

CHILD STUDY

Baby Learns to Walk

'Tis a Long Road to the First Step, But All Babies Travel It In A Systematic, Scientific Way, a Recent Study Shows

By MARJORIE VAN de WATER

BABY'S first step! What a thrill it gives even the most indifferent observer to watch this symbolic start on the road to adult independence! It is quite as exciting for the parents as for the infant, and it comes to the older person as an even greater surprise.

For to the child the first step is by no means the beginning of independent locomotion. Almost from the very hour of his birth, he has been preparing himself for this moment. All the while he has been gaining gradual but steady progress toward this goal of self-directed movement which is to bring the whole world within the reach of his inquisitive hands. In less than two years—perhaps not much over a year—he has changed from a little mite lying curled up with knees under chest and back hunched, unable to lift his head, to a confident little adventurer starting off boldly, erect on his own two feet.

For the benefit of parents and others who wish to watch the progress of children along this path of development, Dr. Mary M. Shirley, of the Institute of Child Welfare at the University of Minnesota, has made a careful study of twenty-five babies during the whole first two years of their lives. She has, from this observation of individuals, charted the principal landmarks of the normal, healthy infant's progress in locomotor development. The complete report of her research is contained in a new book, "The First Two Years."

One of the very first efforts made by the human infant to change or modify his environment is a kick. The adult who does nothing but kick when things go wrong is making use of the abilities which he had available fully developed at birth.

The kicking of the young infant is not always a mere thrashing of the feet in air, but may be a good vigorous punt against whatever object is near. Young Don, one of the babies studied, when only two days old kicked the examiner

quite vigorously. And when Virginia Ruth was but three weeks of age she kicked so hard against the observer's abdomen that she pushed the nursery table on which she lay a few inches in the opposite direction.

Another ability which the infant has at birth is that of turning the head to one side when he is lying on his back. Turning the whole body over is quite another story. Six of the twenty-five babies were seen to make the turn from back to side between the ages of one and eleven days, but in general the newborn must perforce lie in whatever position he is placed. He will not be able to roll over freely until he is about seven months old.

If he is put on his back he will have knees and elbows flexed, fists closed and up about level with his shoulders. If laid on his stomach, he remains in a posture which Dr. Edith Boyd, Dr. Shirley's collaborator, aptly named "Mohammedan prayer." Knees hunched up under him, arms flexed, hands or fists up close to mouth, and the face turned just enough to leave the nose free for breathing. Most babies outgrow this prayer posture by three or four weeks, but with some it persists much longer. It gradually gives way as the legs are straightened out. For some time the knees remain bent at right angles even though they are not drawn completely up to the chest.

Uncurling

This quiet process of uncurling might really be called the very first step toward becoming an upright two-footed animal.

The first active advance comes when baby can lift his own head from the prone-on-the-stomach position and take a look around at his world. He may be able to do this momentarily during the first or second week. The average age at which he can lift it up and hold it up is three weeks. By seven weeks, three-fourths of the babies had developed this skill.

At one month, then, your baby may be able to lift his head. Not until he is two months, however, is he likely to lift his chest up. For many weeks he seems to stay at this level of development ex-

cept that he can hold the pose for a longer time and gradually learns to delight in digging his toes into the blanket and perhaps giving a little push or squirm.

At some time near the age of three months, you will notice that baby pushes vigorously with his feet against the table edge or any other convenient firm object. If then you hold him so that his feet can touch the table top or floor, you can see the very beginnings of walking.

At this stage the child will make no attempt to stand or hold his own weight or any part of it. He will however step lightly on his toes, taking little dancing steps which may even result in the covering of some ground.

Record the First Steps

If you like you may preserve a record of these first forerunners of the first step, as Dr. Shirley did. This is how it is done. Oil baby's feet with ordinary olive oil, and let him take his little steps along a strip of white paper. Then brush the paper over with a powder of lamp black, graphite, and powdered acacia. There you have the tiny prints standing out clearly in black, and without any muss around the baby. In general, the baby delights in walking the paper path. Dr. Shirley had one baby object because the oiling tickled, and a few were disturbed by the straight paper path, but most of them delighted in it as a fascinating game.

At four months, your baby may give you some coöperation by stiffening his body when you pick him up. By this time also it is probable that his knees have at last straightened out from their prenatal flexed position.

By five months, you may expect him to sit up on your lap or to sit up supported by pillows. At about this time, too, he may make his first move toward raising himself. This is to lift his head and shoulders clear of the bed from a position on his back. Maybe he will do this as he holds up his arms for you to lift him. Or maybe just to get a better look around.

