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# Emotional Development in Early Infancy

KATHARINE M. BANHAM BRIDGES

THE emotional behavior of 62 infants in the Montreal Foundling and Baby Hospital was carefully observed and recorded daily over a period of three or four months. The circumstances attendant upon these reactions were noted, and the whole data was studied from the point of view of development from age to age. A summary of the findings will be presented in the following paragraphs. They will be seen to lend support to the writer's (2) (3) theory of the genesis of the emotions and to add further illuminating detail.

The babies under observation were in separate wards more or less according to age. In different rooms were infants under one month, one to three months, three to six months, six to nine months, nine to twelve months, and twelve to fifteen months. An older group of children between fifteen and twenty-four months of age played together in the nursery.

Table 1 shows the number of children at the different ages whose behavior was observed for this study.

Development in the emotional behavior of the young child comprises 3 main classes of change. From birth onward there is a gradual evolution of the emotions taking place. The earliest emotional reactions are very general and poorly organized responses to one or two general types of situa-

tion. As weeks and months go by the responses take on more definite form in relation to more specific situations. It seems to the writer, as already mentioned elsewhere, that in the course of genesis of the emotions there occurs a process of differentiation. Coincident with the partial isolation of certain responses is a combining of the simpler reactions within the unit responses and the formation of bonds of

TABLE 1

AGE	NUMBER OF CHILDREN
<i>months</i>	
Under 1	3
1-3	16
3-6	23
6-9	18
9-12	11
12-15	20
15-18	8
18-21	5
21-24	6
Over 24	2

association between these emotional syndromes and detailed aspects of the provoking situations. In this manner slowly appear the well known emotions of anger, disgust, joy, love, and so forth. They are not present at birth in their mature form.

In addition to the progressive evolution of the emotions, there is, going on at the same time, a gradual change in the mode of response of each specific

emotion. Muscles are developing, new skills are being learned. So that the anger, for instance, expressed by the eighteen-month-old differs in detail of form from the anger manifested by the ten-month-old baby. Fresh bonds of association are being made between emotional behavior and the always slightly varying attendant circumstances. Different situations come to have emotional significance for the growing child and subsequently provoke emotional responses. Thus a gradual substitution takes place of the situations which prompt the emotions. In the language of the behaviorists, emotional responses become conditioned to fresh stimuli.

#### EXCITEMENT, THE ORIGINAL EMOTION

After observing the behavior of babies *under one month* of age, the writer felt more than ever convinced that the infant does not start life with 3 fully matured pattern reactions, such as have been mentioned by behaviorists and named fear, rage and love. Unfortunately the writer was not able to observe the infants within a few hours of birth, but this fact in no way invalidates observations made on children two or three weeks old. Moreover, if the above named emotional responses are really the 3 great primary emotions from which all our adult emotions are derived, surely they may still be observed a month or more after birth. And, even if the process of conditioning begins before or immediately upon birth, one may expect the original emotion-producing stimuli to elicit their natural responses at least for two or three weeks after birth.

It was observed in the hospital that, on presentation of certain strong stimuli the infants became agitated, their arm and hand muscles tensed, their breath quickened, and their legs made jerky kicking movements. Their eyes opened, the upper lid arched, and they gazed into the distance. The stimuli producing such agitation or excitement were: bright sun directly in the infant's eyes, sudden picking up and putting down on the bed, pulling the child's arm through his dress sleeve, holding the arms tight to the sides, rapping the baby's knuckles, pressing the bottle nipple into the child's mouth, and the noisy clatter of a small tin basin thrown on to a metal table whence it fell to the radiator and the floor.

The loud sound startled only four of the one- and two-month-old babies, while six others lay practically undisturbed. None of the infants cried after hearing the noise. The same experiment was tried upon children of successive ages up to fifteen months. Under two or three months the reaction was one of sudden but rather mild general excitement as described above. Children of three or four months and older gave more of a jump and looked definitely in the direction of the sound. Afterwards they remained still with eyes and mouth open, and stared towards the source of the commotion. One baby of eight months stiffened and turned away on the second trial. The corners of his mouth turned down, his eyes moistened and he looked to the adult for sympathy and comfort. Another child of eleven months sat wide-eyed and still, the corners of his mouth drooping as if he were ready to

burst into tears. The older children merely stood, or sat, alert and attentive without further sign of distress.

Lowering the babies suddenly into their cribs, and in some cases lifting them quickly, also startled and excited them. Sometimes they would cry following upon such a surprise. Rocking a quiet child would cause him to open his eyes attentively. But gently rocking a crying infant would often, though not always, cause him to reduce his activity, stop crying, and eventually become tranquil. Gentle handling, slow patting, wrapping in warm blankets, and nursing easily soothed an agitated or crying infant, making him relax and yawn and become sleepy.

Light pinching of the arm left the three- or four-week-old baby unmoved. Deeper pressure caused him to kick slightly, breathe faster and move his arms. A sharp flick on the hand produced similar agitation, but a second rap resulted in a sudden check to breathing followed by a prolonged cry and other signs of distress. The first exciting experience had been found disagreeable and the second rap produced unmistakable distress.

