



Stockholm, 19th November 2010,!
 Campus Konradsberg,!
 Stockholm University!
**The Swedish Conference on
 Communication, Music
 and Language 2010!**

**“Rhythm, Companionship and Meaning!
 Musicality and the Making of Language”!**

Prof. Colwyn Trevarthen,!
 Department of Psychology, University of Edinburgh, Scotland

PERCEPTION, MOVEMENT
 & ACTION RESEARCH
 CENTRE (PMARC)  INSTITUTE FOR MUSIC IN
 HUMAN & SOCIAL
 DEVELOPMENT (IMHSD)



UNIVERSITY of NOTRE DAME
 COLLEGE of ARTS and SCIENCES
 Center for Children and Families
 Symposium on Human Nature and Early
 Experience!
 Addressing the “Environment of
 Evolutionary Adaptedness”!
 October 10-12, 2010

“Ready to Share Experience From Birth”

Prof. Colwyn Trevarthen,!
 Department of Psychology, University of Edinburgh, Scotland

PERCEPTION, MOVEMENT
 & ACTION RESEARCH
 CENTRE (PMARC)  INSTITUTE FOR MUSIC IN
 HUMAN & SOCIAL
 DEVELOPMENT (IMHSD)



**The Apple in Eden: How Do We
 Share Meaning Before Words?**
 Infant psychology teaches us that
*knowledge is shared creativity in
 the experience of being alive.*
 We are born to live in a cultural
 world of actions, beliefs and
 material creations, *all beginning
 as works of imitative art, sensing
 bodies in movement, together.*

Titian - “The Fall of Adam”

Cultural knowledge and skills begin in *how we move
 together, and are learned with aesthetic feeling, and
 moral sensibility, in ‘musicality’.* Was the apple a song?

ANIMALS LIVE BY MOVING.!
 This needs a consciousness that perceives what
 will happen, *prospectively.* They learn to live
 cleverly in sustaining ecologies, and
 sympathetically in cooperative communities.!

And all animals move rhythmically with dynamic
 regulation of the effort and care of their
 movements. They cooperate by signaling their
 motives and feelings, forming emotional
 attachments and sharing experience by affective/
 affiliative communication. Many sing or dance to
 signal their state of vitality, and synchronize. !

**HUMAN MOVEMENTS ARE
 POLYRHYTHMIC, AND HUMAN
 COMMUNITIES MAKE CULTURES.!**
 We act to perform ambitious projects and
 communicate narratives about our motives and
 feelings. Our movements exhibit unique
polyrhythmic musicality. They generate emotive
 meanings that guide the activities of individuals
 planned in the future, and recalled from the past
 across many generations, and over thousands of
 years. **Works of art hold communities together.**
 Human technology and rational mastery of matter
 can become more powerful than Nature.

The aesthetics and morality of meaning

**“Culture is activity of thought, and
 receptiveness to beauty and humane
 feeling.** Scraps of information have
 nothing to do with it.”

Whitehead, A. N. (1929).
The Aims of Education & Other Essays,
 (New York: Macmillan).

**Natural Communicative Musicality,
Expression of the Idea from 230 Years Ago**

"After the pleasures which arise from gratification of the bodily appetites, there seems to be none more natural to man than Music and Dancing.

In the progress of art and improvement they are, perhaps, the first and earliest pleasures of his own invention; for those which arise from the gratification of the bodily appetites cannot be said to be his own invention."

Adam Smith (1777/1982) Of the nature of that imitation which takes place in what are called the imitative arts. In, *Essays on Philosophical Subjects*,. (Ed. Wightman and Bryce;) Indianapolis: Liberty Fund.

Musical Emotional Narratives

"Without any imitation, instrumental Music can produce very considerable effects... : by the sweetness of its sounds it awakens agreeably, and calls upon the attention; by their connection and affinity it naturally detains that attention, which follows easily a series of agreeable sounds, which have all a certain relation both to a common, fundamental, or leading note, called the **key note**; and to a **certain succession or combination of notes, called the song or composition.**"

Adam Smith, loc. cit.

**Music Moves Between Memory and
Imagination**

"Time and measure are to instrumental Music what order and method are to discourse; they break it into proper parts and divisions, by which we are enabled both to remember better what has gone before, and frequently to foresee somewhat of what is to come after: the enjoyment of Music arises partly from **memory** and partly from **foresight.**"

Adam Smith, loc. cit.

EMOTIONS GUIDE KNOWLEDGE IN COMPANIONSHIP

*The Edinburgh developmental psychologist and educator Margaret Donaldson calls this 'human sense'. She says, "**Human sense is understanding how to live in the human and physical worlds that children normally develop in the first few years of life.** It is learned spontaneously in direct encounters with these worlds that arise unavoidably everywhere, transcending cultural differences. The learning is always **informed and guided by emotion** - that is, by feelings of significance, of value, of what matters. And it is highly stable and enduring, once established. **It is the foundation on which all that follows must build.**"*

(Donaldson,1978)



A proud, healthy family in a remote forest in Canada in the 19th Century

**A Theory of the Art of Cultural Learning
HOW THE COMMUNITY OF KNOWLEDGE GROWS**

A baby has **self-other conscious emotions**, of relating to other persons. The most powerful are **pride** in knowing and doing 'cleverly', and **shame** at not being appreciated. **This 'self-other consciousness' IS human sociability. It leads to companionship in cultural skills, including language.!**

Soon an infant becomes a member of a family, responding to attentive care, learning games. Toddlers seek friendships with people of all ages. They want to share the fun of what they do and know. **They play with imaginative 'unreality' that others believe, and show, has importance. !**

Even infants sense a stranger may not share their understanding, and this worries them. They suffer anxiety of meaninglessness. !



