whenever a baby has watery stools, or mucus and blood in his stools, all food should be stopped, and a doctor should be called at once. Boiled water in moderate quantities should be given every hour. (Rapid loss in weight, which is a marked feature of the disease, is largely due to loss of water, and therefore the giving of water is necessary to replace this loss.)

If an artificially fed baby has even a slight diarrhea or a number of loose, undigested stools all food should be stopped. The doctor should be called at once, for the diarrhea may be caused by an acute infection or some other condition that should be promptly treated. He will regulate the feeding.

Diarrhea should always be considered serious and should therefore be treated by a doctor. If none is available allow the baby no milk for 24 hours and return to normal feeding very gradually. At first give diluted skim milk that has been boiled for five minutes. The mixture should be started at half the previous strength, and the feeding at first should be smaller than usual. The strength and amount of the feeding should be increased gradually.

#### CONSTIPATION

Constipation is the passing of a very hard material from the bowels, or the passing of a very small amount, or failure to empty the bowels daily. It may occur only occasionally or it may be persistent. The stools may be so hard that they are passed with great difficulty and at infrequent intervals (every two or three days) and with pain. Sometimes the mucous membrane of the opening of the bowel is injured, and streaks of bright-red blood will be seen on the stool.

As a rule constipation should be treated by adjusting the formula for the milk mixture, by giving such articles of diet as prune pulp, whole-grain cereals, and green vegetables, and by establishing regular habits of elimination. The doctor should be consulted when constipation is persistent, so that he may advise about regulating the diet. Until dietary treatment can be established, temporary measures may have to be resorted to, such as a soap stick or enema.

For constipation in babies it is safe to give either mineral oil or milk of magnesia, but castor oil or other cathartics should not be given except on the order of a doctor. Mineral oil does not act as a drug, but merely greases the bowels so that the waste moves along easily. One or two teaspoonfuls may be given every day, or  $\frac{1}{2}$  to 2 teaspoonfuls a day of milk of magnesia may be given instead in the bottle feeding or from a teaspoon just before the feeding. As the stool becomes softer, the oil or milk of magnesia should be given in smaller amounts and finally omitted.

#### SCURVY

Scurvy is a disease caused by a lack of vitamin C in the food and is cured by giving the baby orange juice, lemon juice, or tomato juice. Babies with scurvy do not gain weight satisfactorily; they become irritable and pale and finally become seriously ill, with pain and tenderness in the legs and bleeding from the gums or the skin. The condition is rare in breast-fed babies whose mothers have a good diet; it is found chiefly in babies who have lived for long periods on artificial food without the addition of fruit juices that contain vitamin C.

#### RICKETS

Rickets is a very common nutritional disease occurring during the period of most rapid growth in infancy and early childhood. It affects the whole body but most strikingly the bones, which may become greatly deformed, and the muscles, which become weak and flabby. Rickets usually starts early in



the first months of life, when the baby is growing most rapidly, but may not be recognized until later, when the weakness of the muscles and the deformities of the bones (such as bowlegs) become more pronounced.

The baby with rickets may be restless, irritable, and pale. He may be slow in teething and in learning to walk. His weight may be normal.

If a child's chest bones are greatly deformed by severe rickets, the deformity may prevent his lungs from expanding properly, and he may be subject to lung infections such as bronchitis and pneumonia. Besides, a child who has rickets is not able to throw off infections as a normal child does. Thus, although rickets itself does not cause death it may have complications that do. A severe complication of rickets is a disease called tetany, from which the child may die.

Artificially fed babies are more likely to develop rickets than breast-fed babies, but breast feeding does not prevent it. If a nursing mother gets plenty of sunshine, her breast milk will help to protect the baby from rickets, but he needs sunshine and cod-liver oil also.

A rapidly growing baby is more likely to develop rickets than a baby who is growing more slowly. A premature baby is especially likely to develop rickets, as he grows faster during the early months of life than a full-term, normal baby.

