Taken from 'Who's bringing them up?' by Martin Large

Chapter Five

Blunted senses

'Television is sensory deprivation': Jerry Mander

Recently, I watched an eleven year old boy spend a long time observing the movements of a field mouse in a hedge. He followed every movement intently, and was thrilled at what he saw. On another occasion, I was with a ten year old boy, showing him one of Britain's wildest, most beautiful rivers which threads its way through the forests of the Welsh borders. Seeing a Peregrine falcon circling the vantage rock we were on, I asked a birdwatcher where the nest was. He invited me to look through his powerful telescope at a pair of Peregrines who were nesting in a nearby cliff. The boy looked briefly through the telescope with little interest, hardly *saw* anything and was certainly not touched by the experience. He was a heavy viewer, with his own set, with access to videos and a home computer for games. The contrast between the observational skills of the two children was stark.

The aim of this chapter is to examine the effects of the T.V. medium on the child's developing senses and nervous systems.

William Wordsworth wrote of his experience when as a boy:–

> There was a time when meadow, grove and stream,
> The earth and every common sight,
> To me did seem
> Apparelled in celestial light,
> The glory and the freshness of a dream

On growing older, the poet observes, 'The things which I have seen I now can see no more'. The youth who perceives the 'vision splendid' of nature, at length, as a man sees 'it die away – And fade into the light of common day'.

When we consider the openness of children to all that happens, to their powers of absorption and selfless imitation, we can appreciate the vital part their senses play in this. Just as food nourishes the physical organism, so the experiences of touch, warmth, movement,

sight, sound, taste, smell and well-being bring the world to the attention of the child. The exercise of the senses also nourishes the central nervous system and the brain, which enables the developing child to wake up into the world around her.

When children are brought up in an environment where their senses cannot develop in a healthy way, they do not thrive, as for example in formal institutions. Children who are cuddled, played with, conversed with and who experience a stimulating home life are more likely to thrive.

Our sensory experiences support our ideas, feeling and actions – even our sense of identity. This was shown dramatically in experiments with volunteers undergoing 'sensory deprivation' conditions, as a preparation for manned space flights in the United States. People floated motionless in water at blood heat, in total silence, wearing goggles that totally excluded light, and gloves which reduced the sense of touch. Initially, many volunteers fell asleep. On waking, some experienced hallucinations, fantasies, dreams, and distorted impressions of their bodies, as for example their arms or legs growing and floating away. Such experiments demonstrated how vital normal sensory experience is to maintain a balanced state of mind.

Given the importance of healthy sense experience for our normal functioning, and the far more vivid nature of children's sense experience, what effects does television watching have on sensory development?

When watching television, a young child may be in a darkened room – the light of day is screened out. He is motionless, which is an uncharacteristic state for a child, whose natural condition is one of continual play activity and movement. (An athlete reputed to have imitated all the actions of a three year old was exhausted in a short time – the child, however, was still as fresh as a daisy.) Whilst watching television the child is sitting down, the eyes are fixed, hardly move and are slightly defocussed.

The senses in use to watch television are sight and hearing. The other senses are largely unnecessary, so while children are watching television they are making little all–round use of their senses. The effects of this lack of use will be explored later. At this stage, however, the obvious point to make is that children who are playing and active will have more opportunities to develop their senses than children spending the same time watching television. The television children may find it harder to 'come to their senses' since they are subjected to a

medium which largely deprives them of a rich sensory diet. A common reaction of someone discovering that my own children rarely watch television is 'What do you *do* instead? What do you *watch*? Aren't you depriving them of so many experiences?'

Indeed, we are 'depriving' our children of many television experiences – because these are 'second-hand' experiences. I believe that for children an ounce of real experience is worth a ton of secondhand experience. This point was well made in a cartoon showing a child watching a sunset on television, whilst exactly the same sunset could be seen through the window.