SHARED KNOWING "MAKES PRIDE!"
 Emma, 6 months,!
 on father's knee.!

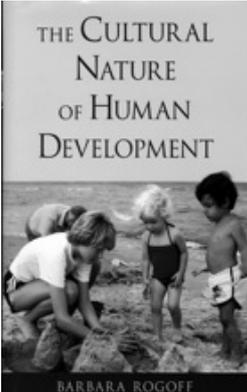
Her mother says,!
 "Clap handies!"!

Emma 'shows' or!
 'performs' to the !
 photographer, !
 with intent look !
 and a proud grin!
 (Father is proud too)!

FAILED SHARING "MAKES SHAME"
 Emma at 6 Months
 Escaping
 Mis-understanding
 With a Stranger!
 Hiding Confusion!



Even infants sense strangers sometimes do not share their understanding, and this worries them. Its not fear - they have *anxiety of meaninglessness*!. Such feelings make teaching of ideas and practices a **moral** task. *Shame and anxiety stop learning.*



Children gain knowledge in different social worlds, by 'collaborative learning', helping to make imaginary and meaningful things in companionship with good teachers, those who share intentions and ideas generously **and graciously**. !
 Barbara Rogoff is Prof. of Child Development, at UC Santa Cruz in California.!

We have a new psychology of infancy, one that proves minds are born for inventing and sharing and feeling each other's innately conscious intentions -- **in intimate vitality** -- not just in language, thoughts, theories and rational beliefs, which are learned products of meaning.

Human beings are born to be sociable. All infants enter the world ready and able to chat, to share meaning. A wealth of studies has revealed how sophisticated babies' skills are for creating meaning with us in movement.

CAN OBJECTS IN MOTION COME TO LIFE?
 Here are two objects simulating movements in a 3D space.
 Do their motions successfully convey intimate vitality?!

Is their motion just physical?!

Are they alive – moving -- acting with vitality?!

Are they aware or intelligent?!

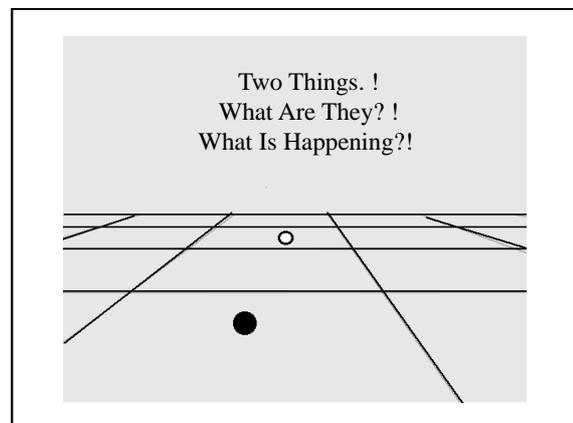
Are there two of them, separately active?!

Are they communicating, socially?!

Do they show changing emotions?!

Are they showing signs of sympathy?!

Could they be telling a story?

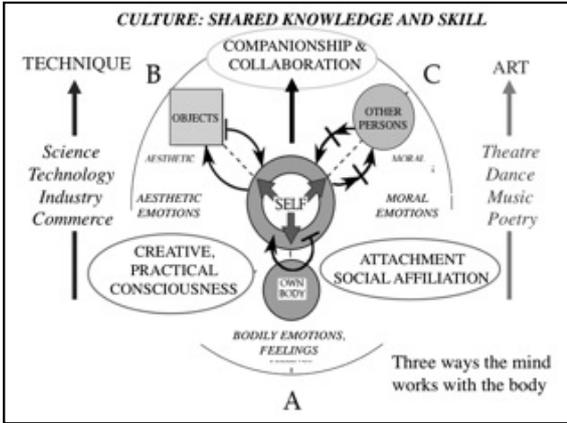


WHAT, THEN, ARE YOUR ANSWERS?
Is their motion just physical?!
Are they alive – moving -- acting with vitality?!
Are they aware or intelligent?!
Are there two of them, separately active?!
Are they communicating, socially?!
Do they show changing emotions?!
Are they showing signs of sympathy?!
Could they be telling a story?

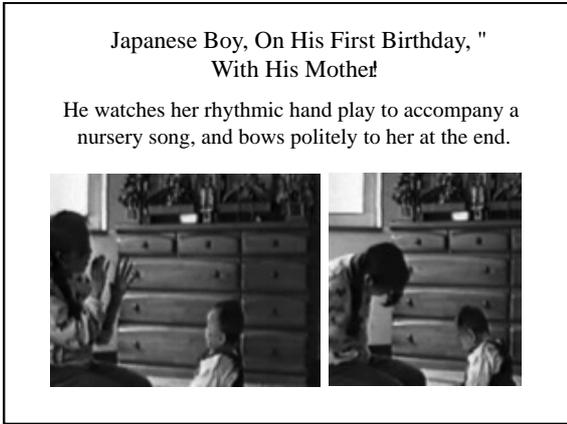


Left and Right Arms of Baby Bailey, held by his Mother. He is hungry. She consoles him with touches and soft voice

We appreciate better, now, the inspiring influence an infant has over the life of parents and others. !
 Besides care and attachment, **playful companionship in intentions, experiences and feelings is eagerly sought from others, and needed. !**
 Other persons' lively interest and sharing is essential for the child's future well-being and self-confidence in acting, understanding and remembering.!



