

## CHAPTER VI. CHILD LIFE AND GROWTH

### 6.1. PHYSICAL DEVELOPMENT

#### 6.1.1. GROWTH AND DEVELOPMENT

Although growth and development are closely related and both continue from the moment of conception to the point at which adulthood is reached, they are essentially two different processes.

Growth refers to the various physical and developmental milestones that most children reach during each age level. This includes increases in height and weight as well as development in cognitive (cognitive skills include Knowing how to perceive, think, recognize, and remember), language, and social skills. Hair grows; teeth come in, come out, and come in again; and eventually puberty hits. It's all part of the growth process.

Growth implies increase in size, typically coupled with cell-division and enlargement of protoplasmic and skeletal structure whereas development represents increasing maturation of tissue, organs or of the whole individual until full maturity of structure and function is attained.

As a general rule the more mature organ or individual will be larger than the less mature, but this is not necessarily the case. The tymus, for example, is actually smaller in the adult than in later childhood.

There are wide differences between the rates of growth of different organs and tissues at different stages of development. This is reflected in the changing proportions of the body during infancy, childhood and adolescence.

In the newborn infant the head represents approximately one-quarter of the total crown-heel length and the legs (heel to perineum) approximately one-half.

Whereas in the newborn infant the umbilicus lies well below the mid-point, it gradually rises until in the adolescent it lies considerably above the midpoint. The infant is thus short-limbed with a relatively large head and thick trunk, compared with the adolescent.

#### 6.1.2. LOCAL HORMONAL, GENETIC AND ENVIRONMENTAL FACTORS CONTROLLING GROWTH

##### 6.1.2.1. LOCAL FACTORS

Vascular abnormalities operative during the growth period are liable to increase or diminish growth of the affected part. This binding the feet of Chinese girls resulted in abnormally small feet, whereas the increased blood supply to a limb with an arteriovenous aneurysm may cause overgrowth of the limb.

##### 6.1.2.2. ENDOCRINE FACTORS

The endocrine glands are of great importance in the control of growth and development, being one of the chief agents for translating the instructions of the genes into the reality of the adult form, with the result permitted by the available environment.

The hormones particularly concerned in growth are thyroxine from the thyroid gland, cortisol and adrenal androgens from the cortex of the adrenal gland, testosterone from the Leydig cells or of the testes, oestrogens from the ovary, insulin from the islets of Langerhans in the pancreas and growth hormone from the pituitary gland. The pituitary in addition produces thyroid-stimulating hormone

(TSH), adrenocorticotrophic hormone (ACTH), and at least two gonadotrophic hormones.

#### **6.1.2.3. GENETICS OF GROWTH**

Not all genes are active at birth. Some are not switched on till later and some can express themselves only in the physiological surroundings provided by the later year of growth. The effects of the latter are said to be "age-limited".

#### **6.1.2.4. RACE AND ECOLOGICAL CONDITIONS**

There are racial differences in rate and pattern of growth, leading to the racial differences seen in adult body build.

Example. Negroes are ahead of white races in skeletal ossification at birth.

#### **6.1.2.5. SEASON OF THE YEAR**

Growth in height is fastest in the spring and growth in weight fastest in the autumn. The average velocity of height in the March, to May quarter may be almost twice that in the September to October quarter. Children differ surprisingly, however, both in the time of year at which they grow fastest, and in the degree to which they show seasonal trend at all.

#### **6.1.2.6. NUTRITION**

Malnutrition delays growth, as is shown from the effects of famine associated with war. There is an uniform increase at all ages from 1920 to 1940, but in the later years of both world wars the height drops as the food intake of children becomes restricted.

#### **6.1.2.7. DISEASES**

Minor and relatively short illnesses such as measles, influenza, antibiotic-treated middle ear infection, or even pneumonia cause no discernible retardation of growth rate in the great majority of well-nourished children.

#### **6.1.2.8. PSYCHOLOGICAL DISTURBANCE**

Really severe psychological stress seems capable of retarding growth. In a famous experiment, Widdowson studied the effects of increased rations on orphanage children living on the poor diet available in Germany. What she succeeded in showing was that the presence of a sadistic housesister inhibited the children's growth, even in the face of adequate caloric intake.