Time after time on waking suddenly from sleep the infants were observed to wave their arms jerkily, kick, open and close their eyes, flush slightly, and breathe quickly and irregularly. Some grunted, some cried spasmodically for a moment or two, while others cried loudly for several minutes. The combined stimulation of light, of sounds, of damp or restricting bed clothes, and the change from sleeping to waking breathing-rate seemed to produce a temporary agitation and often distress.

Waking apparently requires emotional adjustment.

The hungry child before feeding would often show restless activity, waving, squirming, mouthing and crying at intervals. The infant who had been lying in one position for a long time and the tired child before falling asleep would also show emotional agitation. Their breath would come jerkily, uttering staccato cries of "cu-cu-cu-ah," and they would thrust out their arms and legs in irregular movements. At the moment the nipple was put into the hungry baby's mouth he again breathed quickly, occasionally cried, waved the free arm, and kicked in excited agitation.

The emotional reactions of the tiny infant are certainly not highly differentiated. The most common response to highly stimulating situations seems to be one of general agitation or excitement. It is a question which word most aptly describes the behavior. The former perhaps conveys more the idea of general disturbance, although the two words are often used synonymously. This vague emotional response to a large variety of circumstances must surely be one of the original emotions, if not the only one.

A kind of general excitement over new and startling or other highly stimulating circumstances may be seen at any age. The behavior manifestations vary from time to time, but the main characteristics of accelerated response, alertness, slight tension or restlessness remain as constant attributes. In the babies, excitement is frequently manifested in kicking movements. The month-old infants kick jerkily with both feet at random. In

another month or so, the kicking becomes more regular, the legs being thrust out alternately. By five or six months the babies express their emotions in combined leg thrusts, kicking with one foot, and in swinging the legs from the hips. At fourteen months when the children can stand they will hold on to a support and "mark time" with their feet or stamp. Stamping, jumping and running express excited agitation at a still later age.

Two- and three-month-old babies may be seen to suck their thumbs or fingers rapidly in moments of stress. At seven months and over, children bite, pull and suck their garments, as well as their fingers. This behavior seems to produce a gradual subsidence of the emotion. Body-rocking accompanied in many instances by rhythmic vocalizations is another expression of mixed emotion. Hungry, annoyed, excited or restless children will sit and rock for minutes on end. The five-month-old baby lies prone and pushes with his knees, or sways when lying dorsally. Seven-month-old infants support themselves on their arms and rock back and forth murmuring "m̄m-ūm, m̄m-ūm." After nine months they sit up and rock to and fro, or they kneel and bounce up and down holding on to the crib bars. Sometimes they sit and bump their backs against the side of the crib. This kind of behavior was observed in the nursery up to eighteen months of age.

Rhythmical movements were observed not only to be the outcome of emotional excitement or tension, but they were seen to have a soothing and pacifying effect. These must be attempts at adjustment on the part of

the organism to reduce tension and restore emotional equilibrium or tranquility. In the light of these observations, it can be easily understood how long walks, games, field sports, singing, dancing, and sea-voyages are found to be so universally health-giving and positively curative for "nervous wrecks."

#### DISTRESS AND ITS DERIVATIVES

It is a moot question whether "distress" is an original emotion or whether it is a very early differentiated reaction to disagreeably painful and unsatisfying experiences. It may be that it is a part of the general emotional response of excitement which copes more satisfactorily with obnoxious stimuli. Tense muscles resist or remove pressure; activity warms a chilled body and reduces tension; and cries, at first reflex due to the rush of air in and out of the lungs, bring comfort and aid. These responses become differentiated from excitement, associated together and conditioned to the disagreeable stimuli as a result of experience. If such differentiation actually takes place, it must begin immediately after birth. For the two emotions of excitement and distress are already distinguishable in a three-weeks-old infant.

On the other hand, it is possible that there is a native emotional response to pain, particularly muscle pain. The sympathetic branch of the autonomic nervous system is predominantly active and the overt behavior is definitely that of distress. Other stimuli, such as loud sounds and sudden falling merely produce startled excitement. Blanton (1) observed that the infant's cry of colic had a specially shrill char-

acter accompanied by rigidity of the abdominal walls. She also noted that infants during the first days of life cried from "(1) hunger; (2) in response to noxious stimuli (including rough handling, circumcision, lancing and care of boils, sores, etc.); and (3) possibly fatigue or lack of exercise." The writer has observed the same phenomena in three-weeks-old babies. But, hunger, rough handling, and fatigue were also noticed on many occasions to produce a restless excitement rather than specific distress.

It is not easy, in the case of the very young infant, to distinguish distress from general agitation. Perhaps the most characteristic marks of the former are greater muscle tension, interference with movement and with breathing, closing of the eyes, and loud rather high-pitched crying. In children of two months and over, the eyes become moist and tears may flow. The crying of the infant *under a month* or even six weeks often seems to be part of the general activity in excitement. Breath comes more or less regularly, the cry emerging on both intake and expiration of air. There are no tears, and the skin does not flush. Movement is free though rather jerky; and the mouth is held open in an elliptic, round, or square shape.

The cry of distress, recognizable in the *month-old* baby, is irregular. There are short intakes of breath and long cries on expiration. The eyes are "screwed up" tight, the face flushed, the fists often clenched, the arms tense, and the legs still or kicking spasmodically. The mouth is open and square in shape or, more usually kidney-shaped with the corners pulled down.