The disease is caused by lack of certain rays of the sun, the ultra-violet rays, and it occurs chiefly in climates where the sun's rays are not very strong except in the spring and summer, namely, the Temperate Zones.

Rickets may be prevented or cured by giving the baby sufficient direct sunlight, or by giving cod-liver oil (the so-called "bottled sunshine"), or, still better, both.

#### ECZEMA

A variety of skin disorders, common in infancy, are grouped under the general name of eczema. Certain children show a tendency to eczema from birth. It may occur in either breast-fed or artificially fed babies. It is frequently a long slow process to cure eczema. All infants with eczema should be under the care of a doctor, who will regulate the diet and direct the local treatment. Eczema may come and go, but it is always increased by dirt and scratching.

In general it is well to use oil in bathing a baby that has eczema. Scratching and rubbing must be prevented, and usually some restraint of the hands is necessary for this. To keep the hands from reaching the face, starched cuffs, or tubes, made of cardboard or other stiff material that prevents the elbows from bending, may be fastened in the baby's sleeves and the sleeves pinned to the sides of the dress. (See illustration p. 61.)

#### THRUSH

Thrush is a disease of the mucous membrane of the mouth, caused by putting dirty nipples or other objects into the mouth. When a baby has thrush the insides of the cheeks and, less frequently, the lips and tongue are covered with small white spots.

Great care should be taken not to hurt the mucous membrane, for if it is irritated the condition will become worse. Feedings should be given by a spoon, and no nipple should be put into the mouth until the disease has disappeared. Give the baby 4 or 5 teaspoonfuls of water to drink after each feeding to rinse his mouth, but never swab nor wipe out the mouth except under the direction of a doctor.



To prevent thrush sterilize everything that is likely to be put into the baby's mouth. Never allow a baby to put an unboiled rubber nipple into his mouth. Never give him a pacifier. Do not wash out his mouth.

#### CONVULSIONS

Convulsions in babies are frequently associated with serious diseases, such as pneumonia, meningitis, and tetany, and may vary in length from a few seconds to an hour or two. A doctor should be called at once even though the convulsion has ceased. While waiting for the doctor, put the baby in a warm wet pack. (See p. 117 for directions.) Great precaution should be taken not to have the pack too hot. Many babies have been seriously burned because the mother, in her excitement over the convulsion, used water that was too hot. If the doctor does not come, the baby should be given an enema and the bowels thoroughly emptied. After a seizure of this kind a baby should stay quietly in bed for several days. He should be given nothing but water for the first 24 hours, and for several days the amount of food given should be considerably less than usual.

It is important that the cause of the convulsions be determined. Sometimes the cause is hard to find, but it is unwise to attribute convulsions in an otherwise apparently normal child to "teething."

#### WORMS

Pinworms are practically the only worms common in infancy. When they are present, examination of a stool recently passed will reveal tiny threadlike worms less than half an inch in length. Worm medicines must not be given except on the advice of the doctor. A medicine powerful enough to kill the worms may harm a baby unless it is given with great care under a doctor's orders.

#### COLDS

Babies frequently have colds in the head because they are thoughtlessly permitted to be near some one suffering from this complaint. All colds are contagious, and the baby must be kept away from any person who has a cold, whether child or adult. What is "only a cold" in an adult may be serious illness for a baby and develop into bronchitis or pneumonia. Earache and "running ear" are commonly caused by colds. As infections in the ear in infancy are frequently responsible for deafness in later life, great care should be taken to prevent colds. If a baby has colds often, the adenoids are probably enlarged or infected and should be removed by a doctor skilled in this operation, at a time when the baby does not have an acute cold.

Colds in the head cause difficulty in breathing and nursing. Placing two or three drops of mineral oil in the nose with a medicine dropper three or four times a day will help to keep the passages clear and make breathing easier. Rest in bed is an essential part of the treatment of any bad cold. The baby should be put to bed and the temperature of the room kept even day and night at 60° to 65° F., while he has the cold.