THE MUSICAL ORIGIN OF HUMAN LEARNING
 Research on **songs for infants** in many languages has taught us how we share **story-telling** underneath, or beyond, the spoken word -- in the body.
The infant's rhythmical feelings can be mirrored and modified by song and instrumental music.
 Responses to music prove that the organized **rhythm and melody catch a baby's attention** and move him or her to dancing in time with hands and legs.
Songs are quickly learned and remembered. They become favourite messages of friendship, **emblems of the infant's identity, or membership of a group.**



Grisela and Christina Dancing in the Shetlands !
to Annie Lennox Singing “Thorn In My Side”!



MUSICAL COMPANIONSHIP

The rhythm and expression of music carries a *message of human company*, the friendly ‘Other’, telling a moving narrative, giving fresh human purpose to time in the mind.

Dr. **Katerina Mazokopaki** , music teacher and psychologist, has studied the development of rhythmic talents of babies in Crete.



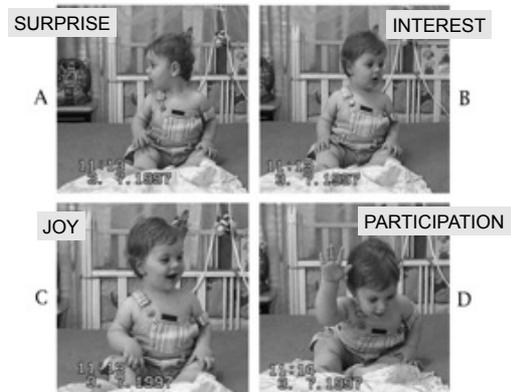
Babies at home in Crete celebrate the pleasure of a traditional Greek children’s song. They happily express their appreciation of musical rhythm. "
Georgos, 3.5 months, dances with face and hands. "
Katerina, 9 months, beats time with her arms. Both sing.!



Seated on the carpet, Panos, 9 months, beats time with his hand and Anna, 10 months, who stand in her cot, bounces and sings with her whole body, wiggling her hips. Both also sing their delight.!

Baby Panos hears the story the music is telling. He is sitting on the floor at home in Crete by himself when a cheerful song comes on from the radio.

- First he is surprised and interested.
- Then he looks around, “Who is there?”.
- He smiles with pleasure, recognising the happy sounds.
- And then he joins in, celebrating the rhythm with his hand and 'singing' .





Communicative Musicality!
Exploring the Basis of Human Companionship

Stephen Malloch and!
Colwyn Trevarthen

Oxford University Press 2009!

‘Musicality’ may be defined as the Human Way of Moving, with Rhythm and Expression -- to Create Action of all the Body, and to Communicate Stories of Purpose, Thought and Feeling.

It is active in all the ‘imitative arts’, which play with *the pulse and melody inherent in movements, however they may be transmitted -- in sound, by acting and dancing, by drawing and painting, and by speaking and writing* -- all are ‘musical’ in form and meaning for those who are moved by them.

THE MELODIES OF ACTION FEEL GOOD AND ARE SOCIABLE, SHARING JOY!



Music Moves Us, Together, from Birth.

This Is a Challenge for Psychology & for Neuroscience

A CHILD IS BORN WITH BODY & BRAIN READY TO MOVE IN COMPANY - MUSICALITY IS INNATE ! IT CONDUCTS OUR MENTAL DRAMA & SHARES IT

Infants are much cleverer than we had thought at discriminating *musical rhythms and tones of human sounds*. They hear the musicality of mother's talk and learn simple melodies *before birth*. !

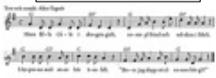
A two-month-old can be a skilled performer in an *improvised vocal duet or protoconversation, a shared story over tens of seconds*. !

And movement time is between the senses!

A WONDERFUL EXAMPLE OF TRANSMODAL MEANING!



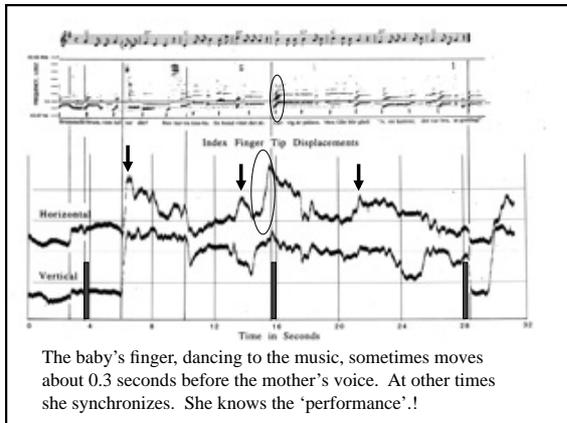
Mors lilla Olle!



Mother's little Olle meets " a bear and feeds him blueberries!



This five-month old blind baby girl conducts her mother's songs with her left hand. Her hand moves 1/3 second before the melody of her mother's voice, making graceful gestures, telling a story she knows well.



The Rhythms and Tones of the Story! Lead to Speech

Mors lilla Olle

Text och musik: Alice Tegnér

Mors lilla Olle i skogen gick
 ro-ro på kind och sol-ken gick
 Lilla-på-må ut-av kär i-er till
 "Ba-ra jag slapp att så-mamla gå!"

Brummelibrum, vem lufsar **(läp)**
 Buskarna knaka. En hund visst det **(är)**
 Lurvig är påsen. Mea Olle blir **(glad)**
 »Å, en kamrat, det var bra, se **(god)** dag!»