#### **6.1.2.9. SOCIO-ECONOMIC CLASS: NUMBER OF CHILDREN IN FAMILY**

Children from different socio-economic levels differ in average body size at all ages, the upper groups being larger. In most studies socio-economic status has been defined according to father's occupation, though in recent years it is becoming clear that in many countries this does not distinguish people's living standards or style of living as well as formerly.

The difference in height between children of the professional and managerial classes and those of unskilled labourers in Britain is currently about 2-5 cm at 3 years rising to 5 cm at adolescence.

In weight the difference is less, since the lower socio-economic class children have a greater weight for height, due to greater relative breadth of bone and muscles.

#### **6.1.2.10. SECULAR TREND**

During the last hundred years there has been a striking tendency for children to become progressively larger at all ages (Tanner 1966). This is known as the "secular trend". The magnitude of the trend in Europe and America is such that it dwarfs the differences between socio-economic classes.

The trend in Europe is still continuing at this time but there is some evidence to show that in the United States the best-off sections of the population are now growing up at something approaching the fastest possible speed.

The causes of the trend (or acceleration of growth as it sometimes called) are probably multiple. Certainly better nutrition is a major one, and perhaps in particular more protein and calories in early infancy. A lessening of disease may also have contributed.

### 6.1.3. GROWTH DURING INFANCY

In the school system "infants" is a term characterising children aged 5 to 7 years; and in legal parlance "infancy" extends from birth till age 18.

#### 6.1.3.1. THE FIRST TWO YEARS OF LIFE

From the point of view of growth and development the first year after birth constitutes a somewhat special period, as does the second year also, though to a lesser extent. Growth is most rapid during this time, though steadily decelerating. Recognition of pathologically small children in child health clinics during this period of life would result in better treatment of growth hormone failure and other conditions, now usually only recognised at school entry. Recognition must depend on length measurements as well as weight however. Change in body composition are also more marked than later, body water decreasing and protein concentration increasing.

Many newborns are tiny, wet creatures when they first emerge. Often their heads are slightly pointed as a result of passing through the birth canal. This is only temporary; the head will take on a round appearance within a few days. A newborn's head is big when compared to the rest of the body. The baby legs and arms are kept bent at the knees and elbows while in the womb. After months of growing in ever-tightening close quarters, this is perfectly normal. The limbs will straighten out as she grows. At the fingers and the toes the baby has paper-thin and sometimes long-nails. Some babies are born with a white, cheesy coating called vernix, which protects their skin from the constant exposure to amniotic fluid. Other babies are born very wrinkled. And some, especially premature babies, have a soft, furry appearance because of lanugo, a fine hair that develops while the womb. Lanugo comes off after a week or two. Rashes, blotches, or tiny white spots are also not unusual on newborns. These generally clear up over the first few days or weeks after birth.

The baby's appearance will change dramatically over the next weeks as he grows.

After the initial loss in the newborn period the infant gains on average 4-5 Kg during the first six months, and also between birth length and gain in length (Tanner).

Supine length at birth (singletons at term) averages about 51 cm in males and 50 cm in females. The range is approximately 4 cm either side of this. The average gain in length for boys is about 8 cm in the first 3 months, 6 cm in the second 3 months and 9.5 cm during the subsequent 6 months.

Circumference of the head increases extremely rapidly during infancy, the increase reflecting the general growth of nervous tissue. The average circumference at birth of 34.6 cm increases by approximately 5 cm during the first 3 months and by a further 3.2 cm during the second 3 months; at 12 months the mean circumference is 46.6 cm, and during the second year a further increase of

2,5 cm occurs. Measurements of girls are on the average slightly less than those of boys at all ages, the difference being about 1 cm from 6 months to 2 years of age.

Typically between the ages 4 and 7 months, the child's first tooth pushing through the gumline. The first teeth to appear are usually the two bottom front teeth, also known as the central incisors. There are usually followed 4 to 8 weeks later by the four front upper teeth (central and lateral incisors). About 1 month later, the lower lateral incisors will appear. Next to break through the gumline are the first molars, then finally the eyeteeth. Most children have all 20 of their primary teeth by the third birthday.