Many contagious diseases besides colds begin with sore throat or a running nose, and any baby with either of these symptoms should be placed in a room by himself away from other children.

If a baby has "dry snuffles" at birth or within the first few months after birth a blood test should be made by a doctor to determine whether the condition is due to syphilis.



### ENLARGED OR DISEASED ADENOIDS OR TONSILS

If a baby's sleep is disturbed considerably, if he snores, sleeps with his mouth open, and is unable to nurse for any length of time without having to stop to get air through the mouth, or if he has frequent colds in the head, ear infections, or discharges from the nose, the mother may suspect that he has enlarged or diseased adenoids. Adenoid enlargement cause mouth breathing, deafness, and contracted jaw, and interfere with normal growth and development.

Enlarged or diseased tonsils may occur in infants, and occasionally it may be advisable to remove them if they become diseased frequently or if they are sufficiently enlarged to block the air passages. A doctor should be consulted if the air passages are obstructed from any cause. He will advise the mother whether or not the adenoids or tonsils should be removed. Adenoids may become enlarged again after removal. If this happens and they cause trouble again they should be removed again.

### EARACHE

If the baby screams and puts his hands to the side of his head and rolls his head from side to side or pulls at his ear, he may have earache. Warm compresses or a well-wrapped hot-water bag may relieve the pain. If a doctor's advice can not be obtained soon, a few drops of warm (not hot) mineral oil may be put into the ear. Nothing else should be put into the ear except by a doctor's order.

### CROUP

There are two kinds of croup, the simple spasmodic type and the severe type which is really laryngitis. Both kinds of croup must be taken very seriously, for it is often impossible at the beginning to distinguish one form from another. Simple spasmodic croup is not dangerous, but the other type is very dangerous and requires a doctor's immediate care. Whenever a baby's cry or voice becomes hoarse or weak and husky, a doctor should be called at once, so that he may treat him and give diphtheria antitoxin, if he thinks that the laryngitis may be due to diphtheria.

#### Simple spasmodic croup.

An attack of simple spasmodic croup usually comes on suddenly between bedtime and midnight, when a baby who went to bed apparently well wakes up with harsh noisy breathing or a dry, barking cough and some difficulty in breathing. The cry and voice are usually strong but hoarse. The baby may be frightened, and his fright increases the symptoms. The symptoms of croup frequently recur for two or three nights, and a baby who has one attack of croup is likely to have others.

Before the doctor comes, an attempt may be made to relieve the spasm by making the baby vomit, keeping him in a warm room filled with steam, such as a bathroom or other small room, or by putting warm applications on the chest. The doctor will advise with regard to treatment.

The day after the attack the baby should be kept quiet in a warm room at even temperature, if necessary in bed. For two or three days after an attack the child should not breathe very cold air; even the air in his sleeping room should be kept warm and moist.

#### Laryngitis.

If a baby who has had an attack of croup in the night is still hoarse the next morning, he probably has laryngitis. This is a serious condition sometimes due to diphtheria and sometimes to other infections. It often follows or accompanies a sore throat. A baby with this serious form of croup usually has hoarseness, loss of voice, and noisy, labored breathing, and seems increas-



ingly sick. He often becomes worse during the night. Exhaustion and weakness are signs of great seriousness. The baby should be seen by a doctor at once, since every hour's delay in treatment may involve a risk to his life.

If the baby has been given toxoid or toxin-antitoxin, and six months later the Schick test is negative (see p. 19), he will be protected from this disease in infancy and early childhood.

#### ASTHMA

Asthma occurs in very few babies under 1 year. It is caused by certain babies' sensitivity to some protein, such as that in cow's milk, egg, cereal, or meat. If a baby has asthma, the doctor will make special tests to determine the cause if possible.

