




# ***Layers and the role of attachment in mental and social-emotional processing I: A unifying model***

André H. Roosma

inspired in part by material of E. James (Jim) Wilder and Karl D. Lehman<sup>1</sup>

[Dutch](#)  [edition](#): May / July 2007; [English](#)  [edition](#): July 2008

 [\(updated\)](#) last updated: 10 April 2010)

## **Introduction**

As human beings we usually try to process what happens to us, to our best mental and social-emotional abilities. We do not always succeed very well in that. Two factors determine this: on the one hand the intensity of what happens to us, and on the other hand the skills we have acquired for this kind of processing. Acquiring these skills is related to the architecture of our brains and how they are formed. Also important are the way we learn these skills and the maximum capacity that we have at each moment in our development for processing difficult experiences.

To grow physically we have to learn all kinds of physical skills, ranging from using our hands to learning to walk or to bike. Often we may be not so much aware of this, but on spiritual, psychological and social planes things aren't much different. In these areas we also have to acquire all kinds of cognitive and social-emotional skills, when we are young as well as later in life. We are and remain under development, like Jim Wilder points out clearly in his book *Living with men*<sup>2</sup>. Ideally, this goes rather unnoticed as a natural process. We are confronted with the fact that this is not self-evident, when we see that something is missing – when we face problems in our life or when we are bugged by old traumatic experiences. First-time learning or enhancement of certain social-emotional skills can be necessary then.

There is an additional factor, which is our limitation as created humans. Everyone knows that our physical powers have limitations and our muscles experience overload when we ask too much of them. The same is true for our emotional system and our psyche – they, too, are limited. When we load them too heavily – above their capacity – we will experience the consequences also, sooner or later. This aspect also plays a role when we talk about traumas and trauma recovery or healing.

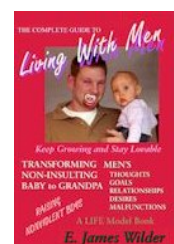
This article is Part I in a series. This series presents a multidisciplinary model, as an instrument for counselors in helping people who suffer under a variety of spiritual, relational, psychological and emotional problems. This model I call multidisciplinary, because it has been developed to include the most recent insights in the area of the psyche (especially from development psychology), the role of relationships (sociology and systems approach) and of neurology (in particular concerning processing of experiences in the brain). It has also been developed from a Christian viewpoint that starts from the notion of a personal God, Who is interested in our well-being. This means that important pastoral-theological insights have been included. In each of these areas this series builds on work of a host of other scientists, which often will be referred to in footnotes.


In this first article I discuss the layered architecture and functioning of our brain. I also discuss how that, and our attachment style, impact our ability to learn emotional and relational skills, as well as our capaci-

<sup>1</sup> See [www.lifemodel.org](http://www.lifemodel.org) with the reference in note 2, and [www.kclehman.com](http://www.kclehman.com) respectively. Karl D. Lehman (MD) is an American doctor who, together with his wife, Charlotte E.T. Lehman (MDiv), uses the teachings of Dr E. James (Jim) Wilder and teachings on a specific form of pastoral prayer in his own pastoral ministry. He also has written various articles about this. Dr Karl Lehman's web document 'The Processing Pathway for Painful Experiences and the Definition of Psychological Trauma' ([downloadable via this index](#)) was inspirational in writing this article.

I thank Jim Wilder especially for his trust towards me and his cooperation to let me build further on his research.

<sup>2</sup> E. James Wilder, (*The Complete Guide to*) *Living with Men – Keep Growing and Stay Lovable*, Shepherd's House Publishing, Pasadena CA, USA, 1993/2004; ISBN 0-9674357-5-7.



ties for processing difficult experiences and emotions. A subsequent article ([Part II](#) ) will discuss the consequences of this layered brain architecture for recovery from a traumatic background.

The model presented here is tested against various older developmental models, like those of John Bowlby, Erik H. Erikson and Jean Piaget. It is also strongly inspired by various recent neurological studies, like those by Allan N. Schore, Bruce D. Perry en Daniel Siegel. In the limited context of this short article I cannot discuss all these relationships to other models extensively. However, I will pay attention to the relationship of this model to the *Life Model* by Dr E. James (Jim) Wilder et.al., because the current model is closely related to and inspired by Dr Wilder's model.<sup>3</sup>

## Layers in the architecture and functioning of our brain and in our mental and social-emotional processing

Our body and our psyche are complex systems. Time and again we try to describe them in simple models to gain some control by our (limited!) mental abilities. And time and again we discover that there is more, that reality is more complex and multi-faceted than our models.


Recent neurological research has discovered that in our psychical and mental abilities we see a layered pattern or hierarchy.<sup>4</sup>

We have elementary, unconscious systems for routine things and for fast reactions. These are developed first in our life – for a large part already before birth. One can think of systems in our sympathetic and parasympathetic nervous systems that carry out all kinds of coordinating tasks in the body, care for heart rhythm, et cetera. I also include here our primary, unconscious patterns of reaction to e.g. threatening impulses from our environment – varying from retracting a hand from a hot pan, to ducking when someone seems to hit your head with a stick. If, in such circumstances, we would first have to think consciously what the threat is and what reaction might be the best one, our reaction would often come too late.