#### **6.1.3.2. THE PRE-SCHOOL PERIOD**

From the age of 2 to 5 years, growth proceeds more slowly than during infancy with an average annual increment of approximately 2 to 2,25 Kg in weight and a slightly decelerating increase in height (approximately 9 cm between 2 and 3 year of age, and 6 cm between 4 and 5 years). That increase in height, however, coupled with the loss of subcutaneous fat, is often sufficient to give the child a thinner appearance and to cause parental concern unless it is pointed out that it is normal for the rounded contours of infancy to be gradually replaced by the more linear ones of childhood during this phase of development.

No child grows at a perfectly steady rate throughout this period of childhood, however. Weeks or months of slightly slower growth alternate with mini "growth spurts" in normal children. Kids actually tend to grow a bit faster in the spring than during other times of the year.

Although the pre-school child is less vulnerable than the infant, he is exposed to a wider range of risks, particularly infections, and growth may be affected by adverse environmental conditions during this period.

#### **6.1.3.3. CHILDHOOD AND ADOLESCENCE**

During the early school period (5 years to onset of puberty) the child shows a slight increase of annual weight increment and a slightly falling height increment.

The growth of lymphoid tissue at this time often results in the tonsils being regarded as abnormally large when they are in fact following their course of physiological development.

At puberty a spurt in growth and a change in body composition occurs.

Around age 8 to 13 in girls and 10 to 15 in boys, kids enter puberty, which lasts from about 2 to 5 years. This growth spurt is associated with sexual development, which includes the appearance of pubic and underarm hair, the growth and development of sex organs, and in girls, the onset of menstruation.

#### **6.1.3.4. PUBERTY AND ADOLESCENCE**

The term puberty is used in the medical and legal literature to describe several slightly different phases of sexual maturation lying between childhood and adulthood. The term "non - pubescent" is applied to children showing no evidence of secondary sexual characters or genital maturity; "pubescent" to those in whom secondary sexual characters and early genital development are appearing.

The term "adolescent" refers to girls who had passed menarche (the first menstruation) but not yet reached maturity, and to boys in a roughly similar stage. Now the terms puberty and adolescence are used quite interchangeable.

At adolescence the transition from one phase of development to the next is not an abrupt one, since even the menarche (which is most readily determined in point of time) is not necessarily coincident with ovulation, and the time-relationship between the appearance of the various indices of sexual development is to a considerable extent variable.

Although the physical and emotional changes which occur during the process of sexual maturation follow each other with a rapidity which is only comparable to the speed of development of the infant during the first a years of life, sexual maturation represents a transition period lasting 3 or more years, and involving physical and emotional problems peculiar to itself.

#### **6.1.3.4.1. MANIFESTATION OF SEXUAL MATURATION**

This period is characterised by five closely interrelated features:

1. The adolescent spurt of growth which commonly begins early in the process of maturation, reaches a maximum shortly before menarche in girls and subsequently decelerates rapidly until adult stature is reached. Rapid increase in weight often continues after deceleration in height has begun, and the period of maximum weight -gain is not necessarily coincident with that of height.

There is a change in body composition, particularly in boys, fat being lost and muscle greatly increased.

2. The appearance of secondary sexual characters.
3. Rapid growth and development of the gonads and genitalia.
4. A general readjustment of endocrine balance resulting in the establishment of menstruation and ovulation in girls and of spermatogenesis in boys.
5. Emotional development and personality changes, which may be manifested by a variety of behaviour difficulties, frustration and self-consciousness before adult poise is attained.

#### **6.1.3.4.2. FOR A BOY**

Puberty for a boy usually starts with enlargement of the testicles and sprouting of pubic hair, followed by a growth spurt between ages 10 and 16 - on average 1 to 2 years later than when girls start. His arms, legs, hands, and feet also grow faster than the rest of his body. His body shape will begin to change as his shoulders broaden and he gains weight and muscle.

A boy may panic if he notices tenderness or swelling under his nipples. This temporary development of breast tissue is called gynecomastia and it happens to about 50% of boys. It usually disappears within 6 months or so.