#### HEAT RASH OR PRICKLY HEAT

Heat rash may appear either in summer or in winter; it is usually caused by excessive perspiration due to too warm clothing. A rash of fine red spots usually comes out first on the neck or chest. The parts affected should be sponged frequently, or dabbed with bicarbonate of soda and water, or powdered with starch and boric-acid powder (2 parts of starch to 1 part of boric acid). Lighter clothing should be put on the baby, with soft muslin or linen placed next to the skin.

#### CHAFING

Chafing is a redness or irritation of the skin appearing in the folds of the skin or on parts of the skin that rub or touch something. It is frequently found in fat babies. Chafing may occur on the buttocks if wet diapers are not removed soon enough, if the skin is not carefully cleaned and dried after a bowel movement, or if the soap has not been carefully rinsed out of the diapers. Cleanliness is of first importance in preventing this condition.

A dusting powder of boric acid and dry starch or a paste of cooked starch, cold, may be used freely, and pieces of soft linen may be placed next to the chafed skin. Little or no soap should be used in bathing the chafed parts. Bran instead of soap may be put into the water for bathing, or oil may be used for cleaning the irritated skin instead of water. The buttocks and thighs should be wiped off with mineral oil each time the diaper is changed. Talcum powder should not be allowed to cake in the creases.

#### ACCIDENTS

##### SWALLOWING FOREIGN BODIES

If such objects as coins and pins are swallowed they usually pass through the intestines without causing any damage, but occasionally damage may occur, so a child who has swallowed any article should be watched carefully. If no symptoms develop no treatment is necessary. The stools should be examined for the swallowed article. No medicine should be given. If a baby breathes a small object into his windpipe a doctor must be called at once.

##### SWALLOWING PILLS OR POISONS

If an infant accidentally swallows a pill or anything else that might possibly be poison, a doctor should be called at once or the child should be taken to a hospital. While waiting for the doctor try to make the baby vomit. Warm water may make him vomit, or warm water with common salt or mustard dissolved in it—a teaspoonful of the salt or mustard to a glass of water. Give him as much as he will drink. Tickling the back of his throat may make him vomit.



## BURNS

In case of burns apply freely a solution of freshly prepared tea, very strong, which has been cooled to body temperature, or baking-soda solution, or oil. Keep the burns uncovered if possible until the doctor comes or until the child can be taken to a hospital. If it is absolutely necessary to cover the burns, such as for taking the baby to the hospital in cold weather, use *linen*, if possible, soaked in tea, baking-soda solution, or oil. Never use cotton batting or absorbent cotton (raw cotton) on a burn. (See p. 20 for prevention.)

## COMMUNICABLE DISEASES

Communicable diseases occurring in babies under 1 year of age should be regarded as serious. (See p. 18 for prevention.) The younger the baby the more serious the disease. Those which occur commonly in babies under 1 year of age are whooping cough, measles (in babies over 6 months), pneumonia, dysentery, and tuberculosis. Others occurring less commonly are diphtheria, infantile paralysis (common in time of epidemic), cerebrospinal meningitis, and, rarely, scarlet fever, smallpox, mumps, typhoid fever, and malaria.

These diseases spread largely through direct contact with the excretions or secretions of a patient who has the disease or through foods such as raw milk, fruit, or vegetables contaminated by an infected person or by flies or mosquitoes which carry the germs from an infected person.

A baby with any communicable disease should be under the care of a physician.

## WHOOPIING COUGH AND MEASLES

Whooping cough and measles are more serious diseases in infancy than in later childhood, on account of the fact that they are more frequently complicated with broncho-pneumonia in infancy. Great effort should be made to prevent them (see p. 19). A baby with measles must be kept in bed at least 10 days; a baby with whooping cough needs bed care only if he has fever. A baby with whooping cough should be outdoors as much as possible.

## PNEUMONIA

Pneumonia is often a long-continued disease, and most careful nursing is necessary. Bed care and medical treatment are essential throughout the disease. If proper care can not be given at home it is advisable to send the baby to a hospital.