Next to these, we have higher, conscious brain systems for complex tasks. This involves issues about which we do have time to think before coming with a more personally differentiated choice. This can be a relatively simple issue like the choice of a garment (“what will I wear today?”), an answer to a question posed to us, or a more complex issue we face.

Lastly, we have the possibility of reflecting as a layer on top of that, where we put things in a larger perspective, watch back on an event analysing what happened exactly, or something like that.

In this all there is a hierarchy in development as well as in processing. Concerning the processing: when something comes our way, our mind first tries to deal with it at the most basic layer. If needed, the next layer gets involved, et cetera.

Processing of pain and trauma also follows this path from elementary to complex systems. More about that in [Part II. of this article](#) ()

Crabb realized that the therapy enterprise, too, is built on relationships. "It's not about what I *do* to people; it's what I *am* with people," he says ...

[‘A Shrink Gets Stretched Why psychologist Larry Crabb believes spiritual direction should replace therapy’](#), by Agnieszka Tennant, [Christianity Today, May 2003](#)

<sup>3</sup> In the appendix ‘[The Theoretical Basis for the Life Model](#)’ of the book *The Complete Guide to Living With Men* (see note 2), E. James Wilder gives some of the relations of the *Life Model* with other theories, like the one on developmental phases by Erik Erikson.

<sup>4</sup> More about this is to be found in the reference in note 1 above and in the following literature (see also note 6):  
Pamela J. Deiter, Sarah S. Nicholls & Laurie Anne Pearlman, ‘[Self-Injury and Self Capacities: Assisting an Individual in Crisis](#)’, *Jl. of Clinical Psychology*, Vol.56, Nr.9, 2000, p.1173-91.  
Bessel A. Van der Kolk, Alexander C. McFarlane, Lars Weisaeth, editors, *Traumatic Stress: The Effects of Overwhelming Experience on Mind, Body, and Society*, Guilford Press, New York, 1996.  
Allan N. Schore, *Affect Dysregulation & Disorders of the Self*, W.W. Norton & Company, New York / London, 2003; ISBN 0-393-704008-4 / 0-393-70406-8 / 0-393-704076. [A part of this book is online.](#)  
Allan N. Schore, ‘[The Effects of a Secure Attachment Relationship on Right Brain Development, Affect Regulation, and Infant Mental Health](#)’, *Infant Mental Health Jl*, 2001, 22, pp.7-66). ([also at the site of the Healthy Children Network](#))  
Allan N. Schore, ‘[The Effects of Early Relational Trauma on Right Brain Development, Affect Regulation, and Infant Mental Health](#)’, *Infant Mental Health Jl*, 2001, 22, pp.201-269.  
Allan N. Schore, ‘[The Right Brain, The Right Mind, and Psychoanalysis](#)’, in: Allan N. Schore, *Affect Regulation and the Repair of the Self*, Guilford Press, 1994.  
Bruce D. Perry, ‘[Memories of Fear – How the Brain Stores and Retrieves Physiologic States, Feelings, Behaviors and Thoughts from Traumatic Events](#)’, [The Child Trauma Academy](#), version of a chapter originally appearing in: J. Goodwin & R. Attias (Eds), *Splintered Reflections: Images of the Body in Trauma*, Basic Books, 1999.  
Bruce D. Perry, ‘[Incubated in Terror: Neurodevelopmental Factors in the ‘Cycle of Violence’](#)’, in: J. Osofsky (Ed.), *Children, Youth and Violence: The Search for Solutions*, Guilford Press, New York, 1997, p. 124-148.

## Connection / attachment and belonging

Another important aspect presenting itself both from the Bible and from recent neurological research, is the central role of *connection / attachment*.<sup>5</sup> Our identity is based on two important pillars: (a) connection / attachment to God and others (*interpersonal*) and (b) connection within ourselves (*intra-personal*). Developmentally, the *intra-personal* connection follows from the *interpersonal* connection. In other words: we get well connected internally if we get a good example of connection / attachment in our first years of life through our primary caregivers. In other articles I dig deeper into the matter of how we can be offered this good model of connection / attachment / belonging in our first years.

These two pillars – connection to God and others and connection within ourselves – we observe on all three of the layers discussed above: the unconscious, the conscious and the reflection layer.

## A schematical representation

E. James Wilder et.al. have studied the brain's control center hierarchy, and in the *Life Model* they come up with a hierarchy of 5 levels.<sup>6</sup> These 5 levels just appear to fit into the above description of layers and the key role of connection. On this basis, I come to the following simplified representation with three layers, with on each layer on the one hand the connection to God and others (*interpersonal*) and on the other hand the connection within oneself (*intra-personal*). Because of its strong relation to the 5 level brain hierarchy as observed in the *Life Model* research, I have included references to the levels 1 to 5 of the *Life Model*.

connection /attachment hierarchical layer	a. interpersonal: with God and others	b. intrapersonal: within oneself
III analytical, explanatory, placing in larger context	level 5a: coherence with the world around us	level 5b: coherence in own experiences & stories
II complex / differentiated / potentially conscious	level 3: attunement, joy of connection	level 4: identity, be who you are
I basic / elementary / unconscious	level 1: attachment, basic safety	level 2: pleasure, fear/control, basic coherence

© André H. Roosma, *Accede!*, Zoetermeer, NL, [www.12accede.nl](http://www.12accede.nl) / [www.12accede.org](http://www.12accede.org); May 2007 / Dec. 2009; based on research in own practice and literature, and on the *Life Model* research by E. James (Jim) Wilder et.al.

