CRYING IN INFANTS AND CHILDREN*

BY

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Considering that crying is universal among children, and that the crying of children occasions so much distress to adults, there is comparatively little in the literature on the subject. In this paper I have attempted to bring together data concerning crying from my own experience and from a wide variety of sources.

How soon does a Child Cry?

He may cry before birth. There have been numerous reports in the literature about infants crying *in utero*—the so-called vagitus uterinus. King and Bourgeois (1947) collected 125 cases from the literature from A.D. 1800. According to Parviainen (1949) vagitus uterinus was renowned in fable and legend. He wrote that there are stories of it in ancient Hindu, Babylonian, Assyrian, Greek, and Roman writings. St. Bartholomew and Mahomet were said to have cried *in utero*. One child was said to have cried 14 days before birth. McLane (1933) described a case which occurred in an operating theatre. The cry was heard by all present, and a superstitious nurse spent the rest of the time on her knees in prayer. Crotty and Kuehnle (1948), in reviewing the subject, wrote that for a cry to be heard the membranes must have ruptured and air must have entered the uterine cavity. The cry may result from some manipulative procedure, or merely from uterine contractions. In the past vagitus uterinus was associated with a high foetal mortality, but it is thought (Field, 1943) that this was merely due to panic at what was wrongly thought to be foetal distress, with consequent precipitate efforts to deliver the child. The cause of crying *in utero* is unknown.

How does he Cry?

Charles Darwin was greatly interested in the manifestations of emotion in man and animals (Darwin, 1889), and went to great trouble to find out how animals in countries abroad expressed pleasure and displeasure. He wrote a very accurate account of the facial changes when a person cries. More recently Collins (1932) reviewed the literature on the subject.

Crying is normally involuntary, though some actors, including an occasional politician in a foreign country, appear to be able to produce tears at will. When a small child cries out when put into his bed at night, the cry is often voluntary at first, and has been termed the "testing cry," implying that it represents an attempt to get the mother back into his room (Illingworth, 1951, 1953), but if he fails to get his own way the voluntary cry is apt to be followed by an involuntary cry, with the shedding of tears and sobbing. According to Weingrow (1933) the crying centre is in a cerebro-thalamo-lenticulo-rubro-ponto-cerebellar pathway, connected by association fibres and tracts with many parts of the brain and cord. Magoun and his co-workers (1937) wrote that co-ordinated facial and vocal activity, like that seen or heard in man during the expression

of unpleasant emotion, is caused by electrical stimulation of a localized area in the mid-brain and pons of the monkey and cat. It is of interest that whereas in a peripheral lesion, such as Bell's palsy, there is paralysis of both automatic and volitional facial movements, in cases with a central lesion, causing a hemiplegia, there may be paralysis of volitional facial activity with normal automatic facial movements, in the way of laughing and crying.

The first sign of crying is often the flushing of the face and the wrinkling of the forehead. Darwin described the vertical wrinkles in the forehead when a child begins to cry, due to the contraction of the corrugator supercilii ("grief muscles") drawing the inner end of the eyebrows downwards and nearer together. Not infrequently the first sign of crying in a child is the pouting of the lower lip. Darwin wrote that oranges, gorillas, and chimpanzees show a similar pouting of the lower lip when they are annoyed. Another early sign of crying is trembling of the lower lip or alae nasi.

The next stage in crying is the drawing downwards of the corners of the mouth, so that the nasolabial folds are exaggerated. The upper lip is raised, and the mouth opens, assuming a square shape. The tongue is slightly elevated from the floor of the mouth and hollowed out, so that it is concave. It often trembles. The eyes close, and tears may then appear.

Darwin was particularly interested in the closure of the eyes during weeping. He and his friends showed that the tension of the eyeball increases during weeping, in association with the flushing of the face and engorgement of the superficial veins, and suggested that the closure of the eyes represents nature's effort to compress the eye to protect it from congestion. It is true that if one forces the eyelids open at the start of crying there is no congestion of the scleral vessels, but the vessels rapidly become filled with blood, while after a period of crying the eye is "congested" and pink. The closure of the eyes in crying may be of similar origin to their closure in sneezing or coughing.

Tears are not usually produced on crying till a baby is 3 to 4 weeks of age, and they do not run down the face until a few weeks later. Darwin accidentally showed, however, that in one of his own children tears were produced when he caught the eye with his coat sleeve, though no tears appeared on crying for a further three weeks. The shedding of tears, except in actors, is involuntary.