## DYSENTERY

Dysentery is a disease of the bowels which occurs generally in hot weather and hot climates and is usually carried to babies in milk. It causes fever, severe diarrhea which is often bloody, and loss of weight. A doctor should be called if a baby has diarrhea. He will decide whether it is due to dysentery or not.

## TUBERCULOSIS

Tuberculosis is contracted in infancy by contact with some one who has the disease or through milk. A baby who persistently does not gain in spite of good care or who has a chronic cough or an otherwise unexplained daily rise in temperature should be taken to a doctor and tested for tuberculosis. He should be kept under the close supervision of the doctor.

## DIPHTHERIA

Diphtheria occurs less commonly in infancy than after 1 year of age. If it is suspected that a baby has diphtheria, either because grayish-yellow patches



are seen in the throat or bloody discharge in the nose or because the baby's voice or cry is hoarse a doctor should be called at once, for early antitoxin treatment must be given if the baby is to be cured. (See p. 19 for prevention.) In infants and young children diphtheria of the throat often looks like simple tonsillitis, and cultures should always be taken if a baby has yellow patches in the throat.

#### GONOCOCCUS INFECTION

Two forms of gonococcus infection are met with in infancy—ophthalmia neonatorum (newborn babies' sore eyes) and vaginitis.

Ophthalmia neonatorum may cause permanent blindness, if not treated promptly. It may be prevented by putting 2 drops of 1 per cent silver-nitrate solution into each of the baby's eyes immediately after birth. If there is redness or discharge from the baby's eyes within the first two or three weeks after birth, the doctor should be called at once so that intensive treatment can be given if he finds that it is a gonococcus infection.

Girl babies not infrequently have a yellowish-white discharge from the vagina. In some cases this is caused by gonorrhea, contracted usually from the mother at birth or from some member of the household who has the disease. The germ may be carried on the hands, or on wash cloths, towels, or diapers. Microscopic examination should be made of any vaginal discharge to determine whether it is gonococcus infection. Prompt local treatment under the direction of a doctor is necessary to cure this form of gonorrhea, which is often most persistent. A baby who has it should wear a pad to catch the discharge, and the pads should be burned.

Unless the utmost precautions are taken gonococcus infection will spread to other infants, especially girls, who may come in contact with the sick baby or the person caring for him. A child with this disease even under treatment should be considered a possible source of infection as long as there is a discharge, and every care should be taken to prevent the spread of the disease.

The mother or nurse caring for a child with gonococcus infection should scrub her hands thoroughly with hot water and soap every time she has handled him. Every article of soiled clothing and bedding used by him should be boiled half an hour. The entire bath equipment should be strictly separated from that used by any other person.

#### SYPHILIS

Congenital syphilis, which is syphilis acquired by the baby from the mother before birth, unfortunately is a fairly common disease.

Many babies who have congenital syphilis either die before birth (that is, are stillborn) or die within the first few weeks after birth; and those that survive may have lasting effects of the disease which handicap them, sometimes throughout life.

If a baby is born with snuffles, a skin eruption, or peeling of the palms and soles or if he develops them shortly after birth, a doctor must be consulted and a blood test made. No baby is too young to be treated for syphilis. Treatment should be started as soon as the disease is known to be present and should be continued for a long time—until repeated tests show the baby's blood to be normal.



## TAKING THE BABY TO THE COUNTRY

In the early summer the trains, boats, and automobiles carry thousands of families to the seashore, the mountains, or the farms for their annual vacations from the hot and crowded cities. Whether or not this change from city to country life is beneficial to the baby depends largely upon the sort of living conditions into which he goes, the character of the milk and the drinking water, and the sanitary arrangements. The mother should select, if possible, a place with some form of sanitary privy. All the drinking water, and the milk for the baby, must be boiled, even if the milk comes from one cow. The doors and windows, and if possible the porches, should be screened. If the house is not screened, the mother should put a cotton netting over the baby's crib.

