

DISEASES OF CHILDREN

HUGH JOLLY

FOURTH EDITION

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PREFACE TO THE FOURTH EDITION

The 5 years which have passed since publication of the last edition have necessitated major alterations to the text throughout. Much new material has been added but extensive pruning has limited its growth. SI units are now used.

Throughout the book it is apparent that children are not mini-adults; they are always growing and this growth alters the pattern of disease with age as well as influencing therapy. The grey baby syndrome in infants from chloramphenicol overdosage is a classic example.

Similarly, the need for a global approach to paediatrics is still further stressed and pervades the book. Tropical medicine was an invention of the British Raj and has no place in modern medicine faced with air travel and immigration. Malaria is increasingly common in Britain.

History taking requires more skill than examination and I would stress again to students the advantages, when dealing with children, of taking the family history first. A child can only be understood in the context of his family so that learning about this first makes the subsequent history easier and more intelligible. In describing the medical history, I have removed the social history as a separate entity because of its importance. Since an understanding of the social circumstances, meaning particularly the family relationships, permeates the history it must not be looked on as a separate entity to be enquired into at the end. Every clue elicited in this area must be sensitively investigated; particularly the effect of bereavement, whether by miscarriage, stillbirth, adoption, handicap (loss of the perfect child) or death.

Being ill is one more opportunity for children to learn more about themselves, and not by a dull talk but by the excitement of creating a project book, as described. This is another opportunity for communicating information to the patient, an area which is still sorely neglected by doctors. Communication is vital and for this reason I have described the value of a letter to the parents of a handicapped child outlining the points made at the assessment case conference in which they have taken part.

The hazards of separation of newborn babies from their mothers is still further stressed with emphasis on how the admission rate to special-care baby units can be reduced, and with improved results.

Neonatology has advanced so much that the new material has necessitated dividing the chapter on the newborn into three by separating off the low birth weight baby and infant feeding. There are new sections on intraventricular haemorrhage and recurrent apnoea of prematurity, and much more on breast feeding. The resurgence of breast

feeding has been inhibited by ignorance on the part of doctors and nurses of the physiology of lactation and neonatal metabolism. The reasons for low-solute cow's milk preparations are also stressed.

Many medical students are unaware of the advances in preventive dentistry whereby a baby of 6 months entering a prophylactic programme can emerge at 16 years with perfect teeth in perfect shape. This aspect is now included.

A new immunization programme starting at 3 months of age is now routine in Britain while the eradication of smallpox has also necessitated changes. New infective agents of great importance in children have come to the fore; these include *Campylobacter*, Rotavirus and Chlamydia. Cytomegalovirus has outstripped rubella and toxoplasmosis as a cause of disease in children.

I have always found it difficult to assess the importance of 'wheezy bronchitis' in relation to later asthma. I am now clear that it is part of the spectrum of asthma and can no longer be regarded as a separate entity. The section on asthma has also been considerably increased by advances in therapy.

In discussing normal emotional development I have stressed the advantages to the baby and his parents of having the baby to sleep in their bed if they so wish, provided neither parent is under the influence of a sedative or alcohol. Assisting parents in the normal development of their children requires a knowledge of play, a subject often omitted from paediatric textbooks.

As in the last edition, so in this, I have had to make further extensive alterations in the section on glomerulonephritis. The single entity of acute nephritis gives way to the acute nephritic syndrome, and many other changes are made.

New research has necessitated major changes in the sections on thyroid disease, leukaemia, serous otitis media and malnutrition. New sections include the fetal alcohol syndrome, necrotizing enterocolitis, Crohn's disease, Bell's palsy, benign intracranial hypertension and hypertension in childhood.

London, January 1981

HUGH JOLLY

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CHAPTER 1

HISTORY TAKING AND EXAMINATION

When the patient is a child the doctor's approach is of especial importance since diagnosis is more difficult if the child is upset. If both parents come with the child, both should be allowed to enter the consulting room so that a better picture of the family is obtained. This must be stressed to hospital nurses who still tend to allow one parent only to accompany the child. If a grandparent or close friend comes with the mother they also should be allowed into the consulting room since, if they feel it important enough to come, they are obviously of consequence in the child's life. Moreover, a wider picture of the family may be obtained by this means. One can be certain that if a grandmother argues with her daughter in front of the doctor, even more does she do so at home!