### Diagram 1. Connection and layering in mental and social-emotional processing

The colours in this scheme point to the brain parts involved (see also the Appendix at page 8):

Layer I (shades of pink/red/orange) pertains especially to processes in the deep limbic parts of the brain; Dr Wilder relates layer I.a (level 1; pink) to the *thalamus* and the *basal ganglia* (this includes the *ventral striatum* of which the *nucleus accumbens* is most significant) and layer I.b (level 2; red/orange) to the *amygdala*, responsible for fear conditioning; at layer I also the *locus coeruleus*, sometimes called the *trauma center* of the brain, though also involved in attachment, is involved. Most parts involved in layer I are part of the *limbic system* (between *brainstem* and *cortex*). The *locus coeruleus* is part of the *brainstem*.

In layer II (shades of yellow), the 'higher' brain (*(neo)cortex*), especially of the right hemisphere, is involved; at layer II.a (level 3; dark yellow): the *right cingulate cortex* – sometimes counted under the *limbic*

<sup>5</sup> This also appeared clearly in the development psychology by Bowlby and in the Object Relations theory, of which this definition has been given: "Object Relations is a set of theories which postulate that **relationships**, beginning with the mother-infant dyad, **are primary**, and that intrapsychic, **interpersonal, and group experiences lay the foundation for the development of individual identity**. The individual's interpretation of these relationships – both conscious and unconscious – becomes the basis for later relations with others, in friendship, marriage, and raising a family." Source: "[What is Object Relations](#)", Object Relations website; emphasis added.

<sup>6</sup> See a.o.:

E. James Wilder, James G. Friesen, Anne M. Bierling, Rick Koepcke, Maribeth Poole, *The Life Model – Living from the Heart Jesus Gave You – The Essentials of Christian Living*, and: *Bringing the Life Model to Life – The LIFE Model Study Guide for Individuals and Small Groups*, Shepherd's House, Pasadena, CA, USA, 1999 and 2000.

E. James (Jim) Wilder, '[Four Plus Levels of Synchronization](#)' (📄), at [www.lifemodel.org](http://www.lifemodel.org), 2003.

And the reference in note 1.

For the neurology, see the chapter '[Functional Neuroanatomy](#)' of the **atlas** at the website of Daniel G. Amen.

See also: Regina M. Sullivan, '[Developing a Sense of Safety: The Neurobiology of Neonatal Attachment](#)', *Ann N Y Acad Sci.*, 2003 December; 1008; p.122–131.

system as well; at layer II.b (level 4; yellow): the *right orbital* [= with the eye] *prefrontal cortex*; in the literature also named the *ventromedial* [= lower-inner] *prefrontal* or *orbitofrontal cortex (OFC)*. According to the neuroscientist Allan N. Schore, these two systems form the interjunction of the *limbic system* (elementary; bonding & emotional regulation) and the *cortex*, the *OFC* being the apex of the limbic system, and thus they play a very large role in emotional regulation, dissociation and many other phenomena.<sup>7</sup>

Layers I and II involve the brain's core control centre with respect to processing of experiences.

At layer III the right cortex (yellow) is involved again, but also parts of the left hemisphere and the bridge between both hemispheres (*corpus callosum*; white).

Note that neurologically seen, under layer I (level 1) we have another layer (for simplicity here referred to as fictitious 'layer 0'), associated with the brain stem, responsible for basic vital life and physical body functions such as breathing, heartbeat, and blood pressure, but these fall largely outside the *main* scope of this article-series.<sup>8</sup>

From their modernistic background stance, traditional psychoanalysis and psychotherapy often have focussed especially on the blue edged, light yellow/white part (layers II.b and III; levels 4 and 5; esp. III.b), and have had less attention for the layers I and II.a (levels 1-3; red edged). From there, people have been appealed in their conscious, analytical and rational/mental abilities as determinant for their behaviour; compare the cognitive-behaviouristic approaches such as Rational-Emotive Therapy (RET). This is a form of over-emphasis on the mind that does little justice to the largely unconscious and strongly relationally, emotionally charged and experientially determined processes at layers I and II.a (levels 1-3; red edged). In these articles we will therefore pay extra attention to layers I and II.a.

Recapitulating, I discern three layers concerning conscious awareness and complexity, which are related to certain brain parts:

- I. elementary / basic / unconscious (sub-cortical in the brain);
- II. (potentially) conscious / differentiated (right-cortical);
- III. analysing/reflecting, placing experiences in larger contexts (left-right cooperating).