### Traveling with a baby.

Any trip with a baby should be carefully planned. Accurate information as to the leaving and arriving times of all the trains and boats concerned should be obtained. When a night trip is to be taken berths should be reserved in advance. If possible, a stateroom should be engaged, even if something else has to be given up. The privacy and quiet will make the journey easier for the baby.

During the journey try not to let anything interfere with the baby's regular feeding, bathing, sleep, exercise, elimination, and frequent change of diaper. Wash his hands and face several times each day. Do not let strangers handle him. Keep him as cool and quiet as possible.

A market basket is more comfortable for the baby than his mother's arms and more convenient for the mother. The basket should have a handle low enough to hold him safely inside. Arrange the basket like a bed, with a thin mattress, rubber sheeting, sheets, blankets, and, if desired, sleeping bag. A cotton mosquito netting should be brought along to cover the basket. A young baby can stay in the basket throughout the journey, except when it is time for changing the diaper, feeding, bathing, exercise, or other care.

For an automobile trip with a baby a small hammock should be used. Various types of hammocks for this purpose are on the market.

The easiest child to feed on a journey is the breast-fed baby. The bottle-fed baby presents a problem, for his milk must be boiled and the bottles sterilized. If dried or evaporated milk is to be used, enough feeding bottles to last the whole journey must be boiled and stoppered before starting. If this is not possible, arrangements must be made with the porter or steward to allow the mother to boil them daily in the dining-car or steamer kitchen. Just before each feeding time the dried or evaporated milk should be mixed with boiling water, which may be heated over a solid-alcohol stove on a metal tray, and the whole brought to a boil again. If an outlet for electrical attachment can be had, an electric water heater will be found safe and convenient.

For a trip no longer than 24 hours, cold boiled milk or milk mixture may be carried in a vacuum bottle (unless dried or evaporated milk is used). The vacuum bottle should be cleaned, scalded, and cooled, and the milk should be boiled and then thoroughly chilled before being put into the vacuum bottle. Milk must not be put into a vacuum bottle while it is warm, as it may sour.



Milk from a vacuum bottle should not be used after 24 hours. At each feeding a nursing bottle must be filled and warmed.

For warming the feeding take a utensil holding a pint, which the porter will fill with hot water from the dining car. Place the bottle in it to heat, but wait until the water has cooled somewhat, so that sudden heat will not break the bottle.

The following supplies may be packed in a small suit case:

Small cans of evaporated or dried milk (or boiled milk in vacuum bottle).

Jar of sugar.

Boiled water in vacuum bottle.

Small egg beater for mixing dried milk.

Strainer for dried-milk mixture.

Funnel.

Enough bottles for a day's feedings.

Six sterile nipples in covered glass jar.

Tablespoon and teaspoon.

Cup.

Solid-alcohol stove or electric water heater.

Pint-sized utensil, for heating food.

Cans of vegetable puree.

Oranges or canned tomato juice.

A separate bag or basket lined with rubber sheeting should be provided for the diapers, and with them may be packed a small enameled-ware chamber. For a young baby a number of inner pads of soft paper or cellucotton should be provided. When one of these is soiled, put it down the toilet. Wet diapers may be rolled tightly and kept in the rubber bag.

For a long journey in hot summer weather a baby should be dressed only in a band, a diaper, and a thin outer garment. A short-sleeved, low-necked slip of wash silk or thin seersucker can be washed out in the basin when soiled. Two dresses should be brought, so that one can be worn while the other is being washed. Warmer clothing should be at hand to put on at once if the day suddenly cools.

It is well to change the baby's clothing as soon as the train starts in order to have the street outfit clean to put on when leaving the train.