When taking the history, the doctor must decide whether it would be better for the child to stay outside rather than hear himself discussed. A mother will sometimes say that she cannot answer a question with her child in the room. This is a signal to remove the child from the room and repeat the question. If the opportunity to learn more is not seized when it presents it may be lost forever. The child can be asked to draw while he is out of the room; in this way valuable information about him may be obtained.

The child needs to be put at his ease and to feel welcome. I usually greet him first, provided I do not feel this will embarrass him. My greeting sometimes takes the form of a complimentary remark about his clothes or showing him one of my toys. It may be appropriate to tell the child your name and then to ask his. Alternatively, a question such as 'do you go to school' may be easier for him to answer. The aim is to become friends and to help the child to make contact with the doctor.

All this is helped by not wearing a white coat and by arranging the consulting room or surgery office so that it looks as much like a toy shop and as little like an operating theatre as possible. An array of chromium-plated instruments may impress the mother but only frightens the child.

The mother should be put at her ease so that she is able to describe her child's problems in her own words and without hurry. The 'question and answer' type of history fails to give a real picture of the child's illness and should be used only at the end in order to fill gaps in the story.

HISTORY

In children (and perhaps in adults) the medical history often provides more information than the clinical examination. The importance of learning how to elicit physical signs has

been over-emphasized to medical students in comparison with the time spent on learning to take a good history. More skill is required in the taking of a history than in carrying out a clinical examination. Above all it is essential to learn how to listen as opposed to how to question.

Symptoms of illness in babies are usually non-specific; loss of appetite is a major symptom of serious illness, especially infection. Severe diseases of the renal tract may cause failure to thrive only, in a baby, there being none of the symptoms characteristic of the adult with urinary disorders. Only as the child gets older does illness produce more specific symptoms.

Children are not mini-adults; their response to disease is often totally different. The major contrast is that a child is growing and it is this and much else besides which places paediatrics in a different world from adult medicine.

The description which follows is intended for those who see children referred to them by family doctors,* whether they are seeing them in hospital or in consultative private practice. Under such conditions the consultant, registrar (resident), houseman (intern) or medical student is without the GP's advantage of knowing the family background and the child's social and home circumstances. The vital link for bridging this gap is the GP's letter or telephone call which should give the reason for referral, the results of any investigations performed and the treatment already prescribed. It is helpful to be told when it is the parents who have made the initial request for a second opinion. The letter need not give lengthy details about symptoms since the hospital doctor will check these himself but it should include intimate information, such as the fact that a mother is unmarried, which the doctor in hospital should be protected from stumbling on without warning.

Since the GP will already know much of the family background his history in the busy surgery can be very much shorter. But if, as a student, he has not been trained in the technique of taking a comprehensive history he will, when busy, fail to pick out those salient features which are needed for a proper understanding of his patients. It is preferable that the GP should meet the family when they first join his practice, rather than when one member falls ill. It is therefore ideal if one afternoon a week can be set aside for interviewing new arrivals in order to learn about the family. The need for this interview has increased with the reduction in home visits.

In taking a medical history, students are usually taught to inquire about the main complaint first, and then to go into the previous history and family history. With children, it is an advantage to inquire about the family and previous history before coming to the chief complaint. The doctor should try to obtain a picture of the patient in his home setting and it is helpful if this has been built up before discussing the main illness. The elderly mother of an only child will have a very different outlook from the mother who has had many children. These are facts which should be learnt at an early stage in taking the history.

* The term 'family doctor' is regarded as the best description for those whose task is the primary care of family units of patients. It is considered as synonymous with the term 'general practitioner' but gives a clearer picture of the role of the doctor concerned. For ease of reading, the term general practitioner (GP) will be used in the text.

Family history

It should be the duty of the receptionist to record the father's occupation and the religion of the family in addition to the usual routine details. The religion may well be relevant to the child's problem, but if requested by the doctor it becomes a much more personal question than if recorded with other routine matters by the receptionist. She should also record the child's date of birth and his present age. These should be carefully checked as mothers are very apt to give the age at next birthday.