The pitch of the cry is high and somewhat discordant, and sounds something like "ah, cu-ah, cu-ah, cu-æh."

Cries of distress were heard from month-old babies in the hospital on the following occasions; on waking suddenly from sleep, struggling to breathe through nostrils blocked with mucous, when the ears were discharging, when lying awake before feeding time, after staying long in the same position, lying on a wet diaper, when the child's buttocks were chafed, and when the fingers were rapped. The three main causes of distress at this age, therefore, seemed to be discomfort, pain, and hunger.

Crying from discomfort and on awakening usually developed slowly, and sounded like "cu-cu-cu-cah-ah—." The cry of pain came suddenly, often after a holding of the breath. The sound was a loud shrill prolonged "ă-ă-ă," and lowered in pitch slightly from the first emission. The cries of hunger were rather like those of discomfort. The former came perhaps more in intermittent waves; the intervening moments being taken up with mouthing or sucking movements. Occasionally the hungry child would utter a sharp loud cry, as if in pain, and then whine or moan for a time.

*Two-month-old* babies cry less of the total waking time; but slighter discomforting stimuli seem to cause distress more frequently than in the case of the younger infants. They are more disturbed by a wet diaper, by flatulence, and by tight clothing which restricts movement and makes breathing difficult. Their movements are freer and they tend to move their heads from side to side when they

are distressed. While one-month-old babies kick irregularly with jerky movements, the two-month-old kicks his legs alternately and more regularly. He waves his arms up and down when agitated or distressed, as well as in spontaneous play. The sound or sight of an approaching person will not quiet his distress; but being picked up will do so, or being fed if he is hungry.

By *three months* of age a child will cry and show other signs of distress when placed in an unusual position or moved to a strange place; as, for instance, when lain temporarily at the foot of another child's bed. He will wave his arms laterally as well as up and down, and will kick more vigorously. The hospital baby has learned to associate feeding time with the presence of an adult; for, when he is hungry he shows some excitement at the close approach of a person. He stares at the person's face, waves, kicks, breathes faster, and opens his mouth. If no food is forthcoming, he becomes more tense and jerky in his movements and begins to cry. He is distressed at the delay in normal proceedings.

Should the adult remain tantalizingly near for some minutes without either picking up the child or feeding him, his cry increases in intensity, his eyes become moist with tears, he holds his breath longer, and utters prolonged flat "ă-ă-ă" sound reminiscent of an older child's "paddy" or temper cry. The infant's motor responses were all set for being picked up and fed, and then he was thwarted and disappointed. His excitement changed into bitter distress with a semblance of angry vexation.

The slight change in vowel sound of the cry, the long holding of breath combined with more than usually vigorous leg thrusts and arm movements, seemed to suggest that the emotion of anger is beginning to evolve from general distress at about this age. Although for the most part the distress shown at discomfort differs almost imperceptibly from distress in response to disappointment, occasionally the latter includes, to a marked degree, those behavior elements peculiar to the emotion of anger. The situations which evoke these demonstrations of temper in the tiny infant are a stop or check in the progressive satisfaction of a physical need. In the above instance the child's appetite was aroused but not satisfied. Lack of even the first sign of a need being satisfied merely produces vague distress.

A *four-month-old* baby shows distress at the same general sort of situation that troubles the younger child. He is, however, less frequently disturbed by bodily discomfort. He moves about sufficiently to relieve tired muscles and local pressures, and to eliminate gas from his stomach. He cries vigorously at delay in the feeding process and may show decided temper on such occasions. His arms then stiffen and tremble; he screws up his eyes, flushes, holds his breath and utters prolonged and irregular cries on expiration of breath; he kicks violently, pushes with his feet and looks at any adult, presumably to see the effect. He is getting very fond of attention at this age, and will show distress and often anger when a person leaves the room or ceases to pay attention and play with him.

At *five months*, the baby's interest in small objects, such as rattles, stuffed animals and, of course, his milk bottle, causes him to be distressed when these objects are removed. He may express his displeasure as formerly by crying, squirming, waving and kicking, but he may also be heard merely to call out in a protesting tone of voice, "ah aye," without the half-closing of the eyes and the accompanying tensions of crying.

By this age the child may show slight revulsion for certain foods, coughing, spluttering, frowning and crying while he is being fed. Chopped vegetables and soup too thick in consistency were specially disliked by some babies in the hospital. Cereals, milk, and sweetish foods were almost always taken readily. It was noted that babies under three months often refused to drink sterile water. They just let it run out of their mouths without swallowing. There was no emotion involved in this reaction. Similarly, three- and four-month-old babies sometimes rejected their thin vegetable soup, but were not very disturbed about it. A genuine emotional revulsion did not appear till five months or later. Perhaps this is the beginning of the emotion of disgust. Revulsion at nauseating sights and smells, the adult form of disgust, apparently does not develop until two or more years of age.

Several of the babies in the hospital *between six and eighteen months* were observed to splutter and choke, and refuse to swallow spinach more than other vegetables. The mouthfuls that were rejected were usually, though not always, those containing large or

stringy pieces of spinach. When the latter was chopped fine it was swallowed a little more easily; but only when it was mixed with other vegetables was it eaten without any protest. There must be factors other than consistency and size of morsel to account for this objection to spinach.