Collins (1932) reviewed the literature about weeping in animals, and concluded that no animals, not even crocodiles, shed tears. Deer are said to "weep" when they shed their horns, and Hamlet exclaimed, when the King stopped the play which was designed to expose his crime, "Why, let the stricken deer go weep," but they do not produce tears.

The Australian koala bear is said to whimper and cry when chased, as is the ape and monkey, but they do not produce tears. Darwin quoted a story about an Indian elephant shedding tears when mortally wounded in a hunt, but the possibility of direct injury to the eye could not be excluded.

Associated with the facial changes are the altered respirations, consisting of sudden deep inspirations with prolonged expiration. The slow decrease of pressure in the chest is probably related to the congestion of the face and neck veins. When a small child has been left crying for a long time he is apt to "sob." Long after he has been soothed, and begun to smile and laugh, sudden jerky inspiratory movements due to some degree of glottic spasm continue at decreasing intervals, until eventually they stop. The longer a child is left crying the longer the "sobbing" continues. It does not usually pay to put a child back into his cot, having soothed him after a night terror, if these sudden inspiratory movements are still occurring (Illingworth and Illingworth, 1954), for the child is very likely to start crying again as soon as he is left. Sobbing does not occur in animals (Darwin, 1889).

*Based on a lecture given to the Doncaster and Harrogate Medical Societies in April, 1954.

In addition to facial and respiratory changes, the baby shows generalized mass activity when he is crying—moving his arms and legs up and down, and alternately bending and extending his back. As he grows older this generalized mass activity disappears, though adults are known to grind their teeth and stamp their feet in rage—a relic of this primitive mass activity.

Types of Cry

A clinician recognizes the hoarse gruff cry of a cretin, the hoarse cry of laryngitis, the shrill cry of hydrocephalus, meningitis, or cerebral irritability, the grunting cry of pneumonia, the feeble cry of amyotonia or of a severely debilitated infant, and the whimper of a seriously ill child.

Experienced mothers claim that they can often tell the reason for a child's crying by the nature of the cry. Sherman (1927) is frequently quoted in this respect. She subjected a group of babies, all under 12 days of age, to a variety of stimuli—hunger, sudden change of posture, restraint of the head, and needle pricks—and asked nurses, undergraduates, and graduates, in another room within hearing distance but out of sight, to name the nature of the stimulus in each case. They all failed. This has long been quoted as evidence that the nature of the cry does not depend on the type of stimulus causing it. An obvious criticism of her work, however, is that she did not state whether the graduates and others had children of their own, and, more important still, she did not include the mothers of the babies in the audience. The mothers might well have recognized the cause of crying in their own baby. I have often been told by mothers in a four-bedded ward in a maternity unit that they do not awaken when a baby other than their own cries, but they waken immediately when their own baby does.

It would seem to me to be obvious that the cry of hunger or of loneliness is quite different from the cry of pain: how much of that difference lies merely in the intensity of the crying is a matter of opinion.

Why does he Cry?

I do not propose to discuss here the classical work of Barcroft (1946) concerning foetal respirations, but I will quote some work of psychologists. Adler described the first cry as "an overwhelming sense of inferiority at thus suddenly being confronted by reality without ever having to deal with its problems." Rank (quoted by Ruja, 1948) wrote that birth represents "a loss of paradise. The pleasurable primal state is interrupted." It is not clear how Rank knew that the baby finds it pleasant *in utero*. Petö (1946) thought that the movements of crying represent originally an attempt of the body to remove foreign material. "We behave towards pain as though it were something removable from our bodies, and in order to bring about this removal we mobilize the whole body apparatus: we try to get rid of it, to project it into the outer world." Sperling (1949) wrote that crying out at night in night terrors is due to "the repression of intense sexual and aggressive impulses stemming from the oedipal complex. Another cause is sibling rivalry, with repressed hostility and resentment toward the mother and death wishes toward the sibling." Greenacre (1945) declared that there is a strong connexion between weeping and urination. Concerning the different attitude towards weeping in the two sexes, she wrote: "It seems probable that this difference in social custom came originally out of the fact that the male child's urination early assumes the significance of achievement of an aggressive activity to an extent much greater than that of the female child ever can. In consequence it is a greater outlet for his tension and a projectile weapon as well." She thought that much weeping in girls is due to subconscious penis envy. "They weep with a quiet resentful approximation of the stream which comes from above rather than from below."