Klappar så björnen med händer **(små)**
 räcker fram korgen: »Se där, smaka **(på)**»
 Nalle han slukar mest allt vad **(där)** är
 »Hör du, jag tror, att du tycker om **(bär)**»

Mor fick nu se dem, gav till ett **(skri)**
 Björnen sprang bort, nu är leken **(fö)**bi
 »Å, varför skrämde du undan min **(vän)**
 Mor lilla, bed honom komma **(igen)**»

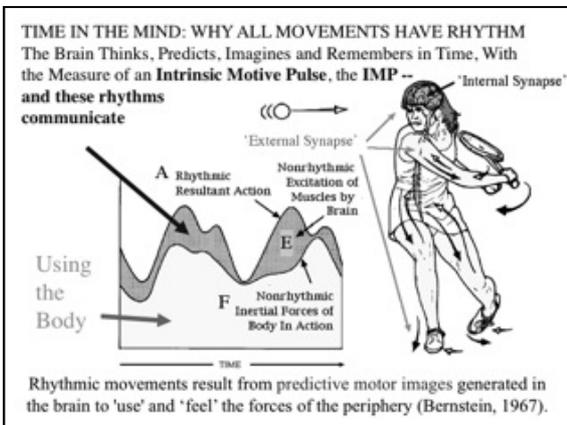
«Swedish has 9 vowels that make up 17 phonemes» Wikipedia

Trevathan, C. (1999) Musicality and the Intrinsic Motive Pulse: Evidence from human psychobiology and infant communication In *Rhythms, Musical Narrative, and the Origins of Human Communication. Musicae Scientiae, Special Issue, 1999-2000*. European Society for the Cognitive Sciences of Music, Liège, pp. 157-213.!

#

Musicality in human motives, the psycho-biological source of music, is described as a talent inherent in the unique way human beings move, and hence experience their world, their bodies and one another. It originates in the brain images of moving and feeling that generate and guide behaviour in time, with goal-defining purposefulness and creativity. Intelligent perception, cognition and learning, and the potentiality for immediate sympathy between humans for expressions of intrinsic motives in narrative form (linguistic and non-linguistic), depend on this spontaneous, self-regulating brain activity. !

Human bipedal locomotion, and the pressure of social intelligence, set free *a new poly-rhythmia of motive processes that generate fugal complexes of the Intrinsic Motive Pulse (IMP), with radical consequences for human imagination, thinking, remembering and communicating*. Gestural mimesis and rhythmic narrative expression of purposes and images of awareness, regulated by, and regulating, dynamic emotional processes, form the foundations of human intersubjectivity, and of musicality. Acquired musical skill and the conventions of musical culture are animated from this core process in the human mind.!



THE HIDDEN REALM OF!
"VITALITY DYNAMICS"!

Exploring Dynamic Experience and Vitality in
Psychology, Neuroscience, Development, and Art
Daniel N. Stern M. D!
Oxford University Press, 2010

Vitality dynamics are psychological, subjective phenomena. They concern temporally contoured movements that are initiated by invisible felt forces ... felt as aliveness. Vitality dynamics are ... designed to fit the workings of the human world!

Consider the following list of words!

exploding!!	surging! !	accelerating!
swelling! !	bursting ! !	fading !
drawn out !!	disappearing !	fleeting !
forceful ! !	powerful! !	weak!
cresting ! !	pulsing! !	tentative!
rushing ! !	pulling! !	pushing!
relaxing! !	languorous!	floating !
fluttering !!	effortful! !	easy!
tense! ! !	gentle! !	halting !
gliding! !	swinging !!	tightly !
holding still !	loosely! !	bounding!
! ! !	! !	<i>and many more.</i>

These words are common, but the list is curious. Most of the words are adverbs or adjectives. ***They are not emotions or motivational states ... pure perceptions ... sensations -- they have no modality. They are not cognitions or acts, as they have no goal state and no specific means.*** They fall in between all the cracks.! They are *the felt experience of force – in movement – with a temporal contour - and a sense of aliveness. ... shapes of expressive movement.* They concern the **How**, the manner, the style, not the What nor the Why.

Vitality dynamics are the child of movement. !

Movement is our primary experience and vitality dynamic experience is the most primitive and fundamental of all felt experience. !

- The movements of the newborn baby are paced by 'time in the mind' -- by 'neural clocks' that control the energy of muscle activity in steps of time. This is the ***Intrinsic Motive Pulse (IMP)*** of the baby's animal nature. **Movements have Rhythm**

- Though sometimes chaotic with reflex 'corrections', the infant's gestures and expressions show different emotional qualities of *urgency* or *peacefulness*, graceful *ease* or *tension*, *pleasure* or *displeasure*.