It seemed to the writer that some cans of spinach tasted more bitter than others and were less palatable on that account. In order to find how the children would react to a bitter taste, two teaspoonsful each of unsweetened grape-fruit juice were given to nine children in the nursery. Four of them pursed or curled their lips, 1 turned his head away, and 1 frowned. The others sat still and solemn, and kept tasting their lips attentively for some time. There were certainly individually different reactions to this bitter-sour, astringent taste. Several of the children definitely disliked it and none of them seemed to like it. It is possible then that there is a bitter taste to spinach which may in part account for children's aversion to it. Another factor, that of the dark green colour of spinach may influence older children's and adult's feeling reaction towards it. One two-year-old in the hospital on turning away and refusing to eat the vegetable was seen to point to it and say "dirty."

The *six-month-old* baby's attention is usually arrested by the presence of a stranger. His movements are inhibited and he watches the newcomer intently. He is not pleased and one could hardly say he is afraid. But he seems diffident and uncertain what to do, or utterly unable to move for a few moments. At seven months he reacts

in the same way to the approach of a stranger, though the general inhibition of movement is greater and lasts longer. After a few moments or several seconds of tension he may begin to cry slowly, or burst suddenly into tears. The whole body is usually rigid and inactive. The eyes, previously wide open, close tight and the head bends. Should the stranger touch the child he will probably turn or draw away. Here is the emotion of fear already differentiated. Frightened distress results when the child through inhibition, ignorance, or inability finds himself unable to respond at all adequately to the situation.

At *seven months* of age an infant calls out protestingly when a familiar person ceases to attend to him, instead of crying distressfully like a four-month-old. He still cries and kicks angrily if some object in which he was deeply engrossed is taken from him. He does so also after being highly excited by a playful adult when the latter goes away or stops playing with him. He now makes prolonged attempts to get at objects out of reach. If he fails to attain his objective he may give up and cry in helpless distress, or he may just grunt in protestation.

A *nine-month-old* child will struggle longer and make more varied attempts to reach the object of his desire. Should he fail to do so after putting forth considerable effort he may become tense and red in the face with anger. He will kick and scream and look for assistance, while tears flow copiously. The cry at this age is becoming exceedingly loud, and tears flow more readily than at the earlier ages. Prolonged crying at four or five

months is accompanied by slight lacrimal secretion, but after six months of age tears often flow down the child's cheeks as he cries, especially after an adult's attention has been attracted.

Strangers are still quite terrifying to the nine-month-old baby. His movements are more completely arrested by the unfamiliar presence than those of the six-month-old. He will remain immovable for several minutes unless the newcomer approaches very close to him. In that case he will lie face down or bend his head and probably begin to cry. At ten months of age he may even be so frightened as to flop down suddenly on the bed and scream loudly. Then follows prolonged and tearful crying.

When children of *ten months* and over are hungry, uncomfortable, tired, or fretful and unwell, they will set up a whine or cry as the result of suggestion when another child cries. They do not, however, ordinarily imitate crying when they are occupied and happy. Under these circumstances they may call or babble in a pitch similar to that of the other child's cry. Small objects which can be manipulated interest them so intensely that they can be distracted from a distressing trouble fairly easily at this age. These objects need not necessarily be new so long as they are freshly presented.

*Year-old* babies often cry suddenly when they feel themselves falling, or when they lose their grip while climbing. If they miss the assistance of a helping hand they will also sit down and cry loudly. Sometimes their emotion is anger at the thwarting or failure of their endeavors. They scream, flush, and tremble in rage. At other

times they sit motionless in fright and look for aid or comforting sympathy. When strangers approach the *twelve- or thirteen-month-old* baby he may hold his hand behind his ear in a withdrawing motion and stare apprehensively. He may actually hide his eyes behind his hands or look away so as not to see the awe-inspiring or annoying intruder.

At *fourteen months* or thereabouts we may see the real temper tantrum. At least, that is the age when it became noticeable in the hospital. If a child is not given his food or a coveted toy exactly when he wants it he may respond by throwing himself suddenly on the bed or floor. He then screams, holds his breath, trembles, turns red, kicks or thrusts his feet out together. Tears flow and he will wave away anything that is not the desired object. These outbursts may occur frequently for a few weeks, or only spasmodically for another year or eighteen months. The children under observation seemed to have their "off-days" when they were fretful and easily distressed or roused to anger. Such days were usually when they were incubating or recovering from colds, when the hospital routine was disturbed, or after the children had been excited by parents' visits.

Distressful crying becomes less common as the months go by. Extreme hunger and weariness after a long day or great activity may be accompanied by whining and intermittent outbursts of tears. Anger is expressed more in protesting shouts, pushing and kicking, but less in tearful screaming. So long as adults are present, however, the interference and rough handling

of another child may bring forth cries and tears. A *fifteen-month-old* may show his annoyance by hitting a child who has taken his toy or who is holding on to the thing he most wants. He may even bite him or pull his hair without a preliminary scream or shout.

The attention of familiar and interested adults is much sought by children of *fifteen to eighteen months*. If such attention is given to another child there may be signs of deep distress. The neglected one may stiffen, stand motionless, bend his head and burst into tears. Here is perhaps the beginning of jealousy, distress at the loss of, or failure to receive, expected attention and affection. Some children will show aggressive annoyance when another receives the attention they covet. They do this usually by hitting the envied child.