The causes of crying in infants and children have been discussed in detail elsewhere (Illingworth and Illingworth, 1954). It was emphasized there that an important factor which governs the amount they cry is the personality. Some are placid easy babies who will accept almost anything. They will wait for a time for food when they feel hungry, and they are content to lie in a pram for hours without being picked up. Others are determined difficult babies who almost from the moment of birth do not hesitate to let their wants be known and to express their disapproval of what is being done or not being done for them. It is very easy to ascribe the constant cries of a baby to mismanagement, when in fact the wisest management in the world would not stifle much of his crying. It is quite untrue to say that every baby who cries a lot is naughty, "nervous," or spoiled. Critics who say this have either not possessed a child of their own, or have had an easy-going placid child who was very different from the one in question. Nevertheless a great deal of crying is due to wrong management.

The common causes of crying can be summarized as follows:

(a) The First Three Months

The chief cause is discomfort, of which hunger is the most likely source. Excessive or prolonged crying may be the result of keeping the baby waiting a long time for food when he is ready for it, owing to adopting a rigid feeding schedule in the mistaken idea that a baby will learn bad habits if he is fed more or less when he wants it. Prolonged crying at night in the first ten weeks is caused by the same totally unfounded fear of bad habit formation. He may be caused to cry from hunger even when there is enough breast milk, if he is not given long enough to obtain the milk. It is common to find that nurses and doctors have instructed mothers to feed babies exactly ten minutes on each breast—as if all breasts and nipples are alike in the ease with which milk may be obtained from them, and as if all babies are alike at all ages in the speed and efficiency with which they suck. Many babies are caused to cry from hunger because someone—the doctor, nurse, or mother—is so obsessed by the fear of overfeeding that the baby is half starved. I have yet to see a baby who cries because of overfeeding.

Discomfort may arise from wind, but most crying which is ascribed to wind is in fact due to something else—hunger, the desire to be picked up, boredom, or other causes. Nevertheless, pain from wind does occur, and it causes high-pitched screams which can only be due to pain. Crying in the evenings of the first three months, mostly between 6 and 10 p.m., in a baby who is receiving adequate amounts of food, and which continues even when he is picked up, is most likely to be due to the so-called "three months colic." It is probably caused by localized collections of wind in loops of intestine (Illingworth, 1954). Crying from discomfort may be due to his being too hot, too cold, or to having a wet or soiled napkin. Some babies cry when passing urine.

A most important cause of crying in this period is loneliness or a desire to be picked up. At least, it seems as if this is the cause of the crying, for the crying promptly stops when the baby is picked up and cuddled. It is remarkable how many mothers fail to realize that babies want and need cuddling, and so make the mistake of thinking that all the baby's crying is due to hunger. The basic feature which differentiates crying from hunger from that of loneliness is the fact that crying from hunger or any other cause of discomfort is not stopped by picking the baby up.

Less important causes of crying in this period are sudden noises, the shining of light into the eyes, sudden changes of posture, holding the baby's head or limbs, undressing or bathing the baby, or cleaning his nose. Even in the first three months babies cry when they are tired and about to go to sleep, or when they need sleep. The cause of the

excessive crying on the breast shown by so-called "irritable" babies in the first 10 days or so after birth is unknown. It may be related to their personality.

Aldrich and his co-workers (1945) made the interesting observation that the crying of a baby in a nursery is not infectious, in that it does not cause other babies to cry.

(b) The Older Baby

Discomfort due to hunger or other causes continues to cause crying, but to a lesser degree than in the younger baby, for tolerance increases with age.

A most important cause of crying in this period is boredom. Many babies are left to cry for hours in a pram outside, with nothing but a brick wall to see, and their mothers cannot understand what is wrong with them. All the babies want is to see what is going on and to have company. Many such babies are perfectly content in a pram in the kitchen, where they can see the mother working. Many older babies are left outside, crying and screaming, with nothing to see or do, when they should be indoors, with toys to play with and people to talk to them. Much crying from boredom is thought by mothers to be crying from wind or hunger.

Crying may be due to efforts to force a child to take food, especially in the weaning period, and to refusal to let him help to feed himself. It may be due to forcing him to sit on the "pottie" against his will. It may be due to an unaccustomed face or room, to departure of the mother from the baby's cot or from the place where he is playing. It may be due to his inability to reach a toy. It is caused by cleaning his nose at bathtime. Crying at night is basically due to the baby's desire for the company of the mother whom he loves. Crying may be due to the pain of an erupting tooth, but much crying ascribed to this is due to other causes, such as boredom and mismanagement. A most important cause of crying is fatigue. A baby may cry for long periods if not put to bed for his rest before he is too tired.