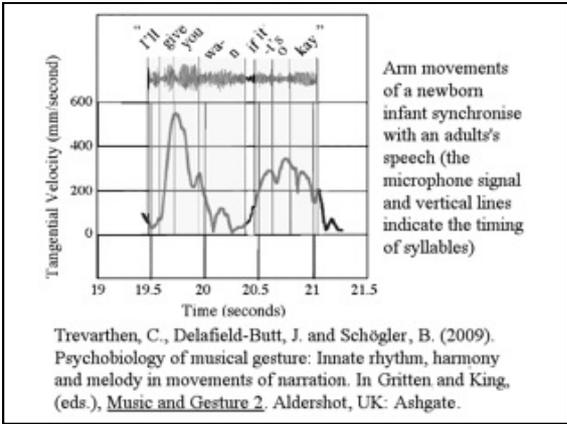
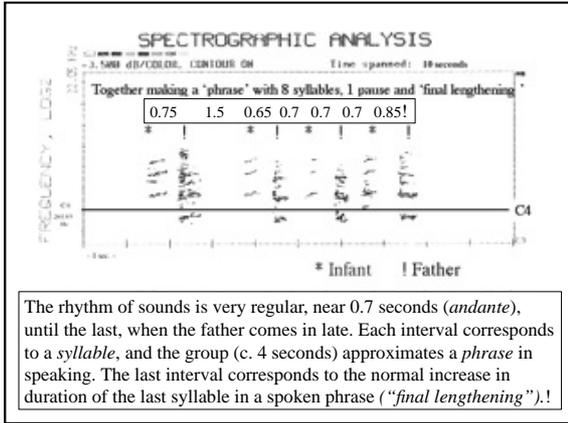
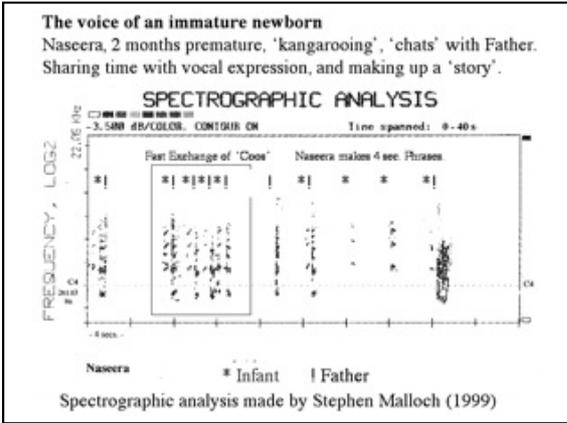
- They are controlled by **coherent, and powerfully communicative emotions.**
Movements have innate Expressive Quality

TIMES OF THE MIND "
(AND OF MUSIC) "
ARE INNATE!

Basic rhythms, and their emotional qualities, are the same in infants and adults. !

This makes communication of the shared vitality of ***intentions, interests*** and ***feelings*** possible -- before 'facts' of shared knowledge about actions and objects are identified in speech.!

THE RHYTHMS OF SPEECH ARE INNATE
Even a premature infant can share a conversation.
 A video of Naseera, who was born 3 months premature, was made by Saskia van Rees in an ICU in Amsterdam. She makes videos of birth, neonatal care, communication with infants and children with special needs. !
 See her website: Saskia van Rees !
Stichtinglichaamstaal (Body Language Foundation)!
 Secretariat: Scheyvenhofweg 12, 6093 PR Heythuysen, " The Netherlands.!
Internet: <http://www.stichtinglichaamstaal.nl/> !
Email: info@stichtinglichaamstaal.nl/



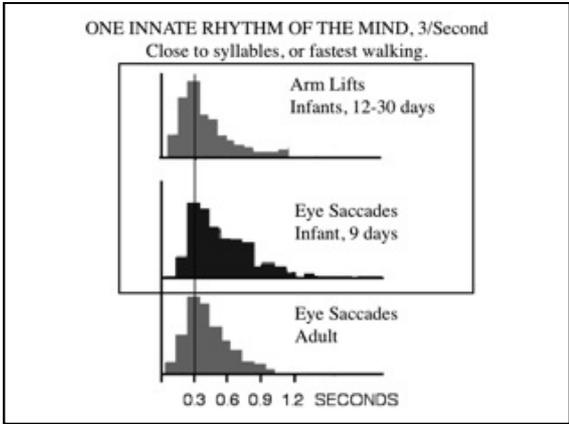
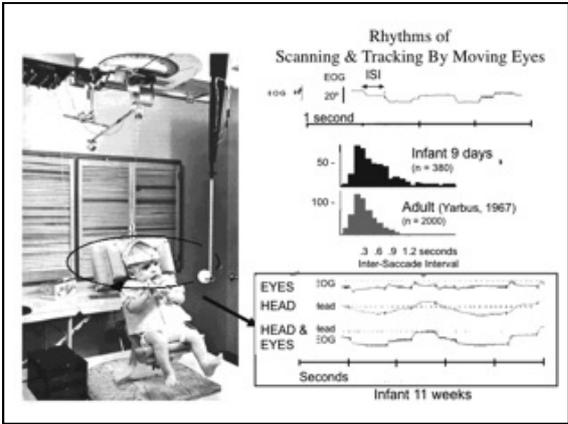
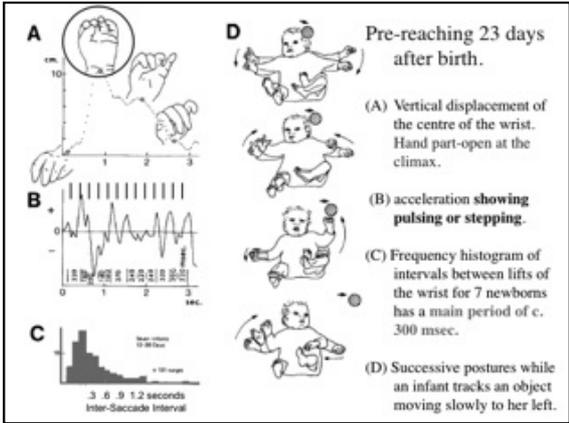
HUMAN BIOCHRONOLOGY!