A *twenty-one-month-old* child will show less mistrust of strangers than will a younger infant. He may, however, run away and watch the newcomer for a time at a safe distance. After eighteen months he shows anger at adult interference by obstinate refusal to comply with their requests. He may shake his head and refuse either to be fed or to feed himself. At two he will play with his food, throwing it about instead of eating it, as a spite against some offending or scolding adult. Distress is shown chiefly at pain and acute discomfort, though the child will cry miserably at much less discomfort if a sympathetic adult is close at hand.

The children in the nursery group, *between fifteen and twenty-four months*, were more or less unconcerned when being undressed for the annual physical

examination. This part of the procedure was familiar and not unpleasant. Several of the children cried and stiffened somewhat when placed on the table in the examining room. One or two continued to show distress throughout the examination. Others smiled cheerily at the attendant nurse or the doctor, until they felt sudden and unexpected local pressure. All of the children cried at some time during the procedure. The most distressing events were when a flashlight was thrown into the eyes, and when the throat and ears were examined with the aid of the usual tongue-depressor and otoscope. The children had to be held firmly and their movements curbed during these operations.

It was patent to the observer that the children were undergoing rather different emotions according to their fast-developing individual idiosyncracies. Some were mainly startled and afraid, their movements were paralyzed. Some seemed to be just generally distressed at the unusual proceeding and the discomfort; while others were chiefly annoyed at the interference with their freedom. Several children showed signs of all three emotions. These individual differences probably have their foundation in variants in the physical constitutions of the children, both hereditary and acquired. They are certainly very much determined by the particular experiences the infants have gone through since their birth. A continuous study of behavior week by week reveals the actual differentiation and consolidation of individual traits of temperament.

Two or three of the nursery children

over fourteen months developed fears for specific objects or persons. Toy animals that squeaked frightened one or two, causing them to draw away, stare wide-eyed and perhaps cry. This squeak could hardly be called a "loud low sound" such as Watson (4) describes as one of the original fear-producing stimuli. The sound is, however, rather unusual and comes at first as a surprise to the babies. One child was afraid of a particular aggressive little boy. No doubt he had gone up and hit her unexpectedly some time when the nurses were not watching. One youngster showed fear of a dark grey dog with a rough fur, rather different from the soft teddy-bears and other stuffed animals in the nursery.

Parents often remark how their children may suddenly show fear of some surprisingly trivial and inoffensive object. The answer to this may be found in certain partial associations with disturbing events of the past. It may also be found in the particular mental set of the child's mind and body when he came in contact with the object. He may have become suddenly aware of its presence and perceived it as an unwelcome intruder upon an entirely different line of thought or action. Still another phenomenon may account for the peculiar fears and objections of children. Timid behavior may be actually learned and preserved as a social asset, one of the numerous means of drawing attention.

The nursery child who cried and crawled away after touching the rough-haired, stuffed animal was flattered with the attention of all the adults in the room. A nurse brought the dog

up to the child, smiling and saying "nice doggie." He looked up at her face, saw her kindly smile, then bent his head and began to whimper again. Another nurse laughed appreciatively as he put his hand to his eye, and tried to coax him with a toy cat. He turned away quickly, cried out again, then looked up to see the effect on the adults. He was having a delightful time out of his apparent fear.

#### DELIGHT AND ITS DERIVATIVES

Delight is much later in becoming differentiated from general excitement than distress. The baby under a month old is either excited or quiescent. Gentle stroking, swaying and patting soothe him and make him sleepy. When satisfied after a meal he is no longer excited nor even distressed by hunger. And yet he is not positively delighted. He is just unemotionally content, and either tranquil or busy mouthing and staring at distant objects. When he is *over two weeks old* he will sometimes give a faint reflex smile upon light tapping at the corners of his mouth. This is hardly an emotional response.

*One- and two-month-old* babies cry and kick from hunger before they are fed, rather than show delight on presentation of the much desired food. They become calm, however, immediately when given their milk, but not at the mere approach of the adult who brings it. At two months infants will give fleeting smiles upon being nursed, patted, wrapped warmly, spoken to, tickled, or gently rocked. Perhaps this is the beginning of the emotion of delight.

By *three months* of age the emotion of delight is becoming more clearly dif-

ferentiated from agitated excitement on the one hand and non-emotional quiescence or passivity on the other. The child kicks, opens his mouth, breathes faster, and tries to raise his head upon sight of his bottle. He gives little crooning sounds when being fed, nursed or rocked. He smiles when an adult comes near and talks to him; and he will even stop crying momentarily at the sound of a person's voice. He may also show delight in distant moving objects. One baby in the hospital, for instance, lay and watched the moving leaves of the creeper on the window for a minute or two at a time. Her eyes were wide and her mouth rounded and open. At times she would breathe fast, or inspire deeply, and utter murmurings of "uh-uh-uh." Her arms would wave up and down and her legs kick alternately.

The chief characteristics of delight are: free as against restrained movement; open eyes and expansion of the face in a smile as contrasted with the puckering of the forehead and closing of the eyes in distress; body movements or muscle tension of incipient approach rather than withdrawal; audible inspirations and quickened breathing; soft, lower pitched vocalizations than those of distress or excitement; more or less rhythmic arm and leg movements; prolonged attention to the object of interest; and cessation of crying. Although behavior varies in detail from child to child at successive ages, delight is always recognizable from certain general types of response. Free and rhythmic movements, welcoming and approaching gestures, smiles and vocalizations of middle pitch are most common features.