And that first crack in voice is a sign that his voice is changing and will become deeper.

Hair will sprout on the arm, legs, face, and above the penis. The penis and testes will get larger, and erections, which a boy begins experiencing as an infant, will become more frequent.

#### **6.1.3.4.3. FOR A GIRL**

Puberty generally starts earlier for a girl, some time between 8 and 13 years of age. For most girls, the first evidence of puberty is breast development and the growth of pubic hair. As her breasts start to grow, a girl may have small, tender lumps under one or both nipples; these will get larger over the next few years. The first soft pubic hair will become thick and curly, and she may notice hair growing under her arms and on her legs.

These first signs of puberty are followed 1 or 2 years later by a growth spurt. Her body will begin to build up fat, and she will take on the contours of a woman as her hips get wider and her breasts enlarge. Her arms, legs, hands, and feet will get bigger.

The culminating event will be the arrival of menarche, her first period. Girls usually get their first period between the ages of 9 and 16.

Although some children are more fortunate than others in passing from childhood to adult life, the transition is often one of difficulty and embarrassment, and should always call for sympathetic handling.

The rapidity of growth tends to make the adolescent awkward and ungainly; the boy may be dismayed by his large hands and feet, his acne and breaking voice, and the girl by transient obesity, or by her breast development and problems of menstruation. Both sexes usually experience an increase of appetite coincident with their maximum growth; minor digestive disturbances, probably related to the rise in gastric acidity which occurs during puberty, and symptoms suggestive of mild hypoglycaemia are common.

Vasovagal instability, manifested by blushing, tachycardia, or even fainting attacks, is much more frequent at this time than during childhood.

The term puberty refers to the physical changes kids experience as they move toward adulthood, but that doesn't mean that the specific physical changes of puberty are without emotional consequences.

Some girls are excited about their budding breasts and new training bras; others may worry that all eyes are focused on their breasts. Some boys love the sight of themselves all lathered up with shaving cream; others may be uncomfortable with the attention they get for a few new shoots of hair.

Pimples are common for most teens. Acne is caused by glands in the skin that produce a natural oil called sebum. Puberty makes the glands produce extra sebum, which can clog the pores. Washing gently with water and mild soap can get rid of excess sebum and help reduce breakouts. In more severe cases of acne, there are several helpful over-the-counter and prescription medications available.

Kids who once associated bathtime with play need to learn to wash every day and to apply deodorant or antiperspirant. A teen who's learning to use a razor will need instructions on how to keep it clean, to throw a disposable one away before it becomes dull and ineffective, and to not share it with other people in the family. ✓

Boys, capable of having an erection since infancy, can now experience ejaculation. The first ejaculation usually occurs between the ages of 11 and 15, either spontaneously in connection with sexual fantasies, during masturbation, or as a nocturnal emission (wet dream). If he doesn't know about wet dreams before he has one, a boy may think he has urinated accidentally or that something has gone wrong with his body.

Masturbation is normal and healthy for boys and girls, but they are often puzzled by these new feelings and wonder if their behaviour is OK.

By the time girls reach age 15 and boys reach age 16 or 17, the growth associated with puberty will have ended for most teens and they will have reached physical maturity.

## **6.2. NEUROPSYCHICAL DEVELOPMENT**

### **6.2.1. THE DEVELOPMENT OF BEHAVIOUR (MOTOR, VERBAL AND SOCIAL BEHAVIOUR)**

In study of behaviour development requires the observation, analysis and interpretation of the series of changes which enable a helpless newborn infant to become an independent adult.

Behaviour development depends upon the maturation of the nervous system but is also influenced by a complex interplay between intrinsic and environmental factors which affect the child.

The genetic make-up of the individual and his early intra- and extrauterine experience will affect his physical, intellectual and emotional growth and this in turn will determine whether he reacts favourably or unfavourably to later changes in his environment. These changes themselves are likely to have further effects on physical and behavioural development.

#### **6.2.1.1. THE FIRST TWO YEARS OF LIFE**

The newborn baby makes reflex responses to auditory, gustatory and tactile stimuli but deliberate purposeful are lacking. He is completely dependent upon his parents for food, care and protection, but he is not inactive.