Motive Times of human actions and experiences in consciousness of the present -- in physiological processes of the nervous systems, in experience, and on the times allocated artfully to component processes in! machine intelligence, and in spontaneous actions of newborn infants and of infants' vocalizations and vocal exchanges in communication.!

Purposes and experiences longer than a few tens of seconds are sustained in thought and imagination by representations in perceptual images and language, and by the cognitive processes that give them conventional meaning and causal connections, but retaining emotional value !

SHORTEST PERCEPTIBLE & CONTROLLABLE EVENTS!
0.05 to 0.2 seconds

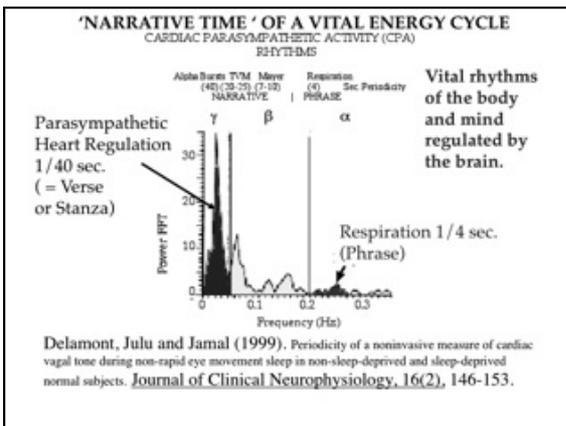
THE PRESENT MOMENT OF CONSCIOUS ACTING
From 0.3 to 6 seconds



**IMAGINED FUTURE & RECALLED PAST IN ACTION & THOUGHT!
(GENERATING & REGULATING MEMORIES & EXPECTATIONS)**

From verses/stanzas of songs & performances, short narratives/stories, reasoned arguments, to plans of the day & lifetimes!

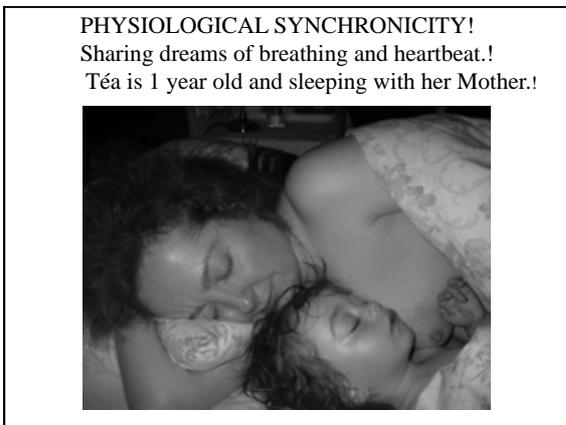
IMAGINED & RECALLED PAST & FUTURE IN THOUGHT		
	FUTURE AND PAST, THOUGHT ABOUT	
	Seconds	
	10-25 s.	30-50 s.
	0.10 - 0.04Hz	
	NARRATIVE	
Event Related Potentials	Attention Cycle	
Cognitive Physiology	Extended Present, Narrative Episode	
Psycho-physics		
Autonomic and Metabolic Physiology and 'Arousal' *	β Mayer waves, Vaso-motor thermoregulatory T/M waves (Sustained breath)	γ Heart: para-sympathetic cycles, EEG Alpha-Burst (Regulated in relation to the energetics of action plans and breathing)
Music	MUSICAL EPISODE SHORT STORY,	EXTENDED NARRATIVE TALE, LEGEND, SONG, BALLAD MUSICAL COMPOSITION STORY, NOVEL PLAY, DRAMA THEORY ALL EMOTIONS, ANGER AND ANXIETY TO PEACE AND JOY
Singing	VERSE	
Melodic contours	"TIMELESS"; "FLOATING"	
Poetry	STANZA	
EMOTIONS	DREAMED	



**UNCONSCIOUS TIME!
OF DREAMS!**

THE INSIDE STORY GOES ON !
SLOWLY WHEN YOU ARE ASLEEP, "
IMAGINING AND REMEMBERING !

THE RHYTHM OF ENERGY !
IN THE BODY !
CAN BE SHARED IN "
WAVES OF INTIMATE VITALITY



Infants are much cleverer than we had thought at discriminating *musical rhythms and tones of human sounds*. !

They hear and learn musicality of mother's talk and simple tunes *before birth*. !

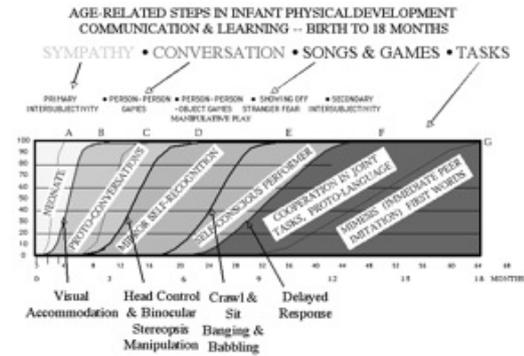
A two-month-old can be a skilled performer in an *improvised vocal duet or protoconversation, a shared story over tens of seconds*.!

A BABY IS BORN READY TO MOVE IN ARTFUL WAYS

**Age-Related Developments!
in Body and Mind**

A chart of the first 18 months after birth shows how advances in communication and self-awareness are related to developments in the body and movement, and also to changes in perception and cognitive abilities -- the growth of a creative human sociable intelligence. !

How we have charted Sharing Before Language.



INFANTS SEEK HUMAN COMPANY FROM BIRTH" AND THEY GROW IN POWERS OF ACTING AND COMMUNICATING.!