Not all the babies were observed to lift the head this way. But little Martin often lifted head and shoulders and held them so for as long as a half minute. Try the stunt yourself, and you will be convinced of the strength in neck and

back muscles required for the feat. But with all this strength and control in the head and neck muscles, the child is not yet ready to sit alone.

Muscular development begins at the head and works gradually down, Dr. Shirley has found. At birth the baby has no control over his head and neck muscles. If you hold a newborn, you must be sure to support the whole length of the body including the head, Dr. Shirley warns. In a short time he achieves control over the head and neck muscles. After that it is sufficient to support the full length of the spine up to the nape of the neck. Later you need hold him only as high as the shoulder blades. Still later about the ribs and the small of the back.

Baby Tells of Progress

The baby himself will tell you of his development by his own insistence upon using his muscles. When he raises his own head and shoulders, you know that these parts have come under control.

When the control has progressed as far down as the midribs, skill with the arms begins to develop. The child can then reach for and grasp his toys successfully.

When he can almost, but not quite, sit alone, it is the lower part of the trunk that gives away. Sometimes you may see him make an effort to keep his balance by bending far forward. Then it is not possible for him to raise himself again, and he must suffer the indignity of rolling over and starting again. He must attain a great deal of skill in sitting before he can bend and straighten back up again. The average baby is not able to sit alone until he is eight months old.

Meantime he has been making progress toward crawling. After many weeks, usually several months, of practice in pushing the chest up, he will one day try pulling his legs up frog-fashion and then kicking them out suddenly. This effort looks very much like the old-fashioned swimming breast stroke, and Dr. Shirley calls it the swimming stage. It is accompanied by a great straining and reaching toward the desired object, but—sad to relate—the progress, if any, is usually backward. Because the abdomen is not lifted off the floor, and the arms and legs work mostly at cross purposes, the net result is usually zero, but it is excellent exercise. This swimming stage is reached by the average baby at six months.

Most babies will devise some method of making some slight progress while still unable to lift the abdomen from

the floor. Many rocked back and forth on their stomachs. Dr. Shirley put the average age for making some progress in this laborious fashion at about nine months.

The advanced stage of creeping on hands and knees is attained by the average baby at about eleven months.

At about this time also he has reached a very important stage on the road to walking—he is able to stand with the help of an outstretched adult hand or the support of furniture or adult clothing. This stage is a good index of when the child will walk. The sooner it is reached the sooner the baby will walk alone, and the later it comes the more retarded he will be. For the average baby, this level is first reached at seven months and it lasts until ten months.

If the child is precocious and begins standing at an earlier age—and many of them do—the parents are likely to worry for fear he will overtax his pliant bones and become bow-legged. Young baby has no such worries, however. In fact he will outwit mother's most carefully thought out measures to prevent this activity. Every firm object, and some that are not so firm, will serve him as a "chinning bar" for the purpose of pulling up to his feet. The crib side, the play pen, the davenport, mother's dress, unfortunately even the dining room table cloth will be pressed into his service as something to pull against.

Will Walk Without Help

He will also walk, whether assisted or "taught" or not, Dr. Shirley has found. For the furniture is "the baby's all-but-human helper, his rod and his staff as it were." He will cling to it and make his way about by progressing from one piece to another or by following the wall, quite independent of adult aid.

These stages of creeping, standing with help, and walking with help are

not separate, but run parallel. The child does not outgrow one and discard it as he progresses to the next. During a long period he is content to use any and all means he has at his command for getting about.

It is still a big jump, however, to the very grown up stunt of standing and walking alone, which will not be possible for the average child until the age of about 14 or 15 months.

"Parents are likely to expect the transition from walking with help to walking alone to take place within a few weeks," Dr. Shirley says. "Quite to the contrary, this is usually a long, drawn-out period, and the efforts of parents to hasten or retard it are usually without avail."

This does not mean, though, that your baby is not gaining in all the months that he must hang on to something in order to walk. Dr. Shirley's footprint records tell the story of continuous development over this period. Speed of walking is gradually increasing. The length of the step is also getting greater and the angle straighter. The feet are being set down with greater regularity one after the other, gradually eliminating hesitation and false patting of the ground.

The angle of the foot is changing, too. Some babies are pigeon-toed when they start walking. More toe out. But as proficiency in walking is developed, the feet gradually straighten.

During all this time, too, invisible changes are going on in the muscles and the bones and the mind and courage of the child.

At last the stage is set. The big moment has come. His Majesty Infant takes what parents and other foolish adults misguidedly call the first step.

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THE VERY BEGINNING

Baby retains the "Mohammedan prayer" position, on the left, during the first few weeks of life, but when only about a month old he begins to look around a bit.