To nourish the development of young children's senses is relatively simple. They need to touch and feel everything around them. Infants go through a stage of 'playing with their food'. By imitating the activities of adults, such as sweeping, baking, gardening and tidying, infants discover the everyday world.

As an infant's work is his play all the varied activities in home and garden, at the seaside, of building things, of playing games such as 'mummies and daddies', 'hospitals' or 'trains' – all call on the senses.

Children deprived of rich sensory experiences need to have play therapy in the nursery school. Teachers may have to put such children through a crash 'course' of such activities as water play, sand play, feeling things and mixing dough. This new phenomenon of the 'play-deprived child' has been observed by many nursery teachers. According to teachers, play-deprivation is not primarily connected with a child's socio-economic background, but rather with the amount of television-watching in the family.

Whilst many people may concede that excessive television-watching can deprive children of more healthy sense experiences, they may not readily agree that television *is* sensory deprivation. However, this was demonstrated dramatically by the Emerys, who compared brainwave patterns of television viewers to those undergoing a lengthy sensory deprivation period of ninety-six hours. The brainwave patterns on the electro-encephalograph showed that a person watching television for a few minutes was as seriously affected as someone subjected to a period of ninety six hours sensory deprivation.[1]

Before examining the effects of television on the senses more closely, let us look at the positive aspects of their care and development.

The care and development of the senses[2]

Traditionally, there were five senses attributed to the human being, plus a 'sixth' sense added by hearsay. Physiologists have included a few more, such as the senses of balance and of movement, whilst several 'social senses' such as the 'sense of identity', or a 'sense of language and meaning' have been suggested. Each sense provides us with a window on the world, and we experience reality through a 'circle' of such windows as we pay more attention to one sense and then another.

The more bodily senses give us an immediate experience of our organism. Balance enables us to experience our bodies in space; touch sketches the boundary of our skin; the sense of life tells us how we are feeling – whether we are well or out of sorts, and the sense of movement brings the perception of the motions of the body's muscles, limbs or joints. Balance, touch, movement and well-being involve us deeply in our own bodily experiences – we trust what these senses tell us.

The senses of taste and smell enable us to find out about substances outside our bodies – in very personal ways since each person develops his own 'sense of taste'. With sight we perceive colours, light and shade in our surroundings. For many people, 'seeing is believing', although more doubting people, like St. Thomas, may rely on their sense of touch for conclusive information. Another sense, the sense of warmth, tells us about relationships between warmer and colder things in the environment – about whether we ourselves are gaining or losing warmth from the surroundings.

Whilst sight and warmth take us into the environment, the sense of hearing enables us to penetrate into the heart of things. The tone of a bell informs us about the quality of such materials from which it is made. The eyes may be deceived in trying to discover the material of which an object is made, but if it produces a sound, any deception is uncovered and we recognise if it is made of plastic, metal or wood.

Since the sense of hearing enables us to communicate with other people, it is above all a social sense. It is complemented by other 'social senses' which, whilst difficult to pin down physiologically, yet are essential if a person is to participate in social life. There is the sense of word, which enables us to perceive the gestures, movements and patterns which are shaped by a speaker into a stream of sounds. This sense gives us a 'feeling for language', and even if we do not understand what is being said we recognise that it 'makes sense' and is not gibberish. Lastly, there is a subtle sense of 'feel' for the other as a

person, as an identity, which can be experienced when 'making contact' with someone. These latter three senses of hearing, of word and of the sense of the 'I' of another person are very dependent on social life for their development and conversely without these there is no social life to develop them.[3]

In the course of growing up through nursery, primary and secondary education the different senses need to be nurtured more strongly according to the children's stages of development. Many activities in playgroups, nursery and infant schools are usually practical – such as household tasks, cooking, constructing things, simple arts and crafts. Materials, substances, playthings and an environment of a sound kind have a positive influence, since it is through the senses that the world around is taken up into the child's experience – hence the importance of first-hand experiences with honest materials. Such an early environment creates security of trust in the world, for life. If children experience materials or objects which are a kind of lie – removed from real first-hand experience – then this produces an insecurity in the child, especially in trusting what the senses bring to him.