A *four-month-old* baby laughs aloud

when some person smiles and frolics with him. He smiles in response to another's smile and even when anyone approaches his crib, whether they be strangers or not. He spreads out his arms, lifts his chin, and tries to raise his body in approach to the attentive person. He takes active delight in his bath, kicking and splashing the water. Food, though sometimes welcomed eagerly, is often neglected for the more interesting attendant who talks and smiles at him.

At *five months* a child vocalizes his delight in sounds of "uh-uh-ung" in addition to waving, laughing, kicking and wriggling around. He shows special interest in small objects that he can handle and explore. Musical or noisy rattles are popular at this age. When hungry he kicks, breathes fast, and calls out eagerly at the first sign of the person who brings his food. His smiles are more transient, however, and his movements less vigorous on approach of a stranger.

By *six months* of age a child will reach towards a familiar person but will lie still and observe a stranger dubiously. He crows and coos frequently, taking pleasure in his own movements and sounds. In the hospital the babies of this age would watch each other through the bars of their cribs, sometimes laughing and kicking in response to the sight of the other's movements. They would swing their legs rhythmically when lying on their backs, or sway sideways when lying prone.

A *seventh-month-old* baby is becoming increasingly interested in small objects and in the act of reaching and grasping those close at hand. He will

even struggle to attain things somewhat out of his reach. When his efforts meet with success he often smiles, takes a deep breath and expresses his satisfaction in a sort of grunt. After a moment or two spent in examination and manipulation of the object, he goes exploring again with fresh vigor. Possibly this is the beginning of the emotion of elation, exhilarating pleasure in personal accomplishments. Resting periods, after the delightful satisfaction of feeding or explorative activity, are often taken up with a rhythmical rocking back and forth, the child supporting himself on his hands and knees.

At *eight months* of age the child seems to take more delight than ever in self-initiated purposeful activity. He babbles and splutters and laughs to himself. Especially does he seem delighted with the noise he makes by banging spoons or other playthings on the table. Throwing things out of his crib is another favorite pastime. He waves, pats, and coos, drawing in long breaths, when familiar adults swing him or talk to him. He will watch the person who nurses him attentively, exploring her, patting gently, and often smiling. Here are perhaps the earliest demonstrations of affection. The child will also pat and smile at his own mirror image. But his behavior is rather more aggressive and inquisitive than really affectionate.

A *nine-month-old* baby is very popular with adults. He laughs frequently, bounces up and down and tries to mimic their playful actions. He pats others babies exploratively but does not show particular affection for them. Strange adults may frighten him at

first. But, after studying them for some time in the distance, he will smile responsively and join in play with them. By *ten months* of age the child is taking more interest in other babies. He will mimic their calls and even their laughter. The hospital babies of this age would pat and bang and laugh in imitation of each other.

An *eleven-month-old* baby takes great delight in laughter, not only his own but that of another. He will laugh in order to make another child laugh, then jump and vocalize and laugh again in response. At twelve months of age he will repeat any little action that causes laughter. He is becoming increasingly affectionate. He puts his arms around the familiar adult's neck, and strokes and pats her face. Sometimes he will actually bring his lips close to her face in an incipient kissing movement. He looks eagerly for attention; and may stand holding a support and changing weight from one foot to the other in rhythmic motion, as a solace when neglected.

Between *twelve and fifteen months* a child usually learns to walk with a little help. This performance, though often accompanied by panting and tense effort, causes great delight and even elation when a few steps have been accomplished. The child calls out, smiles and waves ecstatically (i.e. rapidly or jerkily). Without further encouragement from adults, he will then set out again with renewed fervor. When attentive adults are too enthusiastic in their appreciation, the little one may become positively tense with excitement. His efforts may consequently meet with less success, and then he cries in vexatious disappointment.

There is already a noticeable difference between the responsiveness of different *fifteen-month-old* children to demonstrated affection. Some children come readily to be nursed and petted, others require a little coaxing. One or two will kiss back when kissed, while others merely cling closely to the adult caressing them. At this age the children begin to show definite affection for each other. They take hands, sit close to one another, put their arms about one another's neck or shoulders, pat and smile at each other. Eighteen-month-olds will also jabber nonsense amicably together. Again, with regard to playmates as well as adults some children are more affectionate than others.

These variations in affection no doubt have a number of causal factors. They depend upon the child's physical constitution and his condition of health at the moment. Sick children may be very clinging and affectionate with adults, or, in some instances, refractory and irritable. They may be both by turns. Whether a child is affectionate or not also depends upon the nature of his dominant interest at the moment. Affection for a grown person depends upon the child's attitude towards adults in general; and that again is largely a matter of the amount of fondling or scolding the child has received. Affection for other children is considerably determined by the agreeable or exasperating nature of chance contacts.

Between *fifteen and twenty-one months* the children find increasing enjoyment in walking and running about. They chase each other laughingly and enjoy snatching one another's toys. They come back again

and again to adults to be lifted high or swung round. The nursery slide is very popular at this age. One or two of the hospital children pulled away and watched apprehensively in the distance after the first slide. A little encouragement from the nurses and the eager shouts of the other children soon overcame their fear, and they joined the sliding group again.