In healthy development, we see a good connection being formed on every layer (a) with God and others, and consequently also (b) within oneself. In layer I, (a) and (b) match more or less with levels 1 and 2 respectively in Dr Wilder's *Life Model*. Layer I is neurologically related to the deeper parts of the brain that develop first (the thalamus, basal ganglia, locus coeruleus and the amygdala) and that care for unconscious, often 'automatic' and fast reactions. So, brain-physiologically seen layer I is sub-cortical (below the cortex), and thereby sub-conscious and not directly reachable via conscious thinking. Experiences are registered at layer I predominantly as *sensory experiences* that are recalled very quickly – via direct association. A large part of the *schemata* ('feeling images') that we develop in our first years of life (and already prenatally) on how the world fits together and what our place in it is, are found on this layer. These *schemata* or *schema's* direct the majority of our behaviour. More on this in [Part IV](#) of this series. Layer II (a) and (b) correspond to levels 3 and 4 of the *Life Model* and layer III to level 5. Conscious thinking can influence these higher (cortical) layers.<sup>9</sup>

## A closer look at each of the layers

Layer I.a (level 1) develops unconsciously in the context of attachment and sensing (basic) security in the first years of life. For a discussion of the 4 attachment styles that find their basis here, I refer to the literature<sup>10</sup>. The fertile soil for basic

**Secure attachment is to be seen  
as the first form of a fundamental  
trust at a biological level.**

Peter P. Robertson  
in: 'Managing motivation – The role of the  
attachment / exploration system in  
organisations'; [www.human-insight.net](http://www.human-insight.net)

<sup>7</sup> Cf. a.o. Ann Nesbit, 'Allan Schore's Orbital Frontal - Limbic - Autonomic, Hypometabolic Theory of Dissociation', presented at the *ISSD 2005 Annual Convention* in Toronto.

<sup>8</sup> More in-depth treatment of Layer 0, and the actually quite highly interrelated dynamics of this layer with the higher layers, can be found in: Pat Ogden, Kekuni Minton, Clare Pain, [Trauma and the Body – A Sensorimotor Approach to Psychotherapy](#), W.W. Norton, New York / London, 2006; ISBN 978 0 393 70457 0.

<sup>9</sup> This simple three-layered model is of course – like any model – a simplified representation of complex reality. It does model the most important aspects, like the fact that our processing is characterized by hierarchical layers – both functionally and physically, and that mental processes in the model correspond well with the brainparts of which it has been demonstrated by modern scan-techniques that they are involved in this, and their interaction. The model satisfies what renowned social-cognitive neuroscientists Kevin N. Ochsner and James J. Gross state:

"One tenet of SCAN research is that behavior and mental processes should be explained using multilevel models that link (a) measures of behavioral, experiential, and physiological responses to (b) descriptions of information-processing mechanisms and (c) their neural substrates."

Source: Kevin N. Ochsner and James J. Gross, 'Cognitive Emotion Regulation – Insights From Social Cognitive and Affective Neuroscience', *Currents Directions in Psychological Science*, 17 (1), 2008; p.153-158.

<sup>10</sup> See e.g. my articles: '[Our Ultimate Life Goal](#)' (on how intimate connection with God is our ultimate goal and life fulfilment as well as the ultimate source for healthy living), '[Family Life and Personality Development](#)' (some notes on

security and good skills at level 1 is formed by the attunement of our parents to us and our feelings, in our very first years of life. Further on in this article I will elaborate a little more on what good attunement really means, and elsewhere I illustrate it from another viewpoint.<sup>11</sup> Even at a later age this basis can be laid, though the process will often take more time and effort then. If such a secure base has not been laid in the first years and if this defect isn't restored later either, we will experience a deficit or emptiness in our life at a deep, unconscious level, that will often hinder us to really reach our destiny in life.

Layer I.b (level 2) develops from the secure base laid in the first part of this layer (level 1). On the basis of this basic security we can connect to experiences. If, on the other hand, experiences are too overwhelming (more traumatic than our capacity in this area can endure), then dissociation takes place – we distance ourselves internally and unconsciously from the experience. This can be seen as a self-protection or defence mechanism. First a partial fencing takes place where we only 'forget' the link to the painful emotions (the emotional content of the memory becomes hidden). If the stress or the pain increases further we unconsciously distance further, till the experience is totally banned from consciousness (dissociation of the total event). On repetition of a traumatic experience this dissociation (internal disconnection) can increase such that a Dissociative Identity Disorder (DID) can develop. This traumatic experience may involve something that we needed to get in our first years but didn't get – so called A-trauma's<sup>12</sup>, or evil things that we experienced from others but for which we were not meant – B-trauma's.

In this broken world, sometimes we all experience things that are not nice and good and enjoyable – both small and large experiences that can distort our emotional balance. It is then important whether we can come back to joy and peace. It may be clear, that security and especially re-attunement and being led back to joy after confusing or stressful experiences is the most fertile soil for healthy development at this level.