Regular hours for feeding the baby must be observed as far as possible. Do not give him cakes, candy, bananas, or sweet crackers to keep him quiet in the train. Irregular feeding and unsuitable foods, together with the fatigue and excitement of traveling, are likely to make him ill.



## SELECTED BOOKS OF INTEREST TO PARENTS<sup>1</sup>

### PRENATAL CARE

- Getting Ready to Be a Mother**, by Carolyn Conant Van Blarcom, R. N. Macmillan Co., New York, 1929. 286 pp. \$1.75.
- Maternity Handbook**; for pregnant mothers and expectant fathers, by the Maternity Center Association. G. P. Putnam's Sons, New York, 1932. 192 pp. \$1.
- Prenatal Care**. U. S. Children's Bureau Publication 4. 71 pp.
- What Builds Babies?** U. S. Children's Bureau Folder 4.

### INFANT CARE

- Baby's Daily Time Cards** (six cards in different colors, giving daily routine and training for babies from birth to 2 years of age). Chart 14.
- The Baby's Health**, by Richard A. Bolt, M. D. (Edited by the National Health Council.) Funk & Wagnalls Co., New York, 1924. 38 pp. 30 cents.
- Breast Feeding**. U. S. Children's Bureau Folder 8.
- Keeping the Well Baby Well**. U. S. Children's Bureau Folder 9.
- Simplifying Motherhood**, by Frank Howard Richardson, M. D. G. P. Putnam's Sons, New York, 1925. 263 pp. \$2.
- Sunlight for Babies**. U. S. Children's Bureau Folder 5.
- Why Drink Milk?** U. S. Children's Bureau Folder 3.
- Why Sleep?** U. S. Children's Bureau Folder 11.

### INFANT AND CHILD TRAINING

- Are You Training Your Child to Be Happy?** U. S. Children's Bureau Publication 202. 57 pp.
- Child Management**, by D. A. Thom, M. D. 1927. U. S. Children's Bureau Publication 143. 47 pp.
- Cultivating the Child's Appetite**, by Charles A. Aldrich, M. D. Macmillan Co., New York, 1932. 137 pp. \$1.25.
- Everyday Problems of the Everyday Child**, by D. A. Thom, M. D. D. Appleton & Co. (now D. Appleton-Century Co.), New York, 1931. 350 pp. \$2.50.
- The Home Care of the Infant and Child**, by Frederick F. Tisdall, M. D. William Morrow & Co., New York, 1931. 292 pp. \$3.
- Parents and the Preschool Child**, by William E. Blatz, M. D., and Helen McM. Bott. William Morrow & Co., New York, 1929. 340 pp. \$3.
- A Practical Psychology of Babyhood**, by Jessie Chase Fenton. Houghton Mifflin Co., Boston, 1925. 348 pp. \$3.50.

<sup>1</sup> Single copies of Children's Bureau publications may be obtained free by writing to the Bureau at Washington, D. C.



Booklets published by the Child Study Association of America, 221 West Fifty-seventh Street, New York:

- Disciplinary Devices—Rewards.** 19 pp. 20 cents.
- Disciplinary Devices—Punishment.** 15 pp. 20 cents.
- Habits—What Are They?** 27 pp. 20 cents.
- Play and Playthings.** 11 pp. 20 cents.
- When Children Ask About Babies.** 7 pp. 20 cents.
- Wholesome Childhood,** by Ernest R. Groves and Gladys Hoagland Groves. Houghton Mifflin Co., Boston, 1931. 201 pp. \$2.

### CHILD CARE

- The Child from One to Six; his care and training.** U. S. Children's Bureau Publication 30. 150 pp.
- The Health of the Runabout Child,** by William Palmer Lucas, M. D. Macmillan Co., New York, 1923. 229 pp. \$1.75.
- Out of Babyhood into Childhood.** U. S. Children's Bureau Folder 10.
- Food for Children.** Farmer's Bulletin 1674. U. S. Department of Agriculture, Washington, 1931. 22 pp. Single copies free.



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