(c) The Older Child

Most crying is related to the child's developing ego and negativism, or to his need for love and security. Attempts to force a child to eat, sleep, or use the "pottie," or to learn good manners and good behaviour before he is ready for it, lead to refusal to comply and to crying. Between the age of 1 and 3 years or more children go through a stage of negativism, and crying is very common when they fail to get their own way and are thwarted. They need to be recognized as persons of importance, and readily cry if discouraged or ridiculed. Much crying is merely a device for seeking attention. When too much fuss is made of a child who has a minor fall or injury, crying is apt to be excessive.

The need for love and security leads to much crying between the ages of 1 and 5 or 6. Crying at night continues to be due basically to the child's love for his mother, even though an essential factor is mismanagement, in leading to bad habits. When a child succeeds in getting his mother to visit him 10 times in the night or succeeds in his desire to be taken into his parents' bed, his crying is due to a combination of his love for his parents and their mismanagement in acceding to his wishes. Some crying at night is due to fear of the dark or of shadows on the wall, and some is due to nightmares or night terrors. Crying on being awakened is characteristic of the 2½ to 3-year-old. It is a developmental feature, with no other apparent reason for it.

Insecurity from any cause, whether due to unhappiness at home or school, unkindness, impatience, excessive discipline or lack of discipline, jealousy, or overprotection, leads to excessive crying in the young child. The amount of crying is always increased by fatigue, boredom, or hunger.

Except in the case of gross neurological disorders, such as pseudo-bulbar palsy, there is always a cause for crying, but it is not always easy to find it. Children go through good and bad phases without any apparent reason, though it is satisfying to ascribe a child's excessive crying to teething or to his going through a bad phase, when in fact it is due to one's own intolerance and impatience. Phases of excessive crying do occur, however. They may follow periods of overstimulation, as at Christmas. More often they are merely related to stages in his development.

The list given above is not intended to be complete, but it does include the main causes. I set a question in an examination paper on the causes of excessive crying in a 3-months-old baby. One of the students wrote, "The baby may be crying excessively because he is being irritated by a wasp."

Treatment of Crying

Although it would seem obvious that, except when a bad habit is being broken, the cause of a child's crying should be sought and attended to, so that he is comforted and soothed, there is no unanimity about this. There are still some who teach that many babies should be fed strictly by the clock, however much they cry, that they should never be fed at night, and that they should never be picked up when they cry. Sackett (1953), for instance, advises mothers to fondle and cuddle their babies only when they are happy and never when they are crying. John Gibbens (1950) wrote: "Many mothers believe that a baby is too young to understand, but this is not so. Even the youngest baby is quick to learn that he is being a perfect nuisance with his grizzling, that you'll do nothing for him as long as he persists in this idiotic behaviour. Many babies will stop at once if you say firmly, 'Stop that horrible noise. I won't have it!' No one has ever spoken like that before, and they are so surprised that they often hush up at once." Would that it were so easy. Foxe (1941) wrote: "A mother who does not permit the child to cry by itself binds the child more closely to her. A child that cries by itself achieves a great degree of independence from personal attachment." He discussed in a sensible way the question of which is best for the child. It would seem obvious that the young child should be closely attached to the mother. Jahr (1944) warns against giving a baby too much attention. He says, with some reason, "Infants don't cry aimlessly. They cry because they want something, and it is up to the parents to decide in each case whether or not the need is justifiable."

It would seem that the points at issue are these. Does it do any harm to leave a child to cry for prolonged periods? Does it do any harm to pick a child up when he cries and attend to his needs? The answer to the first question is that it may do harm to leave a baby or small child to cry for prolonged periods. Firstly, he may make himself sick. Some small children vomit if left crying for more than 15 to 30 minutes. The mechanism is obscure, but it may be due to air-swallowing. Secondly, there is some evidence that prolonged crying in infancy, with separation from the mother, may cause psychological harm. We have all seen babies who fail to thrive in hospital until the mother is admitted to the hospital to look after the baby and feed it. Bakwin and Bakwin (1953) described defective weight gain, poor appetite, and low-grade fever in babies who were separated from their mothers in this way. I regularly see children from an institution in order to assess their eligibility for adoption, and I am always impressed by their subdued and cowed behaviour, which is not due to any unkindness but is presumably due to prolonged deprivation of mother-love.