Step by step they find ways to make memories that can be shared in **musical 'proto-conversations'**. After a few months they help imagination grow by sharing **rituals of play** in games. !

Before they can talk they try to follow meanings with **moral emotions** -- feeling **pride** in shared meaning, and **shame** if others do not understand what their stories and excitements mean.!

One-year-olds eagerly **cooperate in tasks, with common sense**, using tools -- cups, books, 'phones and more -- accepting dolls as persons, and making fun with peers.

STAGES IN DEVELOPMENT OF COMPANIONSHIP IN KNOWING

NEWBORNS PROTOCONVERSATIONS

A Talk on the First Day **B** 6 weeks to 3 months

C GAMES & SHOWING OFF 5 & 6 months **D** SHARING TASKS & KNOWLEDGE, 1 year

At birth the human brain is one third the size of an adult brain, but has all major parts in place, including unique human sensory & motor organs for communicating emotions, intentions & states of consciousness. **They are waiting for company.!**



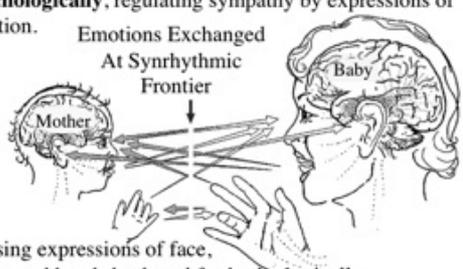
IN EARLY WEEKS A BABY SEEKS INTIMATE CHATS!

At 7 weeks Téa is ! very Interested in! communicating.!



SYNRHYTHMIC REGULATION: Mother & infant interact psychologically, regulating sympathy by expressions of emotion.

Emotions Exchanged
At Synrhythmic Frontier



Passing expressions of face, voice and hands back and forth, rhythmically, imagining each other, participating in feelings
Telling and acting out stories with emotion, listening to thoughts and imitating actions is how humans learn.

From birth, every human being is a purposeful, imaginative, affectionate, and musical person -- seeking meaning by moving in sympathetic and creative company.!

For a handicapped or mentally ill person, finding company in meaning can be very difficult and frustrating.!

A therapist can make sharing come alive,!

And so can a friend, or teacher.!

**THE INTELLIGENCE !
OF !
NEWBORN INFANTS**

Young awake infants are visibly active mentally -- thinking and 'talking' with 'mimesis' . !

They show **gestures of the hands** relating to **feelings** in their bodies, to orientation of their **interest** to events in the world, and to the **sympathy** they have for of other persons who may respond to their signs, thinking with them. !

Infant hand gestures are part of a rich display of expressions by posture and attitude of the head and eyes, and intricate movements of the face.!

NEWBORNS ARE EXPRESSIVE

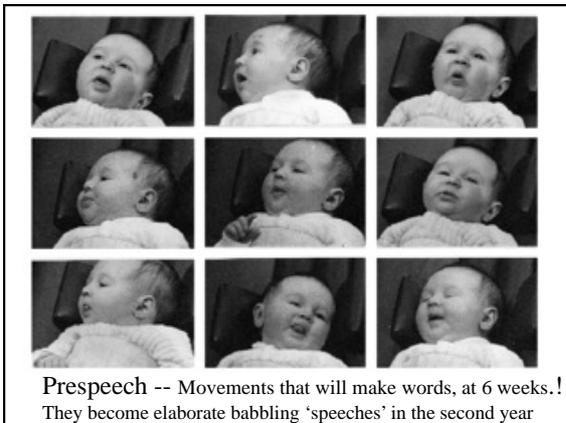


A Musician's Daughter, 6 Hours Old

Body movements that 'talk' without words

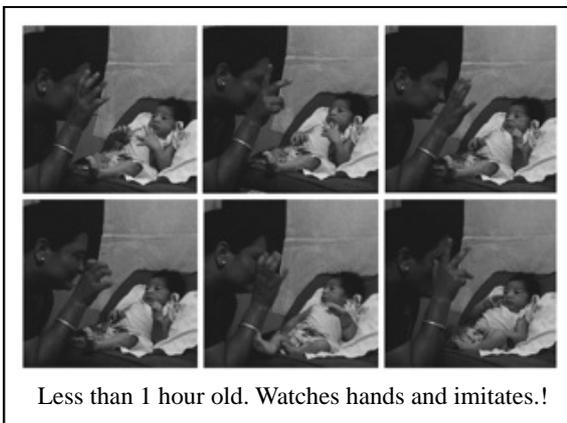
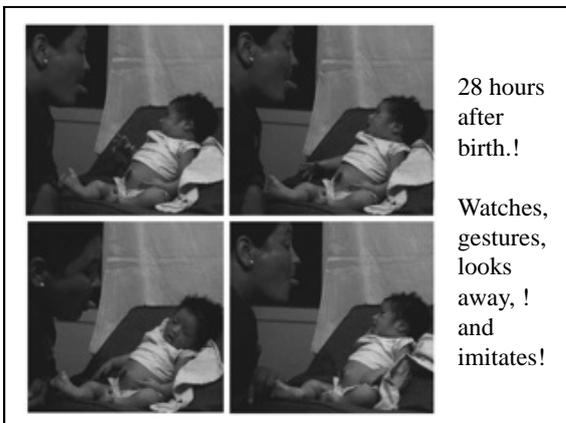
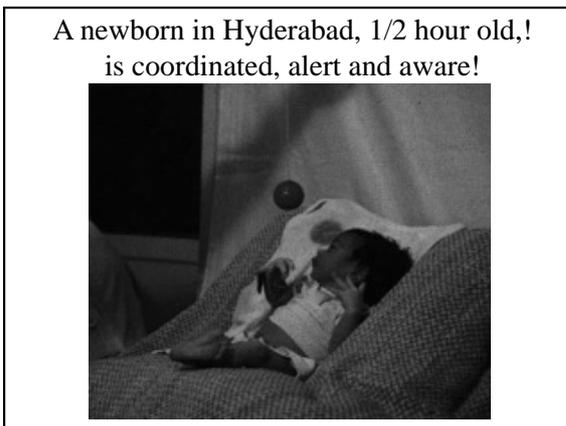