The child's place in the family is learnt, together with the names and ages of any other children and whether they have suffered from any notable complaints. For example, a recent history of measles in one of the other children is of importance when seeing a child with a rash. A family history of fits is particularly significant if the child is brought for the same reason. Under other circumstances it may be necessary to inquire about a family history of allergic disorders such as asthma, hay fever or eczema, or whether there is a history of diabetes, rheumatic fever or tuberculosis in the family.

Specific inquiry should be made as to whether any children have died and whether there have been any miscarriages. Consanguinity should be determined in view of the influence of genetic factors in disease.

While taking the family history it is always wise to ask the mother what work she did before childbirth and whether she still goes out to work. This not only furthers the understanding of the child's social circumstances and gives useful information about the mother, but also prevents the mistake of talking to a mother who is a doctor or a nurse as though she was a layman. To know the ages of the parents is helpful; elderly parents or parents with widely differing ages each have their own problems. However, care must be taken to avoid embarrassing parents who dislike mentioning their ages in front of their children.

Previous history

This includes details of pregnancy and labour as well as the child's previous illnesses. It is useful to start by asking where the baby was born, since this helps a mother to recall more details of the birth. It also ensures that if the birth was in hospital its address is recorded should further obstetric information be required. The amount of time given to antenatal and birth history will depend on the child's age and the complaint. More detail will be required if the patient is brought for mental retardation, fits or congenital malformations which could be related to disease or drugs in pregnancy, or difficulty in labour. The birth weight must be recorded and whether birth was at term or preterm. Detailed information about feeding must be obtained for all infants but, even with older children, it is an advantage to know whether or not they were breast fed. The manner in which this question is answered, as well as the answer itself, will often give useful information about the mother. The duration of breast feeding should be asked since some mothers will state that they have breast fed their children, when in fact this was only while they were in the maternity hospital.

Developmental history. The age at which the child passed the normal milestones of development is then determined, although mothers often find difficulty in recollecting

these facts. In the case of a baby or a retarded child the information must be detailed, whereas in other children it may be necessary to check only that the patient walked and talked within the normal period. When trying to establish whether the child is likely to have suffered brain damage at the time of birth or immediately afterwards, a number of questions may assist. The mother may know that special resuscitation measures were required or that he was nursed in an incubator for the first few days. She should be asked when she was first permitted to handle him: was he immediately placed in a cot beside her bed or was he kept in a special nursery for the first few days? Were there any feeding difficulties such as vomiting or a reluctance to feed? Did he require to be tube-fed? Did he become jaundiced?

The age of the baby when discharged from the maternity hospital is a good indication of his early progress. The baby who had to be kept in hospital after his mother was discharged is sure to have had some complicating factors.

Immunization details should be recorded, particularly BCG, since this alters the significance of a positive tuberculin test. Checking that the child has been fully immunized should be a natural item in the medical history of every young child. No opportunity should be missed for gentle and unobtrusive health education.

An inquiry should be made into previous illnesses and, if necessary, a specific inquiry about the infectious fevers such as measles, rubella and others. These are so often forgotten by the mother or merely recorded by the doctor as 'usual childish complaints'. An absence of this detailed information is particularly irritating in the case of children in hospital when another patient in the ward develops an infectious fever. If this happens it is necessary to know at once which of the other patients are at risk and need to be isolated. A direct question should be asked as to whether the child has had any operations. Mothers often regard the removal of tonsils and adenoids as routine and forget to mention the fact.

It is wise to check on any information about allergies, particularly drugs such as penicillin, and whether he is on any regular drugs. Since some parents associate 'drugs' with narcotics it is better to ask about medicines, tablets or pills.

History of present complaint

Detailed information should be obtained about the child's illness which is recorded systematically so as to give separate paragraphs and headings to each new dateline, rather than giving the whole history in essay form. Thus:

<i>4 weeks ago</i>	Onset of cough
<i>3 days ago</i>	Sore throat
<i>Yesterday</i>	Rash
<i>Today</i>	Convulsion

On no account should days of the week be written in the history since they give no indication of the duration of the disease. A common oversight is to forget to record the date on which the examination is taking place. Care must be taken to go far enough back in the history to discover when the symptoms first began or whether similar attacks have occurred before. Related earlier illnesses, such as a recurrent sore throat in a child with

nephritis, should be given in this part of the history, whereas if unrelated they should be recorded under previous illnesses.