##### **6.2.1.1.1. MOTOR ACTIVITY OF THE NEWBORN**

The resting posture of the mature newborn is usually one of semi-flexion of the trunk and limbs, a modification of the fetal position of general flexion, though babies born by the breech with extended legs may keep their lower limbs in this position for some weeks after delivery. Because of their semi-flexed posture newborn babies tend to lie mostly on their sides when at rest or sleeping.

In babies born before term the resting posture is one of more marked flexion of the trunk and all four limbs.

##### **6.2.1.1.2. REFLEXES IN THE NEWBORN**

A number of feeding reflexes have been described in the newborn.

The "*sucking reflex*" really comprises two reflexes: the lips reflex or lip phenomenon and the sucking reflex proper.

The *swallowing reflex* is the name given to the swallowing movement which occurs when fluid or food is placed in contact with the walls on the back of the pharynx, on the back of the tongue, the epiglottis or the soft palate.

Feeding reflexes become less easily elicited in most babies after the age of 5 or 6 months, but the time at which they actually disappear is extremely variable (to children aged 3 or 4 years).

The *Moro reflex* may be elicited by changing the position of the head relative to the trunk. The child may be dropped in space so that his head is jerked standing position first supported and then unsupported is achieved by most babies between the ages of 12 and 15 months.

##### *Reflex stepping (walking)*

By reflex walking is understood the reciprocal placing response that may be elicited in newborn babies if they are placed with their feet on a flat surface and are tilted alternately sideways and slightly forwards.

The reflex is present in almost all newborn babies and is particularly brisk in prematures.

*Grasp reflexes* in the hand and feet are easily elicited in the majority of mature newborn babies if a touch stimulus is moved distally along the palm or the sole.

This reflex can nearly always be elicited in the newborn and it commonly persists until the baby is 1 or 2 months old.

##### **6.2.1.1.3. SPEECH DEVELOPMENT IN CHILDHOOD**

Verbal behaviour of children under the age of about 2 years gives less information about the child's "inner language" and his ability to conceptualise than it does at later ages.

### • PRE-VERBAL SPEECH DEVELOPMENT

The first cry of the newborn characteristically consists of "a" or "e" or "ae" sounds, usually nasalised: occasionally "u" is the sound first uttered.

The repertoire of sounds increases rapidly and by the age of 3 months most babies are making repetitive sounds for periods of a few minutes at a time especially after feeds. These utterances are usually repetitive chains of sounds such as "mamamama", "nananana" or "nenene".

It is difficult to say when the child begins to imitate what he hears, but certainly by the age of 6 or 7 months intonational patterns and rhythms are being copied and soon afterwards the first rudimentary attempt to imitate word sound appear.

Parents, by approving of the child uttering particular sounds such as "ma", "da" encourage the repetition of constant sound sequences to refer of particular people or objects or situations. Gradually, the number of consonants increases and the child begins to use them more successfully in the medial and final positions of words.

It is necessary to distinguish between passive vocabulary which consists of the words he uses in spoken language.

The actual naming of objects and events marks a major development in the child's cognitive development. Naming involves classifying and a growing vocabulary implies growth in child's power of classification.

Generally nouns and verbs appear before adjectives and adverbs, and these in turn are mastered before prepositions, pronouns and conjunctions. Imperative and negative forms are mastered relative early. On the other hand the correct use of personal pronouns and prepositions which require a sense of temporal and spatial relationship and conjunctions gently backwards or an abrupt stimulus may be given by the examiner banging his hands onto the mattress beside the baby's head.

The response consists of a momentary flexion of the head, trunk and limbs so rapid that it can only be appreciated in slowed down cinematographic film and then a rather abrupt extension and abduction of the arms and legs.

#### 6.2.1.1.4. MOTOR DEVELOPMENT IN THE FIRST TWO YEARS OF LIFE

It is convenient to consider motor development in two ways.

Firstly the positive "milestones" of development should be without support or reaching for objects using the thumb and forefinger occur are examples of positive milestones.