In the primary and middle schools, children need to be exercised artistically if their senses are to be fully developed. Through painting, which is of crucial importance to children, the world of colour, movement and warmth becomes a central experience for them. Music, language, art and poetry exercise the finer senses, whilst modelling or crafts enliven particularly the 'will' senses of movement, touch and balance. For it is artistic activities which awaken and develop the senses in a healthy way. Children need to experience the beauty of the world.

At secondary level, when teenagers become much more able to perceive in a detached way, science may help the capacity for accurate, objective observation to develop. The arts – especially if used in a social way as in modern drama teaching – may be of real help in exploring relationships and in awakening the social senses. Above all, teenagers need the experience that 'the world is true'.

Television's effects on the senses

Young children, in the process of discovering the world, are faced with the problem of 'sensing' if television pictures are 'real' or not, if there is in fact a man in the box or if the screen is a window on a

different world. Reports of certain primitive people's responses to cinema films – of being very concerned about where the actor has gone once he leaves the screen – demonstrate the initial confusion technology has on unsophisticated adults. From this we can envisage how puzzling television must be to children who are just becoming aware of the differences and variety of sensory experience. My three year old son asks, 'Is there really an orchestra in the box?' or 'Is that man really dead?'

Television is a deceptive medium to place in reach of children as they are learning find their way in the everyday world and are developing a general 'sense' of its reality. Think of the contrast between live puppets and a show produced on the T.V.screen. The live performance holds children spellbound, they can see the puppets and can enter the 'make believe' world of the story in a complete and uncontradictory way. But television puts over a vast number of images, people, and happenings that are artificial, second-hand reproductions of things taking place at a distance. Furthermore many events happening on the screen – the technical tricks, the cartoon antics, all the artificial unusualness used to attract the viewer – cannot take place in real life.

So young children are faced with a 'real world' which they need to get used to through the normal development of the senses, and a television world where events happen which are unknown and often impossible in everyday life.

A mother described an incident with her five year old stepdaughter who is a tele-addict:

> About six months ago she ran into the road and was hit by a car, and fortunately escaped with one bruise and shock. A few hours after the accident she asked me what had happened and I explained, telling her that she was a very lucky girl. I asked 'what would have happened if you had fallen under the wheels?' and she answered. 'I'd jump up again like the Pink Panther!'

Such incidents prompt one to ask whether television is severely handicapping the development of a sense of reality – the generalised outcome of the exercise of all the senses in exploring the world – in young children. One father, on taking his young son to the zoo to see the animals was so disturbed by such comments as 'I've already seen all this on television!' – that he got rid of television altogether. Reality, he concluded, cannot compete with a box which shows

close-ups of tigers, lions and rhinos, scenes which one never meets in ordinary life in such rapid succession. He also felt that television was dulling his child's sense of wonder.

It may be argued that young children watching a minimum of television, say twenty minutes a day, will develop a good feel for what is 'real' and what is not. However, just as children brought up bilingually from the start (with no initial 'mother tongue' as a basis) may later show signs of insecurity, or children with no developed preference for right or left handed orientations may show uncertainty – so children subjected to the 'television world' of second-hand reality alongside the ordinary world, may develop a lack of trust in their senses, and therewith a subtle doubt in the world. For mal-adjusted, handicapped and disturbed children this doubt may be magnified when responding to life situations.

Television and sight

The most important sense which television affects is our sense of sight. Its organ, the eye, responds to colour, light and darkness on the one hand and movement on the other. In fact, movement and balance – two other distinct senses – are intimately connected with the eye. One's eye is in continual movement busy gauging distance, height and depth which are the essential elements of perspective. The eyes are perpetually fixing objects in their vision, accommodating and shifting their focus. It takes time to learn how to perceive objects, for example a two year old will recognise again a triangle that has been rotated 120 degrees, only after rotating his head also – visual exploration is therefore a prerequisite of seeing. In adults, perception is dependent on all kinds of exploratory eye movements, from consciously directed ones to involuntary small ones which shift the image over the fovea when the eye seems fixated on a motionless object. Interestingly, in the context of television's effects on the eye, when such scanning motions are artifically suppressed, the image breaks up into fragments. We need to 'finger over the visual field with our gaze' as one physiologist observed.