Specific inquiry of a number of symptoms relating to general health should be made if these have not already come up during discussion of the main complaint. These relate to appetite, bowels, micturition, sleeping habits and energy. With children of school age it is often instructive to learn how they are getting on at school and whether the mother has discussed the problem with the teacher.

Students often find themselves overwhelmed by a mass of facts by the time they have finished listening to the complaints, and unable to judge the relative importance of what they have heard. To sort out this muddle it often helps to ask a mother which complaint she would choose to mention if she were only allowed to talk about one. What is needed is to determine the basic anxiety of the parents, though this point may only be reached during the discussion which follows the examination. Many parents are frightened about the possibility of a specific disease, such as leukaemia. This usually requires a direct question.

It is also necessary to determine why the child was brought to see you on this particular day, when the symptoms have been present for a long time. The answer to this question may unearth a deep felt anxiety.

Geographical history

An inquiry should be made into the child's recent whereabouts. In these days of air travel and holidays abroad, failure to ask this simple question can lead to a deadly disease, like malaria, being overlooked. Even if the patient has not travelled in a tropical area he may have acquired a disease from contact with someone who has.

'Social history'

Although I have given this a separate heading, it should not feature as such in the child's notes. In any child's illness, social factors pervade the whole problem and may be learnt while taking the family history or any other part of the history. Family relationships and feelings play such a large part in moulding a child's behaviour that these must be understood if the child is to be helped to the full. These aspects should be followed up as soon as they are mentioned rather than being disregarded until the end because they are to be put under a separate heading termed 'Social History'.

Environment plays its part but is often over-rated to the extent that the 'social history' is merely a 'housing history'. I now spend little time asking about houses because feelings are so much more important. A mother can be relied on to bring up environmental factors such as overcrowding or damp if she considers them relevant, whereas a direct question about the number of rooms is liable to lead to a request for a certificate to take to the housing manager for rehousing! Details of the parents' financial status may be helpful, though much of this can be surmised from knowing the father's occupation and the home address.

Some children, particularly those with functional symptoms, may lead the doctor to discover a number of emotional factors within the family to account for the child's

symptoms. For example, a child's abdominal pain may turn out to be functional and closely related to the incompatibility of his parents or possibly to the recent loss of one of them. A mentally handicapped child causes severe stresses within his family and may thereby be the cause of the symptoms which take one of his siblings to the doctor. A child presenting with a minor illness may bring into the open some basic family problem, in fact the child's illness may be used as a pretext, whether conscious or subconscious, for asking advice about family illness. Sometimes it is the fear of a family illness such as tuberculosis which brings the child to the doctor (see p. 14). Clyne (1961) reviewed the reasons for night calls made by a group of GPs in London. He emphasized the frequency with which 'the child is the presenting symptom' of a disturbed family and that this call, although ostensibly for the child, is really for some other member of the family wanting advice. Moreover, the calls, although very common during the day, occurred more frequently at night.

Hopkins (1959) described one family in which, over a period of 40 months, both physical and emotional disorders (asthma, eczema, enteritis, depression, anxiety state, sinusitis, migraine, abdominal pains, influenza, bronchitis and more) recurred in different forms, being linked inextricably so that chain reactions were set off between the several members of the family. Such a report emphasizes the need to study family illness as a whole in order to uncover its causes and shows how meaningless a single episode in one of the members of this family might seem to the doctor working in isolation in the hospital or office. It is this sort of information which should be included in the GP's letter when referring a patient to hospital.

Apley (1963) uses the term 'family patterning' for many disorders which run in families, pointing out that many genetic and environmental factors in disease are inseparable, both contributing to the moulding of the individual. Preventive paediatrics must be increasingly concerned with family carriers of illness, not only in the physical field but also in the emotional, intellectual and social fields. A mother who as a child was made to worry because she did not eat as much as expected, thereby being forced to eat more, is likely to have her personal computer set so that she pressurizes her child in the same way.

It is essential to follow up all children who fail to keep their appointment with the doctor. This may unearth social as well as physical reasons for defaulting (Knox & Dugdale, 1966). It is those who refuse help who are most in need of it.

So far it has been assumed that the history has been taken from the mother or whoever is accompanying the child. But the doctor must not forget to ask the child himself about the symptoms; even the very young can give most valuable information.

With children whose diagnosis is not apparent on the first visit, especially those under investigation in hospital, it is always helpful if a repeat history is taken. The mother of a child in hospital can often give a much clearer history at the second attempt than when flustered and anxious at the time of the child's admission.