Secondly motor development may be measured to some extent by negative motor milestones.

By the age of 4 weeks he can turn his head from side to side when prone and support his head briefly when held in the erect position.

By the age of 6 weeks he is usually able to follow bright objects moving near him by movements of the head and neck as well as the eyes.

Control of the upper trunk which allows unsupported sitting is achieved usually between 5 and 7 months.

Control of the lower trunk is achieved between the ages of 7 and 9 months able to balance in the which often require a sense of causality are acquired comparatively late.

It has long been recognised that children from culturally deprived backgrounds, especially those living in institutions, show slower speech development than children from emotionally healthy, middle class homes. They

have smaller vocabularies, use shorter sentences of simpler grammatical form, and use fewer past and future tenses and fewer subordinate clauses.

#### **6.2.1.1.5. ADAPTATIVE BEHAVIOUR**

Adaptative behaviour may be described as a convenient category for those various adjustments, perceptual, orientational, manual and verbal, which reflect the child's capacity to initiate new experiences and to profit by past experience.

As the child matures he becomes progressively able to adapt to new situations and to solve for himself problems which he meets in everyday life and in test situations. When he contrives means of dealing successfully with these situations, he may be said to "adapt" to them.

The child may be expected to be capable of taking some part in feeding himself by 18 months, by 21 months he should handle a cup well, and by 3 years he should be feeding himself quite efficiently. He may begin to co-operate in the process of putting his clothes on as early as 12 months but not till 24 months will he normally be able to put on simple garments unaided. At the age of 3 years he should be able to put on his shoes and to undo buttons if they are easily accessible. When he is 5 he may be expected to dress himself without assistance provided he has not too many difficult buttons and is not expected to tie his laces.

#### **6.2.1.1.6. SOCIAL BEHAVIOUR**

At the same time as their motor, adaptative and linguistic behaviour is maturing children make numerous and complex social contacts.

In his first human relationship after birth which is with his mother, the baby is completely dependent.

The earliest response of the human infant which seems to merit the description "social" is the smiling response. This response is usually first elicited by the mother within the first 4 to 6 weeks of infancy and shortly afterwards, the child will respond in a rather non-specific way by smiling to any other person, whether familiar or a stranger, who smiles at him.

From the age of 4 to 5 months, smiling response gradually changes. The child begins to be selective. He may smile or babble and make grasping and reaching movements when his mother comes, but turn away and be unresponsive with other people. From then on he may be expected to show definite signs of recognising familiar faces but is likely to be shy with strangers.

By these ages he will often try to engage the attention of people in his activities and will play the game of giving and taking back toys and of hiding and revealing them.

An enormous increase in the child's capacity for social exchange comes when language appears. At the same time the development of motor skills, especially walking and fine manipulation, makes the child increasingly able to explore and master his immediate surroundings. He begins to distinguish between what he does and things that are done or happen to him. He is increasingly aware of his relationship with other members of his family and takes the initiative in making social contact with them. He may give his mother and brothers and sisters presents and enjoys playing with them. He likes to help in the house and much of his play imitates what he has observed his parents and older brothers and sisters do.

#### **6.2.1.2. THE PRESCHOOL PERIOD**

The first stages of social play may be found, however, in the liking two- and three- year old toddlers have for playing beside, if not with, other children. Often,

when playing in this way, the child will keep a commentary on what he is doing, apparently for his companions' benefit, but in fact almost entirely for his own. This so-called "collective monologue" may reveal very vividly the intensely individual and self-centred world in which the typical three-year-old child lives.

By the age of four years three or four children may play together for half an hour or more without adult intervention in favourable circumstances.

The genital phase is characterised by a number of important changes in the child's relationship with other adults and children. Boys begin to identify with their fathers and girls with their mothers. Frequently both boys and girls have fantasies of replacing the parent of the same sex in the affections of the parent of the opposite sex. The relationship between boys and their fathers and girls and their mothers tends to become tense and polyvalent; love or hatred; identification or jealousy; admiration or fear may be predominant at different times.