A-trauma's at a young age (0-4 years and more specifically 0-2 years), e.g. by a deficit in good attunement by parents or other caregivers, often have far reaching effects for our functioning at layer I (levels 1 and 2). Those consequences we re-encounter (amongst others) in various forms of dissociation, taking distance from certain feelings and taking distance from others (avoiding or dismissive attachment style) or an ambivalence or chaos in relationships (anxious-ambivalent or disoriented attachment style).<sup>13</sup> One also re-encounters it in a search for gratification in intense experiences (addictions, sects,<sup>14</sup> sexual indulgence, workaholism,...).

---

how we were meant to grow up and develop) and '[Connectedness and Attachment – some observations \(a.o. by development psychologists\) – Part 1.](#)' and '[Part 2.](#)', all at [www.12accede.org](http://www.12accede.org) and the Dutch ones: '[Verbondenheid als rode draad door het hele leven heen](#)' (Belonging/Connecting as Guiding Principle All Through Life) and '[Een veilige thuisbasis als universele behoefte](#)' (A Secure Home Base as Universal Need), both at [www.12accede.nl](http://www.12accede.nl).

<sup>11</sup> See the references from the previous note and my article: '[Blessing nonverbally – a powerful language!](#)', at [www.12accede.org](http://www.12accede.org). See also the article by Jim Wilder, '[Emotionele synchronisatie](#)' (Dutch version of: 'Emotional Synchronization', a chapter from *Living with Men*; see note 2), *Promise*, Jrg.23, nr.3, juli 2007.

<sup>12</sup> These A-traumas are often not recognized and treated as such (but labeled as Borderline, DIS, etc. – which isn't always very functional; fortunately, the IVth edition of the DSM recognized besides these the PostTraumatic Stress Disorder as a beginning of cause- and therefore also more solution-focused diagnosis).

See also: Allan N. Schore, '[Dysregulation of the right brain: A fundamental mechanism of traumatic attachment and the psychopathogenesis of posttraumatic stress disorder](#)', *Australian and New Zealand JI of Psychiatry*, 2002, 36, pp.9-30.

<sup>13</sup> In his presentation: '[Disorganized attachment, trauma-related disorders and the therapeutic relationship](#)' of November 2008 the Italian professor Giovanni Liotti observes a.o. that disoriented/chaotic attachment results in an internal working model (schema) that is not accessible along a cognitive path; he talks of "implicit memory" which "represents unpredictable, uncontrollable, and frightening caregivers' responses" and which results in "switches in the child's state of mind that are equally uncontrollable and oscillate between the polarities of: craving for protective closeness, defensive rage, fright without solution and helplessness, tendency to invert the direction of the attachment relationship". This is a typical example of the many phenomena on which our model sheds some light. The "implicit memory" corresponds to what I characterize as 'layer I', which is indeed not directly cognitively accessible and responsible for switching between different states of consciousness at the higher layers.

In: J. Read, B.D. Perry, A. Moskowitz & J. Connolly, '[The contribution of early traumatic events to schizophrenia in some patients: a traumagenic neurodevelopmental model](#)' (📄), *Psychiatry* 64 (4) p.319-345, 2001; the authors state that also schizophrenia – often seen as especially biological-genetically determined – can find an important cause in traumas (in particular early A-traumas).

A similar observation counts for autism; see a.o.: Mark F. Mehler, Dominick P. Purpura, '[Autism, fever, epigenetics and the locus coeruleus](#)', *Brain Research Reviews*, Volume 59, Issue 2, March 2009, p.388-392.

The parallel between these two appears a.o. in the PhD dissertation of Annemie Ploeger: '[Towards an integration of evolutionary psychology and developmental science: New insights from evolutionary developmental biology](#)', Univ. of Amsterdam; FMG – Psychology, Dec. 2008.

<sup>14</sup> See: E. James (Jim) Wilder, 'Fear Bonds and Love Bonds In Families and Cults' (📄), web-article at [www.lifemodel.org](http://www.lifemodel.org), based on chapter 5 of the book: *The Red Dragon Cast Down: A redemptive approach to the occult and*


Characteristic for layer I is that we have very few or limited boundaries there. Only in the higher brain layers (the cortex) an awareness of boundaries and limits arises, like awareness about how what I experience now fits into the circumstances and in time. At layer I we experience emotions as unlimited – there is no distinction between ‘long ago’ and ‘now’ and what still has to come. The ‘now’ is all there is. This is the reason why e.g. emotional flashbacks can be so penetrating and troublesome: at layer I there is no awareness that this does not belong to the ‘now’ but to ‘the past’. The feedback from the higher layers (our conscious thinking faculties) to layer I does not follow a rational path but mainly an experiential path (via experiences). Lastly, layer I also contains the most important basis of our life joy and motivation, largely determined by early experiences.

At layer II.a (level 3) the conscious relational connection with God and others is involved. On the basis of the foundation of layer I we become conscious of the joy in being together (joy of connection). This starts with being led back to this joy as a child by the emotional attunement of our parents to us, and by their joy about our very existence. The right cingular cortex – the part of the brain that is especially active in this – is also called the ‘mothercore’, because we usually attune ourselves to our mother at this layer. Our brain thereby adopts patterns from her brain. One might as well say that the nerves shape after the example of the mother (or the one taking her place). This happens via non-verbal attunement, on which I will come back later. As a result we also learn to nonverbally attune to another and intuitively as well as consciously empathize with what someone else feels and thinks. Large deficits in this layer find expression, amongst others, in not being able to get back to peace and joy after a difficult experience.