Constant eye movement is required for a healthy eye. Lack of eye movement may be a symptom of ageing, and eye specialists can give exercises to help older people keep their eyes 'young'.[4]

For focusing we need conscious attention, vigilance and concentration, in short, we have to exert ourselves to co-operate with the faculties this sense provides for us.

Attention is needed for good observation and focalisation. William James wrote that, 'everyone knows what attention is...Focalisation, concentration of consciousness are of its essence. It is a condition which has a real opposite in the confused, dazed, 'scatterbrained state which in French is called distraction.' Such attention requires effort and cannot be 'sustained for more than a few seconds at a time'.[5]

Television watching is one of the most visually passive activities. One's head is stationary, the eyes are practically motionless and do not continually move to get 'fixes' on objects as for normal sight, and they are slightly 'defocused' to take in the whole screen. The accent is on peripheral vision rather than on central vision which is active in the state of attention described above. Another effect is that, whilst watching television one's eye muscles are not being exercised and one's vigilance is decreased through the necessary defocusing of the eyes. There is little need for accommodating eye movement – or rather, this is kept at a constant level to make up for the nature of television which is a slightly blurred, low definition medium (compared with the clearer image of cinema films, for example).[6] Some ophthalmologists recommend T.V.viewing for post-operative eye patients, just to keep the eyes stilled.

Apart from affecting the eye's mechanics in such a drastic fashion, television affects people's attention. The Emerys maintain that television both 'destroys the capacity of the viewer to attend', and also 'by taking over a complex of direct and indirect neural pathways, decreases vigilance'. They say that the television watching state of mind is a form of distraction, as opposed to concentration and focalisation.

Furthermore, the Emerys write that in spite of the high volume of content and information coming from the television, the mechanics of eye and brain receive this input as if it were a simple visual stimulus. Television is therefore an impoverished sensory environment. [7]

The foregoing arguments may lead to the conclusion that television affects children's vigilance, attention and concentration adversely. In addition, it may have harmful effects on children's eyesight if viewed at close range for over an hour a day.

So far we have been discussing effects applying specifically to the mature senses of adults. But how does television affect babies' and toddlers' developing sense of sight?

The perceptual world is not a finished product which is the same for

everyone, but it is shaped according to a person's age. Children's experiences happen in a vivid world in which things are attractive and repulsive before they focus into abstract qualities like squareness or blackness. Piaget showed how optical illusions decrease with age, and how children's perception of space develops. For the first few months objects do not 'exist' if they are not moving or doing something. Holding or manipulating an object gives it reality, and when it disappears, it is gone for good. Space, like 'mouth space' or 'grasping space' is separate and related to activity.

At the eighth to tenth month, the object is seen to be more independent. Piaget offered a watch to a nine month old, who played with it. When it was hidden under a pillow, the baby fetched it. Even though the baby saw the watch being hidden in a different place the second time he still looked in the first hiding place.

At about sixteen months, the toddler perceives the object as having permanence independent of himself. Space becomes a field in which things happen, as opposed to being bound up with activity. Perhaps the game of 'peek-a-boo' is a way for babies and toddlers to get used to seeing loved ones come and go, yet still feeling they are 'there'.[8]

The sense of sight continues to develop, and it is only at around the age of twelve that the sense for perspective emerges. From the standpoint of perceptual development, therefore, television may seriously harm the acquiring of such concepts as space by infants. Furthermore, the two-dimensional screen inhibits the development of a sense of depth and perspective.

Listening and observing

Some nursery teachers I know tell me that they have to teach children to listen. The teachers who taught in pre-television days remember how at the mention of a story, children would immediately respond and *listen*.