EXAMINATION

Much of the examination of a child has been taking place while listening to the parents

giving their story of the problem. A glance should tell whether the child looks well, mildly ill or seriously ill. By the time the history is finished the doctor should have formed a shrewd idea as to whether the child is developmentally normal, a routine part of every child's clinical examination. The time is also used for evaluating the parents' feelings for their child from the way they handle him. An understanding of family relationships is still more apparent if the patient is accompanied by his brothers and sisters.

Arrangements for routine measurements will vary with the preferences of individual doctors. It is usual for the nurse in an outpatient department to record the child's weight and height and to perform routine tests of the urine. If the child is frightened by being measured it is better to postpone the investigations until after he has been seen by the doctor. Parents should be instructed to bring a specimen of the child's urine with them since many children are unwilling to pass urine in the unusual surroundings of a doctor's surgery or hospital outpatient department. Routine temperature taking is usually unnecessary, this being better left to the doctor to carry out during his examination.

In childhood, inspection plays a greater part in the examination than at any other age. This has been going on throughout the taking of the history, the child being encouraged to play with toys which should be plentifully supplied in the room.

I used to have children undressed before they came into my room, but I have now stopped this since I feel it is unnatural for a child to be waiting outside half clothed. I prefer him to be playing naturally, and for this reason play specialists (p. 19) have a role in the waiting area of the outpatient department as well as in the wards.

Inside the consulting room I usually leave the mother to undress a young child since he is liable to be nervous of a stranger doing this. However, the clinging type of child will sometimes allow the doctor to help, even though he refuses to let his mother undress him. Asking a child if you can listen to his chest usually leads to his agreeing to letting you help him undress. I do not routinely have a nurse in my consulting room, but it is important that one should immediately be available for special occasions, such as helping with a hearing test.

The examination of a child cannot be systematically carried out from top to bottom as with an adult, since all those manoeuvres which are unpleasant and liable to upset the child, such as the examination of the ears or throat, must be left to the end. The doctor must be prepared to vary his routine to suit the child, and it may well be necessary to examine the back of the chest before the front, or the abdomen before the chest. This variable routine has the disadvantage that parts of the examination may be left out, but this can be prevented by a strictly systematic method of recording so that it is immediately obvious if any part of the examination has been overlooked.

Small children should, as far as possible, be examined on their mother's lap. The child can always be moved to the couch for further examination but, as this may make him cry, as much information as possible should be obtained beforehand while he is quiet on his mother's lap. If the child is asleep in his mother's arms much of the examination should be completed before he is woken up. The sleeping child may give the doctor the best chance to determine the type of respirations, the tension of the anterior fontanelle and to examine the heart, abdomen and fundi. A crying baby can be quietened by being given a feed.

It is best to examine an older child standing up first, since some will be frightened by being made to lie on a couch even though later they will agree to it. An examination of the hands makes a good starting point (Fig. 1). It is unlikely to upset the child who will already be used to seeing adults shake hands, and has the advantage of ensuring that this important examination is not forgotten. A great deal of information can be obtained from the hands, including simple observations such as whether they are unnecessarily dirty or whether the nails are bitten.



Fig. 1. Examination of the child starts with the hands.

Babies and toddlers are easily upset and should not be stared at, since this causes them to lose confidence and cry. It is always wiser to look at the centre of a baby's forehead than to stare him in the eyes. A young child may be made to feel more at home if the doctor keeps up a 'running commentary' during his examination. The doctor asks questions as he goes along but if the child fails to answer one he should immediately pass on to another. A child can become acutely embarrassed by the silence after the doctor's question and start to cry, whereas he may be reassured by the doctor's ceaseless chatter, thereby being prevented from crying. A child who has been crying during the examination will usually stop when he is being dressed. If the manoeuvre of reclothing is drawn out, much valuable time, without crying, can be gained for further examination while his mother is slowly replacing his clothes.

In the examination of the chest, auscultation should precede percussion since the latter is more likely to upset a child. A diaphragm type of chest piece has the advantage that it can be slid from place to place more easily than the bell-end, thereby causing less

disturbance, though there are occasions in listening to an abnormal heart when a bell-end is essential. If the child is fretful his confidence can often be gained by pretending to examine his mother's chest first. He is also more likely to accept the stethoscope if the end is first placed on his arm. If the end of the stethoscope is cold it should be warmed in the hand before use.