**(The) amygdala modulates information processing at al cortical levels!**

in: [Het limbisch systeem, hippocampus en amygdala – geheugen en emotie](#), college-sheets at the website of the Free University of Amsterdam – [Department of Anatomy](#), 2005-09-22; my translation.

On the basis of the foundation of layers I and II.a (levels 1-3) we reach layer II.b (level 4). This involves finding our own answer to questions like: who am I as a unique being, how do I act specifically in such a situation as this one, and: in what do I find conscious satisfaction? This gives our life focus and direction.

Layer III (level 5), at last, concerns the possibility of analysis and reflection, the notion and larger context for interpreting what happens (biographical, explanatory, models, paradigms, world view etc.). Stories about our family backgrounds and about the dynamics of human relationships form a fertile soil here. Here, too, it works from outside (III.a) to inside (III.b): by the stories that we hear and by exchange of views with others we form our own worldview and image of humans. This reflection at layer III is necessary to get to see the coherence of events in your own life and place them in a larger context. If this reflection is not or not adequately learned, then we often see also an incoherent functioning: interpersonally incoherent – so often with failing teamwork etc., as well as internally incoherent – characterized by various internal conflicts. Essential in this is a good notion of the truth. I will come back to this later (and in more detail in [Part IV](#)  of this series).

The hierarchy in the three layers is due to three factors:

- the order in the development: the lower layer develops first and the top layer develops last;
- the neurology: the lowest layers involve the deeper parts of the brain that process signals first and that strongly influence or even control processing at higher layers;
- the hierarchy of processing that follows directly from the neurological factor; I will illustrate this with an example: when at layer I a signal is experienced/interpreted as too terrifying or too painful and the exit of dissociation is activated, it is no longer possible for the higher layers to perceive that signal well and/or experience the feelings, let alone process them.

Within every layer the interpersonal processing mostly precedes the intra-personal. This is related to our being created for the relationship with God and with each other.

## **Alternating development of right and left brain hemispheres**

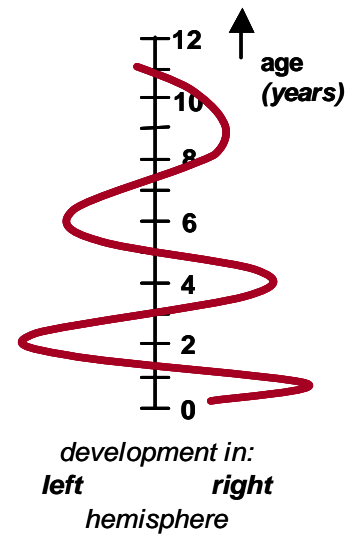
In the development of our mental and social-emotional abilities, like sketches above, the right brain hemisphere plays a big role – a leading role, one might say. Every new layer starts its development on the right side, where our most important relational and emotional (experiential) ‘processing units’ are located. What stands out in this, is that recent neurological research has demonstrated that the development of our brain is carried out like walking: we put one foot forward, and then the other, the first again, and so forth. See the illustration in Figure 1.

Something else that stands out is that in the determining first five years of life we see two big growth spurts of the right hemisphere, and only one of the left. The most intense growth of the right hemisphere takes place in the first 16 months. Therefore, recovery work at problems stemming from deficits or traumas in this period has to focus primarily (though not exclusively) on the processes in the right hemisphere. This brings me to the next paragraph.

## Synchronization and interpersonal attunement

This is an aspect that has received too little attention in modernistic therapeutical approaches (blue cadre in diagram 1), that has too little eye for connection/bonding and for the bodily side of emotions. I see it as an urgent supplement to many of the existing models of psychotherapy and counseling; necessary to fill the often times missing link of connection in traumatized people – in particular at layer I.a and II.a (*Life Model* levels 1 and 3).

What do I mean by synchronization and interpersonal attunement? Synchronization involves timing, coordination and cooperation. Think of the action movie, where team mates synchronize their watches to be able to cooperate well adjusted to each other, or think of an orchestra, where synchronization is essential to let a piece of music sound well and harmonious. Building up the left side of our scheme (all layers I.a, II.a en III.a in diagram 1) happens via attunement by our parents or other caregivers to what happens in our emotions. In interpersonal attunement one person attunes to the internal experience of the other, to be with the other in that experience and go through it together<sup>15</sup>. In one of his lectures that are available on video,<sup>16</sup> Dr Wilder mentions the example of the joyful baby who at some moment put his hand inside his diaper and gets it back with 'something brown' on it. For a moment, it gives mother a scare and this is visible on her face. This, in turn makes the baby lose his security: 'mommy is no longer happy with me!' (there is a moment of *de-synchronization*). So, he starts crying. A wise mother will now recover fast, and attune to the scare of her baby. The baby will thereby feel that he is understood, that even in the ugly feeling ('apparently something ugly happened') mama is there with him emotionally, and she is glad to be with him. Together she will restore him again to the joy of the relationship, in the meantime cleaning the dirty hand and change the diaper, such that joy and peace will soon be fully restored again. By this experience the baby learns something real important: something can go wrong at times – which gives an unpleasant feeling – but it will not be the end of the world, and by re-synchronizing together, together you will the little path back to joy. This kind of small experiences – that repeat themselves many times during the day when the mother is emotionally well available to her child – have a great way of building the skills of the child in the area of emotional processing. This appears to be neurologically verifiable. Therefore, every mother should be able to focus completely on her baby, certainly the first one and a half year. She could better not leave the care for her dear one to a variety of others – changing and operating more from an emotional distance –, like it tends to happen, unfortunately, more and more in our society. I surely relate increasing youth criminality and addictions to this, because these have been demonstrated to be related to *disconnection* at layers I and II.<sup>17</sup>