Nowadays, although most children still love stories, their attention-span is shorter and a minority find it hard to listen at all. But as soon as such children begin to 'make their own inner pictures' of the story, they are able to listen; however, teacher friends comment on how much *better* story-tellers they need to be nowadays to hold children's attention.

Presumably, the background sound of radio, cassette or television at home is so prevalent that the sense of hearing is dulled. Since

television is more visual than aural, and unless adults converse with children and tell them stories, children's sense of hearing is not being fully exercised.

Observational skills may also not be developed by viewing – hence the need to help children *see* flowers, animals, and birds. Many infant, kindergarten and junior teachers I know have observed a "withdrawal" from the senses in moderate and heavy viewing children. They therefore need to teach therapeutically to cultivate the ability to 'see a world in a grain of sand'. Some have been worried by the dulling of the colour sense, and point to the over-stimulating "loud" colour television medium.

Viewing and movement

Some older teachers can still distinguish the "viewers" from "non-viewers" in a class, by their posture, limb control and how they sit. Audrey McAllen, a special education advisor, wrote on movement and television:–

> After many years of working with children who have learning difficulties one sees clearly how unconnected the present day child is with the interaction of hands and limbs. They do not bother to lift their legs high enough to throw a ball under them, the hand collides with the thigh. Also the left leg seems heavier than the right and harder for them to lift. When classes have been screened for learning problems, this symptom of limb heaviness is now general among children. Over the last years it has become apparent that the children born in the 1960's take longer to respond to therapy than those born earlier.[9]

Since the other senses are hardly required by television, there remains its effect on the nervous system.

Television closes down the human nervous system

The Emerys propose that 'television as a simple, constant, repetitive and ambiguous visual stimulus gradually closes down the nervous system of man'. If this is what happens to adults when viewing, how

much more serious must the effects of television be on the developing brains of children?

Is it healthy to expose children, with sensitive, impressionable senses and nervous systems to such a powerful medium as television?

Researchers into the development and functioning of the left and right hemisphere of the brain are only beginning to consider the effects of T.V. One good reason to minimise viewing at an early age is to safeguard children until they are developed enough neurologically as teenagers, to handle the T.V. medium.

To recap, in chapter three it was mentioned that in an adult's brains the left and right hemispheres have distinct, specialized functions. Each hemisphere governs the activities of the opposite side of the body. The right hemisphere, for instance, controls the movements of your left hand.

The "critical" left brain can process one stimulus at a time. This leads to orderly thought sequences, linear thinking, analysis, distinguishing parts. The verbal and logical functions are important. The right brain can process whole clusters of stimuli at once, leading to a grasp of complex wholes – such as a face. The processes of thinking in images and pictures are important. As mentioned previously, viewing tunes out the left brain.

According to the Emerys, in adults subjected to electro-encephalographs whilst watching television, the left hemisphere is hardly active at all, registering a minimal holding pattern. They suggest that, 'viewing is at the conscious level of somnambulism'. The right hemisphere does register the television images, although since the cross-referencing of our subconscious intelligence between left and right has been "knocked out", these cannot easily be brought to consciousness. Hence the difficulty most people have in recalling much information from a programme.

Other researchers into brainwave patterns whilst watching television confirm the Emerys' findings. Dr Eric Peper is a Professor of Interdisciplinary Sciences at San Francisco State University. He claims that the alpha wave patterns which rapidly become dominant whilst watching are a sign of being 'in a totally passive condition and (being) unaware of the world outside of the pictures which one is seeing. The right phrase for alpha wave patterns is really 'spaced-out'. Not orienting. "When someone pays attention to something external, such alpha wave patterns disappear"[10]

Whilst adults may choose to administer the plug-in-drug to themselves to become 'spaced-out', what effects does it have on the developing brains of children?

Babies have unspecialized brains, indeed it is only at about twelve that the left and right sides are fully specialized as in adults. Babies seem to have some sort of 'non-verbal thought', for example they recognise human faces.

