

When my mother was a baby in southern Italy it was accepted practice to swaddle infants until they were six months old, completely restricting movement in their legs. The idea was that it straightened babies legs; for similar reasons they weren't allowed to crawl. Before you think my mother is Methuselah, this was as recently as nineteen twenty. The practice seems quite barbaric to us; we flatter ourselves that we've progressed since then. But are we as progressive as we think? Or are there other areas today where we might still be cramping our babies' style?

One area which we might still be neglecting is the mental capacity of infants. We tend to think of small babies like plants: for the first few months they do nothing but grow. Because their signals aren't always clear to us it's easy to dismiss them as unresponsive. But as Professor Trevarthen of Edinburgh University, a leading expert on infant development, points out, it's odd that human newborns have huge brains if they are not expected to use them.

Research in infant psychology is now proving that not only do newborn babies use their brains, but they do it in a highly organized way. One of the fallacies now being demolished is that newborns are not 'intentional' creatures - in other words that they are guided by instinct; they don't decide to do a thing and do it. But Dr. T. Berry Brazelton in the U.S.A. has found babies as young as three weeks old deliberately reaching out to touch an object, and he has listed a whole range of methods by which they will attempt communication. A newborn baby of only one week old will pull or turn away deliberately if you do something that he doesn't like; on the other hand he'll brighten and turn to face you if he is interested in what you are doing, and when his interest has been really captured he'll make a positive effort to maintain eye contact.

It's hard to see these responses as accidental; the baby clearly means to be understood. If you do something and he turns away, the message he is giving you is "Stop!" On the other hand if he likes what you're doing, he'll show it by a positive response. In other

words, within his narrow limits, he's doing what all human beings do; communicating by his expression and gesture his views about the present situation.

This seems to do away with the old assumption that newborns cannot tell objects from people. Newborns have clearly shown, in different settings, that they respond quite differently to people. In an experiment by Dr. Genevieve Carpenter at St. Mary's Hospital in London newborns from a week up were shown three different "faces" in an opening: one was their mother's, one a shop dummy's, and one a colander with artificial features. By two weeks old the infants saw a difference; they looked for longer at the unreal faces. Dr. Carpenter was surprised by their reaction; she had thought they would look longer at their mothers. Perhaps the sight of them in a strange setting confused the babies and made them turn away. Whatever the reason it proved the central point: they knew there was a difference between them.

This leads us to an interesting question: how a newborn can recognise an object. Without associations of time and place what frames of reference can he be applying?

The latest research into this complex area has thrown up some astonishing results. One of the things all children have in common is that they are incurable copycats. Studies of newborn infants have now shown that babies no more than a few hours old can imitate their mothers' facial expressions - eg suggesting surprise, fear or sadness - and at a month, after a little effort, can even copy her sticking out her tongue.

How can they do it? How do they find the muscles? Researchers think they have a mental map, which corresponds to the pattern they see. In other words the pattern of mother's features triggers a sensory echo in their brain which helps them bring the right muscles into play. This may explain their fascination with faces: it stems from the delight of recognition.

Tom Bower at the University of Texas, a pioneer in this particular field, thinks babies respond to form rather than content. It is the interplay between his mother's features which strikes a chord with the newborn infant. What he takes in is not her face as such,

but how her features combine together in movement. In other words he's less concerned with objects than how those objects relate to one another.

To test this theory Bower staged an experiment showing babies a human face with the features sketched in with spots of lights, rather like a simplified dot to dot picture. When in repose the face got no reaction. But when it widened its mouth or opened its eyes, babies as young as three days copied it.

Bower obtained some other startling results with a contraption called the Sonic Guide. Newborns will flinch if an object comes too close; Bower wanted to test the babies' responses if the object was heard rather than seen. In an dark room an object was moved towards them, ending by lightly touching the babies' faces. A sound was played to track the object's movement - as it came closer it decreased in pitch. The infants very soon learned to use the guide, and flinched before the moving object touched them.

The evidence of this test is conclusive: not only can babies interpret complex signals, but they can apply their knowledge in different areas. Babies no more than a few weeks old can cross-reference from one sense to another. Astonishing proof of this was recently given in an experiment with babies' dummies. A sample of three week old babies was blindfolded and given one of several dummies to suck. When the blindfolds were taken off the babies could pick out their dummy by sight.

For anyone who thought that babies just ate and slept these results must come as a revelation. But what can we learn as parents from these findings?

One moral is, don't look down on your baby. His little head is very far from empty; it's positively buzzing with ideas. Another is, respect his body language. If he turns away when you'd like his attention, he may be saying: "Not now. Later. I'm busy." A third is, be aware of your importance. If the conclusions of modern research are right babies first become familiar with the outside world by learning how things relate to one another. And what model do babies have to work from? Their first relationship - the one with you.