Source: Thatcher, 1994

Figure 1. Illustration of the alternating development of the left & right brain hemispheres

The right hemisphere has phases of more intense growth around the 9<sup>th</sup> month, around 4 years, 8.5 years and 15 years of age. These phases coincide with developmental stages characterized by a broadening of the relational horizon of the child.

Figure adapted, with minor presentational modification, from Schore's *Affect Regulation and Disorders of the Self* (p.74).

<sup>15</sup> For more on this, see: Karen Finch, [How Does Psychotherapy Work? New Understandings from Neuroscience](#), and Lorraine Granit, [Neurobiology of Attachment](#), California Association of Marriage and Family Therapists, East Bay Chapter, 2004 and 2001 respectively.

And: Judy McLaughlin-Ryan, 'The Use of the Dyadic Affective-State Relationship (ASR) in the Treatment of the Post-Traumatic Stress Disordered Adult Molested as a Child', Trauma Response, The American Academy of Experts in Traumatic Stress, 2004.

<sup>16</sup> E. James Wilder, 'Joy Bonds' [1. Developing 'Joy Strength' and the Capacity to Persevere, 2. From Dread to Joy: Dealing with Borderline Problems, 3. Finishing Well: Returning to Joy, Personally and Corporately], videotaped seminar (4 VHS tapes), Resource Center of the [ICBC international](#).

<sup>17</sup> See e.g.: Steven Earll, 'Family Trauma and Addictions: Why Do People Become Addicts?' [PureIntimacy.org](#) webarticle.

This interpersonal synchronization (with a trusted attachment figure) leads to a better structure of the young child's brain, from which he or she will reap the fruits during a lifetime. One of the positive 'side effects' is that it also has a positive effect on the intra-personal synchronization within the brain (synchronization between various brain parts of a person, e.g. the parts involved in processing at the layers I – III). This will result in fewer internal conflicts, and the person will more easily and more naturally appear and function as one whole being. A central role in this plays layer II.b (level 3; the *mothercore*). More about this in the first chapters of *Living with Men* by Jim Wilder (cf. note 2).




**... recent research has shown that social cognition and emotion engage overlapping regions of the brain**

Andreas Olsson & Kevin N. Ochsner  
in: 'The role of social cognition in emotion',  
*Trends in Cognitive Sciences*, 12 (2), 2008;  
p.65-71.

## Summary & conclusion

In this article I summarized a simplified model of the development and structure of our mental and social-emotional possibilities to process in some way what we experience, especially when difficult situations or feelings are involved. Central in this is that this structure is build up via connection and that it is layered.


This connection and layered architecture have a great impact on our abilities for mental and emotional processing. Attachment and relationships, and especially emotional synchronization play a big role in the development and recovery of the lower and most fundamental layers. This is perpendicular to the individualistic tendencies in our present societies.

In [Part II of this articles-series](#)  I will treat the consequences this has for the processing of traumatic memories and for effective pastoral or psychosocial counseling of people in recovery from a traumatic background. [Part III](#)  will deal with attachment pain and some of the reactions it often elicits, like addictions. The subject of [Part IV](#)  are our *internal working models*, *schema's* or *life stories* that guide the majority of our actions, and how to change them for the better, especially in case they became corrupted by traumatic experiences.

---

Danya Glaser, 'Child Abuse and Neglect and the Brain', *J. Child Psychol. & Psychiat.* 41-1, 2000, p.97-116.

Peter Fonagy, 'Attachment in infancy and the problem of conduct disorders in adolescence: the role of reflective function' (in .rtf format), Plenary address to the *International Association of Adolescent Psychiatry*, San Francisco, Jan. 2000.

Anouk Depuydt, Johan Declerck, Gie Deboutte, 'Re-ligare' een antwoord op 'de-link-wentie'? – Verbondenheid bij de aanpak en de preventie van jeugddelinquentie  ('Re-ligare' an answer to 'de-linquency'? – Connectedness in the treatment and prevention of youth delinquency; in Dutch), article in *Antenne* (publ.: Unie Vrijzinnige Verenigingen vzw), June 2002, nr. 2, p.42-47.

Josh McDowell (with Ed Stewart), *The Disconnected Generation – Saving Our Youth from Self Destruction*, Word (Thomas Nelson), Nashville, 2000; ISBN 0-8499-4077-X.