By the time children are aged 4 or 5 imaginative play is usually sufficiently developed for many of these emotional conflicts to be resolved symbolically - a fact made use of by play therapists. Sometimes the symbolic play with dolls or drawings is violent and emotional conflicts are "played out" with intensity.

It is sometimes said that the child of 4 wants independence, but the independence that he wants is certainly only partial. There is a conflict between the desire for independence and the wish to return to the privileged passive condition of infancy.

Similarly parents are often in conflict between their desire to have a mature, competent child advanced in such matters as toilet training and general self-control and their desire to keep him small and dependent.

#### 6.2.1.3. THE SCHOOL PERIOD

When the child first goes to the nursery school, kindergarten or school between the ages 4 and 7 years many of these tense emotional conflicts of the early genital stage have begun to resolve. Even so the independence of a child of 6 years is partial.

The school years have been called the latent period by psychoanalysts because the intensity of the libidinal drives appears to be less than in the early pre-school years or in later adolescence. But, in fact, they mark a progressive gain in independence, for in school the child is expected to be mature enough to accept codes of behaviour which are different from those which he has previously obeyed at home and he does not have the access to his mother for comfort if he steps out of line. He has to turn for comfort to his teacher and his school fellows. He gradually learns between the ages of 5 and 10 years to subordinate his own wishes to those of the group of children of his own age whom he plays.

Children form gangs from the age of about 8 years.

Gangs commonly consist of between 5 and 12 children who play together and share the same activities and enthusiasms. Gangs of boys tend to be larger, more cohesive and persist for longer than those of girls. The leaders tend to remain constant, but relationships between individuals in the gang itself change; the members of it likely to find themselves playing different roles at different times.

The gang does give children the experience of taking an active part within a group of contemporaries for a common purpose. In all these group activities the child achieves aims which involve much more than immediate emotional self-gratification.

## 6.2.2. INTELLECTUAL DEVELOPMENT (COGNITIVE BEHAVIOUR)

### 6.2.2.1. COGNITIVE STRUCTURE

A cognitive structure is most simply explained as the child's way of representing the world to himself in some kind of organised system. With very young children it is very difficult to translate their behaviour into terms of cognitive structure, but as children grow older their patterns of interpretation and modes of thinking become clearer.

Bruner suggests that in the first 7 or 8 years, the child passes through three stages in the development of cognitive structure.

The first he calls enactive representation, in which the child interprets the world in terms of action. A thing or a situation is what is done with it.

The second stage he calls iconic; by now the child can represent the world in terms of imagery, and is no longer dependent on the immediate presence of an object or situation. This stage is where human intelligence leaves animal intelligence behind.

The third stage is called symbolic, in which the child can represent reality in terms of relations and symbols such as words and numbers.

A parallel and more influential scheme has been proposed by Jean Piaget.

His scheme rests on two foundations, the process of accommodation and assimilation, and a sequence of developmental stages through which all children progress in the same order, though not at the same speed.

Accommodation means that the child responds to new experience in terms of his needs and interests; after the first year, or even before, he begins to operate on his environment.

Assimilation means that his activities are being built into his representation of the world around him. The two processes of accommodation and assimilation go hand in hand in creating the child's interpretation of his experience.

These stages are:

- period of sensori - motor representation 18 months - 2 years;
- period in which the child has not developed a system of operations - 2 - 7 years;
- period of concrete operations - 7 - 12 years;
- period of formal operations - 12 - 15 years.

### 6.2.2.2. INTELLIGENCE

The assessment of intelligence involves three components: intellectual efficiency, intellectual maturity and learned knowledge and skills.

## 6.2.3. EMOTIONAL DEVELOPMENT

### 6.2.3.1. STAGES OF EMOTIONAL DEVELOPMENT

#### 6.2.3.1.1. INFANCY

The life of a young infant may be considered as a constantly repeated cycle of events - much sleeping or near - sleeping and less wakefulness during which occur feeding, eliminating and crying.

The drowsy cooing and babbling after a feed when clothes are warm and dry, when sensations in general are pleasurable seen to represent the earliest stages of contentment, of enjoyment in just existing.

While child development is often seen as a gradual transition from dependence to independence (or more correctly from relatively more to relatively