Bowlby (1951) in his famous monograph has marshalled the evidence that separation of the child from his mother for the first three years may have a permanent effect on his character—rendering him aggressive, unable to give or receive affection, selfish, lacking

in regard for the rights of others, and bitter. It may well be that if complete separation from the mother is so harmful, prolonged crying in the home, with a refusal of the mother to pay heed to it, may render the child unhappy and insecure later, and lead to a variety of behaviour problems. It is certain that when babies are left to cry for prolonged periods in this way they do not quickly grow out of it. It is a matter of common observation that the crying may continue for week after week, and month after month, until eventually with increasing age they stop it. Aldrich and Aldrich (1938) wrote: "Most spoiled children are those who as babies never had essential gratifications owing to a mistaken attempt to fit them into a rigid regime. The spoiled child who has missed satisfaction as a baby adopts the efficient technique of whining and temper tantrums to get what he wants. The mechanism of spoiling is the neglect of needs rather than overindulgence. Twenty-five years' experience has taught me that responsive adults breed responsive babies, and that rigid disciplinarians of babies at this age breed spoiled, unhappy children with no confidence in themselves or their parents."

The idea held by some that crying may lead to convulsions is untrue. The so-called "crying convulsions" or "breath-holding convulsions" are due, to holding the breath in expiration. They frequently follow a short cry, but they are not the result of it.

As for the second question, whether it does any harm to pick a baby up when he cries, it can be said with certainty that there is no evidence that it does harm. Some babies are a great deal more demanding than others, and experience has shown that when demanding babies are picked up as often as they reasonably can be when they ask for it they settle down and stop demanding so much attention after the first few weeks. They do not, in other words, develop a bad habit of constantly expecting to be picked up. In any case, if such a habit did develop, as a result, perhaps, of unnecessary picking up, it can be broken as soon as it is realized that the crying has become a habit. Crying out at night certainly does become a habit in the older baby, and it has to be dealt with firmly (Illingworth, 1953). The young baby should be picked up when he cries, certainly when by the nature of his cry it is obvious that if left he will continue to cry for a long time. He should not be picked up at the slightest whimper. He should not be picked up when he is crying from fatigue and about to go to sleep—unless he has been allowed to get so tired that he cannot go to sleep, when he may have to be rocked until he lapses into slumber. A baby who screams because of colic or because of pain from teething should certainly be picked up and soothed. No baby should ever be left crying for prolonged periods—except when one is breaking a habit produced by mismanagement.

A baby is spoiled by being constantly picked up when he is lying perfectly content in his pram, or by being constantly played with when he is quite happy in his play-pen or elsewhere. He is spoilt by being picked up at the slightest whimper, but there is nothing whatsoever to be said in support of those who advocate leaving a baby to cry for prolonged periods so that he will "learn good habits" or "learn that he cannot have all his own way." It should not be forgotten that babies are human beings, and all human beings want love. Why not give it to them?

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AN AMIDO-NITROTHIAZOLE FOR TRICHOMONIASIS

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Some 16 different drugs have been recommended at various times for the treatment of vaginitis due to *Trichomonas vaginalis*, but methods of treating this infection are still unsatisfactory. Although acute vaginitis is much improved by treatment with some of the drugs, relapses are common and the evidence of infection often persists as a chronic leucorrhoea. The unsatisfactory results have been attributed either to reinfection or to incomplete eradication of the trichomonads. Whether the origin of the infection be primarily venereal, or due to accidental contamination from infected lavatory seats, towels, and other fomites, it seems probable that the prevention of reinfection will always be difficult in practice. Failure to eradicate the primary infection, however, can only be due to the use of insufficiently active drugs or to inaccessibility of some of the trichomonads. If failure is due to inaccessibility then no topical drug, however active, will be fully successful. If, however, the failure is due solely to low activity of the drug, then the solution to the problem should be relatively simple, for more active drugs than those generally used are available.

Up to the present nitrothiazoles have not been used for the treatment of human infections, but Waletzky *et al.* (1949) found 2-amino-5-nitrothiazole, "enheptin T," to be effective for the treatment of turkeys experimentally infected with *Histomonas meleagridis*, a flagellate related to the trichomonads; and Carmichael and Maclay (1952), McGregor (1952), and Swales (1952) found it effective for the natural disease. Stabler and Mellentin (1953) have reported that it cures pigeons infected with *Trichomonas gallinae*, and they suggested that it should be tried for human infections. Enheptin T is, however, bright yellow and stains skin and clothing intensely, an undesirable property for a drug that is to be used as a vaginal pessary. Bushby and Copp (1955), who made an independent study of the activity *in vitro*