In the second year, toddlers learn to speak and language comes to the fore. At this time each brain hemisphere is apparently equally mature verbally-lesions in the left side are no more harmful to language development than on the right side, and vice versa. Similar lesions in the left hemispheres of adults might cause significant linguistic problems.

As language develops, presumably the brain specializes into the two hemispheres of verbal and or non-verbal thinking. Learning increasingly comes from verbal activities.

However, television in the early years when the brain is so malleable and sensitive, prolongs the dominance of the non-verbal 'right hemisphere' functions. The trance-like state of many child viewers, especially if induced for 20–30 hours per week, may seriously inhibit the development of the verbal-logical 'left hemisphere' activities.

Furthermore, children exposed to television – a medium which prolongs the dominance of non-verbal 'right' hemisphere activities – may not take full advantage of the pecular 'language sensitive' period of infancy. Just as there are 'tides in the affairs of men' so there are tides of 'readiness' in the child's development, for example, language readiness. If a child does not learn to speak during this period of readiness, it may be hard for him to make up for this deficiency later on.

Local, Gloucestershire health visitors and speech therapists are concerned about the increasing numbers of young children who can hardly speak. What appear to be speech impairments, are in fact children who have had little family conversation, no nursery rhymes, and whose parents prefer dummies (pacifiers) and television.

Babies, toddlers and infants may have their feeling for commitment to language eroded by television. Since the best conditions for learning language are conversing with real people, and since television is a linguistically inadequate, if not a retarding medium in this respect, as no child can converse with it, then young children could well do without it. At a stage in their development when children soak up new experiences like sponges, television prolongs their dependence on the non-verbal 'right hemisphere', hinders the appetite for language and

produces 'spaced out' states of mind.

When neurologists such as Dr. Eric Peper assert that 'television trains people only for being zombies' – it may be time to ask 'Do we want this state of consciousness to be induced in our children?'[10]

To conclude, viewing at an early age may hinder the development of the senses, such as sight, sound, movement – and, indeed, offers up a poor, second hand sensory diet. Over-stimulated, children may "withdraw from their senses", and need therapeutic exercises. The patterning the brain needs for language development is hindered by viewing.

Chapter Six

Television light and health

Questions are beginning to be asked in scientific circles about the effects of light, such as television light, on our health. Since there are as yet few hard facts on this subject, the information presented in this chapter may be regarded as somewhat speculative. Such scientists as Dr. John Ott, who has pioneered the field of health and light, are still regarded in ophthalmologists' circles as original but also perhaps eccentric. However, because many babies and infants are subjected to such a high 'television light diet', I believe it informative to include this chapter on the possible effects of television light on children's health.

Children are highly sensitive to the environment, and young children particularly are like sense organs who touch, taste and feel the world through and through. A toddler will quiver with delight at seeing a beloved object, a baby will taste the warmth and goodness of milk 'all over his body', or respond to a sound with his whole organism. Unlike adults, who can judge and think about the world on the basis of sense impressions and who screen out undesired sense stimuli – young children register every external change. They are 'all sense organs'.

One of the first experiences babies have is of light, of seeing light and of being 'touched by light all over their bodies'. They are born 'into the light of day' from the maternal darkness of the womb.

Just as food nourishes the metabolism, and air nourishes the lungs with oxygen, light gives nourishment to human beings. Some people, we are told, eat little food but live 'on light and air'. Babies need light, especially daylight, a 'food', in order to thrive.

The nourishing effects of light were discovered recently when babies with jaundice were observed to recover more quickly near to windows, than in less well-illuminated parts of dormitories. Light is now given as a successful therapy for neo–natal jaundice. Light, whether daylight, blue light or full spectrum white light of a reasonable level – effectively reduces the bilirubin levels which are out of balance in such cases.

Rickets in infants is partly caused by a lack of vitamin D which is produced in the skin of the body with the help of daylight. This used