A mother will be watching every movement and facial expression that a doctor makes during his examination, in an attempt to sum up what he is thinking about her child. This is particularly true when it comes to the heart where a slight frown from the doctor may be misinterpreted. I suspect that most mothers immediately become aware when a doctor finds something wrong in her child's heart.

When a child is fretful and does not permit thorough palpation of the abdomen he can often be persuaded to co-operate if the doctor places the child's hand on the abdomen and then, covering it with his own hand, palpates through it (Fig. 2). During the first year of



Fig. 2. A fretful child who refuses to stay quiet for ordinary abdominal examination will often permit palpation through his own hand.

life the liver is relatively large and can be felt about two fingers breadth below the right costal margin. Examination of the genitalia includes, in the male, checking that the testicles are correctly situated (p. 569) and in the female that there are no labial adhesions (p. 173). Insufficient attention is paid to the routine examination of the genitalia in the female but this can be undertaken without embarrassment to the child if performed with her lying on her side or in the knee-chest position by asking her to lie on her tummy with her bottom in the air.

Rectal examination, if required, should always be left to last and, in carrying this out, the tip of the index finger should be pressed flat against the edge of the anus before insertion (Fig. 3). This method causes much less discomfort than insertion direct into the centre of the orifice.

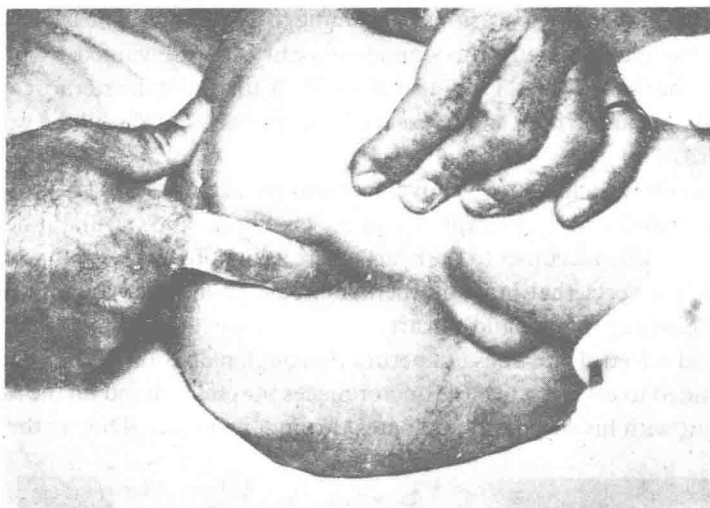


Fig. 3. Rectal examination. The finger is pressed flat against the posterior half of the sphincter before entering, rather than being inserted directly into the centre of the anus.

In the examination of the central nervous system a great deal of time should be given to watching the child in action during spontaneous activity and play. It should be routine to check the development of every child being examined (for details see p. 221). Illness may prevent a proper assessment of development in which case the child must be rechecked when he is well. Much of this observation will have been accomplished while taking the history from the mother. In a child much more is learnt of neurological function by observation than by the use of the patella hammer, although this is still a necessary part of the examination. For example, if the legs are seen to perform normal reciprocal movement, spasticity can be excluded.

The more the child is made to feel that the examination is part of a game the more will he co-operate. Thus a formal examination for neck stiffness, as in an adult is almost certainly doomed to failure and may give a false impression of rigidity as a result of the child's fear. However, a request that he should kiss his knee, an easy task for a normal child (Fig. 4), is much more likely to meet with success. If he does not co-operate in this manoeuvre you can try to get him to look at his teddy bear on the floor or to watch an object fall off his bed.

Hand movements and grasp are observed when small objects are picked up. The repeated use of the same test material makes for accuracy of assessment, for example wooden spatulae are always at hand and young children enjoy being given them to play with. The newborn baby will grasp a spatula placed in the hand because of the normal grasp reflex (p. 242). At this age the infant takes no notice of the spatula and once the grasp reflex has disappeared, which happens in about the third month of life, the spatula is soon dropped. However, by 4–5 months of age he will grasp it because he wishes to do so, though he is likely to use both hands together. At this age, when offered a second spatula,