Gramophone music was listened to intently by almost all the nursery children. Some of them responded by swaying or nodding motions to time. The children at this age were beginning to find individual interests in things and to express their enjoyment each in their own peculiar way. Absorbed preoccupation, tight claspings, biting, and varied manipulation of the attractive object were common expressions of interest. Some children would knock one object against another in play, some would collect things, and others would find pleasure in throwing and scattering toys about. These variations in appreciative interest in things and activities may be the precursors of the more mature emotion of joy.

Most of the eighteen-month-olds in the hospital were anxious to attract attention. They called out or came running to greet an adult. They would smile and hold out their arms to a familiar nurse in expectation of being lifted. A stranger they would watch solemnly for a while. Then they would approach slowly, touch and explore her clothes, or hit and watch for the effect. The children seemed to recognize their nurses at this age, whether the latter appeared in uniform or not. Babies of seven to twelve

months, however, would sometimes turn away in fear or hostility when the nurses approached them wearing outdoor clothes.

Slight preferences for certain nurses were noticed as early as six months, but definitely affectionate attachments were observed chiefly between the ages of twelve and twenty-four months. One or two youngsters of eighteen months showed preferences for certain playmates. A twin boy and girl seemed especially fond of each other. The children would be more responsive and playful with those they liked, more delighted at their approach and very anxious to keep them close. Some children were friendly with almost everybody including strange visitors. Others showed more specific and decided likes and dislikes. When a terrifying stranger was present, some times a child would show more than usual affection for his familiar nurse, but at other times he would be restrained and aloof from everybody. Similarly when a beloved parent was nursing a child on visiting day he might be hostile to anyone else; but more often he would smile agreeably at everybody including awe-inspiring strangers.

A specific "like" does not necessarily enhance a specific "dislike" by force of contrast, though this does sometimes happen. If the disliked object threatens the satisfaction or enjoyment of the object preferred then the dislike becomes stronger. Similarly a preferred object may be enjoyed with greater intensity in the presence of, or following upon, something disliked. It is a comforting relief from distress. This effect of contrast is perhaps what

Freud terms "ambivalence." There are situations, however, where it has no noticeable effect. For instance, as cited above, a child made happy by one person may like everybody for the moment, regardless of previous attitudes towards them. A troubled child may be annoyed with everybody, even his favorite playmates. Strong emotions may thus have a decided "halo" effect.

Although children between *eighteen months and two years* of age tease and hit each other frequently, they show more affection for one another than younger infants. They not only pat and stroke fondly, but they will kiss and hug each other on occasion. The older children in the nursery group were seen to direct the younger ones' activities and point out their errors by gesture and exclamation. There was no evidence, however, of the parental affection and almost self-sacrificing care shown by four-year-olds for their much younger playmates.

Noisy activities delighted the eighteen- to twenty-four-month old youngsters. They took pleasure in tearing and pulling things to pieces and in lifting large but portable objects, such as their own chairs. They jabbered happily to each other at table. One child would repeatedly make strange noises to arouse the attention and laughter of another. With adults they would practice newly learned words and would seek to share their enjoyments. When the children received new toys in the hospital they would cling to them and guard them jealously from the other children. But they would hold them out for the nurses to share in their appreciation.

Here is a mark of trusting friendship for their kindly guardians such as the children had not yet developed for one another. They would always rather share the other child's plaything than give up or share their own.

Affection, thus, begins as delight in being fondled and comforted by an elder. It becomes differentiated from general delight and manifested in tender caressing responses at about eight months of age. This earliest affection is essentially reciprocal in nature. Spontaneous affection for adults may be seen, however, by eleven or twelve months of age. Both reciprocal and spontaneous affection for other children make their appearance around fifteen months, but they are not as strong as affection for adults.

Specific affection for the grown-ups who give special attention may be manifested as early as demonstrative affection itself, i.e. eight or nine months. These preferences persist as long as the care and attention continue. Attachments between two children were not observed in the hospital till after fifteen months of age. They were usually very temporary, lasting only for a few hours or days. The behavior of a child-friend is so much more erratic and less dependable than that of an adult. Friendships between eighteen- to twenty-four-month-old children would sometimes last, however, for several weeks. There seemed to be no preference in these attachments either for the same or the opposite sex. Little girls would become friends together, or little boys, or a boy and girl would show mutual affection for one another.

## SUMMARY AND CONCLUSION

The emotional behavior of young infants as observed in the Montreal Foundling and Baby Hospital seemed to lend support to the writer's theory of the genesis of the emotions. Emotional development was found to take place in three ways. The different emotions gradually evolved from the vague and undifferentiated emotion of excitement. The form of behavior response in each specific emotion changed slowly with developing skills and habits. Different particular situations would arouse emotional response at succeeding age-levels, although these situations would always be of the same general type for the same emotions.

The one-month-old baby showed excitement in accelerated movement and breathing, upon any excessive stimulation. He exhibited distress by crying, reddening of the face and tense jerky movements at painful and other disagreeable stimulations. But he was more or less passive and quiescent when agreeably stimulated.