See for more references also the references in note 4 and my webarticles: 'Attachment: Key to Healthy Living through Adequate Affect Regulation', at [www.12accede.org](http://www.12accede.org), and 'We geven door hoe verbonden we zijn – (On)verbondenheid als bepalende en verklarende factor in de doorgifte van geestelijke (on)gezondheid' (We pass on how connected we are – (Dis)connection as determinant and explaining factor in intergenerational transmission of mental illness and health; in Dutch), at [www.12accede.nl](http://www.12accede.nl).

## Appendix: Brain parts involved in the three layers

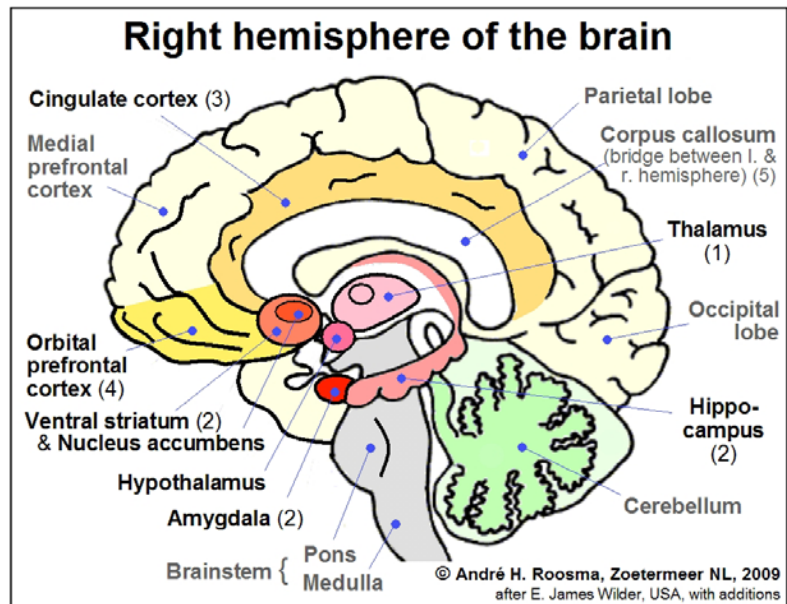
The figure below gives the various parts of the right hemisphere of the brain involved, as discussed under the scheme at page 3.

The yellow parts form the higher (fore)brain or *cortex*, where, in processes at **layers II and III** in particular the *cingulate* and *orbital prefrontal cortex* are involved. These two are the first parts of the *cortex* to receive incoming information (mainly via the *ventral striatum* – part of layer I, see below) from inside or outside the body. They form the center of both self-concept and bonds ('identity & attachment center'). The majority (over 60%) of the *orbital prefrontal cortex* develops only postnatally in the first years of life, by stimulation in active, emotionally synchronized attachment. It is often observed as underdeveloped in people suffering from PTSD, depression, autism, dissociative disorders, etc.

The *cingulate cortical gyrus* ('mothercore' – see p.5) is a.o. implicated in self-reflective thought.

The pink-red-orange parts form the lower (fore)brain (sometimes referred to as the *limbic system*; though some also count the *cingulate cortex* to the *limbic system*) involved in **layer I**. Designed for fast action, it is located directly on top of the *brainstem*. It stores experiences and associated emotions and actions for fast recall when something similar occurs. The *thalamus* – immediately on top of the *brainstem* – can be seen as the central receiving unit, the *amygdala* (= almond) as the guard shack, the *hippocampus* as the library assistant. Trauma has a profound influence on the *amygdala* and *hippocampus*. The influence of *early trauma* (before age 4) can be most intense because the *corpus callosum* – the bridge between the left and right hemispheres – develops relatively late (about 3 yrs of age), so these people have no left-brain story to go with and explain the emotionally and/or relationally intense right-brain experiences. The *striatum* is an important part of the *basal ganglia* (*ganglion* = knot; together with the *nucleus accumbens*). The *nucleus accumbens* is also called the 'reward center' and plays a key role in pain perception and addictions (see [Part III](#)). The *hypothalamus* is an important control center, controlling the autonomous nervous system (ANS) and endocrine system.

The numbers between brackets refer to the level in the brain's control hierarchy according to the *Life Model* by Dr E. James Wilder and others (corresponding to the layers as presented here as follows: 1 = layer I.a, 2 = I.b, 3 = II.a, 4 = II.b, 5 = III). The *brainstem* ('layer 0'; grey) is less relevant to the subject of this article-series (apart from the *locus coeruleus* at its top end, not depicted in the figure, just below the *thalamus*), as are the *cerebellum* (green; with *brainstem* forming the *hindbrain*) and several parts of the *cortex* (light yellow), though recent studies indicate that the *cerebellum* may be involved in some way in remembering strong emotions, in particular, in the consolidation of long-term memories of fear.



## More information or suggestions

For more information, questions or suggestions you can contact me via e-mail: [andre.roosma@12accede.nl](mailto:andre.roosma@12accede.nl)



[to Part II](#)

[to Part III](#)

[to Part IV](#)

[Accede! home](#)

or [back to the article index](#)

*Thanks for your interest!*