By three months of age the child was seen to exhibit delight in smiles, deep inspirations and somewhat rhythmic movements when his bodily needs were being satisfied. Between three and four months angry screaming and vigorous leg-thrusts, in response to delay in anticipated feeding, were observed. A few weeks later anger was aroused when an adult's playful attention was withdrawn.

Distress and delight came to be expressed more in specific vocalizations with increasing age. General body movements gave place to precise responses to details of a situation. A

four-month-old baby would laugh aloud with delight and cry tearfully when distressed. A child of five months was seen to cough and reject foods of a certain taste and consistency in incipient disgust. He would reach towards objects that caused him delight. By six months of age he showed definite fear when a stranger approached. He remained motionless and rigid, his eyes wide and staring. It is possible that "non-institutional" children might show fear in response to other unusual or unexpected events a little earlier than this. There was little variation in the daily routine of the children under observation, and fear was a rare occurrence.

By seven months of age the child showed positive elation, and renewed his activity as a result of success in his own endeavours. At eight months he began to show reciprocal affection for adults, and by twelve months spontaneous affection. Delight was manifested in much laughter, bouncing up and down, and banging with the hand.

Between nine and twelve months of age the hospital babies would hide their heads, like ostriches, upon the approach of a relatively unfamiliar person. They would scream and become flushed with anger when their efforts or desires were thwarted; and they would cry out in fear and sit motionless after perceiving themselves falling.

It was observed that a child learns to kiss soon after twelve months of age, and by fifteen months he expresses his affection for other children. Anger over disappointment becomes more dramatic in its manifestation. The true temper-tantrum makes its

appearance roughly about fourteen months of age. By eighteen months anger at adults is expressed in obstinate behavior; and annoyance at interfering children is manifested in hitting, pulling and squealing.

Eighteen-month-olds would constantly seek the attention of adults, and take great delight in running about and making noises. One or two

ily aroused, comes to find adequate expression in a variety of actions, and delight becomes sensitive appreciation and joy in numerous pursuits. The emotions, evolve slowly, and the exact age of differentiation is difficult to determine.

A diagram showing the approximate ages of the appearance of the different emotions, as observed in the Montreal

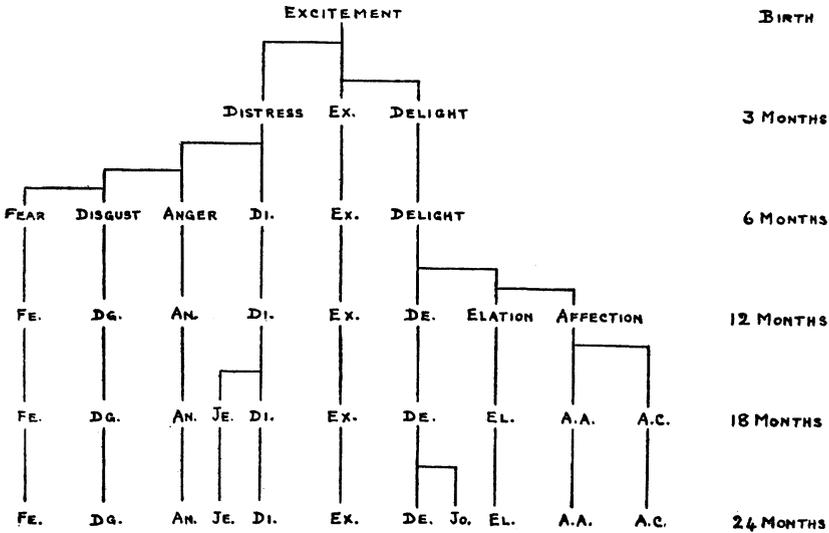


FIG. 1. SHOWING THE APPROXIMATE AGES OF DIFFERENTIATION OF THE VARIOUS EMOTIONS DURING THE FIRST TWO YEARS OF LIFE

Key: A.A. = Affection for adults, A.C. = Affection for children, An. = Anger, De. = Delight, Dg. = Disgust, Di. = Distress, El. = Elation, Ex. = Excitement, Fe. = Fear, Je. = Jealousy, Jo. = Joy.

children of this age showed depressed, and others angry, jealousy when another child received the coveted attention. A few specific fears were noticed; and several children developed particular affectionate attachments.

Thus it seems that in the course of development, emotional behavior becomes more and more specific, both as regards arousing stimuli and form of response. Distress, though more read-

Foundling Hospital, is given in figure 1. Study of a number of children in private homes might suggest a somewhat different age arrangement. Readers of the Journal of Genetic Psychology will note that a greater number of different emotions are attributed to the two year level than were suggested in a previously published diagram, (3) based on a study of nursery school children.

Emotional behavior and development are very much determined by particular events and experiences and the routine of living. It is, therefore, to be expected that "institution babies" will show some deviations in their reactions from those of children at home. The former will probably exhibit fear of a larger number of things than other children, due to their very limited experience. On the other hand, they may show greater tolerance of interference, as a result of much practice in self-control in the nursery.

They may also be more affectionate with other children, in consequence of the many happy play-hours spent together.

The daily round of feeding, washing, dressing and sleeping, however, has so many factors in common for all babies, that the observations made on the emotional development of a few hospital children, and the suggested inferences presented above, may have at least some general significance for infants brought up under other circumstances.

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