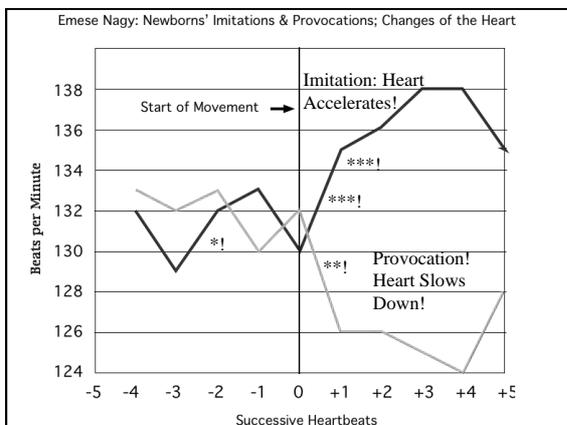
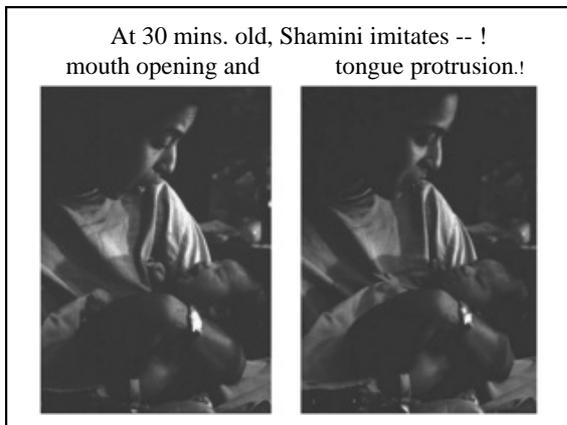
**A 6 week old baby girl!
-- with her mother, but amusing herself.!**



THE FIRST EMOTIONAL DYNAMICS OF INTIMACY!

Newborns not only imitate -- they want to have a **dialogue** sharing **interest, effort and pleasure** by many senses, engaging with many forms of expression, making an effort and paying attention. A newborn can take turns in an exchange of imitations.!





15 seconds of communication !
with a baby less than 2 days old.!

Exploring Self-Awareness !
and demonstrating !
Intimacy of Purposes and Feelings !
with hands in dialogue.!





PRIMARY INTER-SUBJECTIVITY!
AND!
COMMUNICATIVE MUSICALITY

IN EARLY WEEKS A BABY SEEKS INTIMATE CHATS!

Téa at 7 weeks. !
Very Interested in!
Communicating.!




"Sympathy ... may ... , without much impropriety, be made use of to denote our fellow-feeling with any passion whatever." (p. 10, 5)
"A smiling face is, " to every body that " sees it, a cheerful " object; as a sorrowful countenance, " on the other hand, " is a melancholy one." " (p. 11, 6)



The Theory of Moral Sentiments (1759) by Adam Smith!
(who was much more than an economist).!

THE BABY LEADS THE DANCE OF INTERSUBJECTIVITY!
Jody, 9 weeks old, and his mother at the "
Center for Cognitive Studies, Harvard University, 1969



Research Project on Infant Communication with Prof. Jerome Bruner, Dr. T. Berry Brazelton and Dr. Martin Richards!

We tell one another our intentions, interests and feelings from birth, by **moving in sympathy** -- creating stories of life with people we love!



The Prosser Family in Edinburgh, 1979

Laura, at 6 weeks, starts to chat with her Mother,!
Kay, at Edinburgh University. She pays attention.!



She smiles as her mother speaks!



And she coos, her lips like a trumpet.!



She waives her right hand, following her mother's talk, taking her turn.!



THE BODY SHOWS INTIMATE INTENTIONS!
 Laura, 6 weeks old, and her mother, Edinburgh University, 1979!



**INTERSUBJECTIVE
 CHRONOBIOLOGY!**

The rhythms, expressive qualities and narrative potential of movements in dialogues or 'protoconversations' with! a 2-month-old led to a theory of Communicative Musicality!

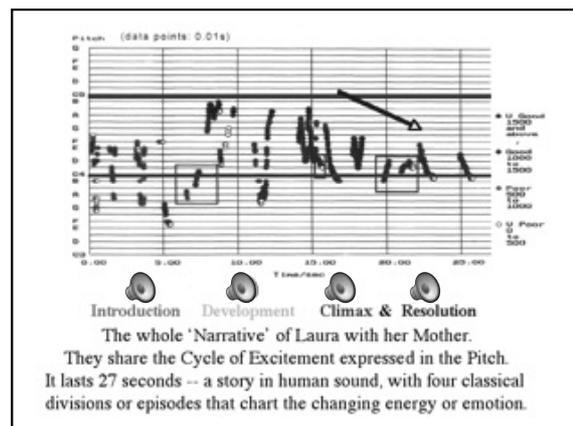
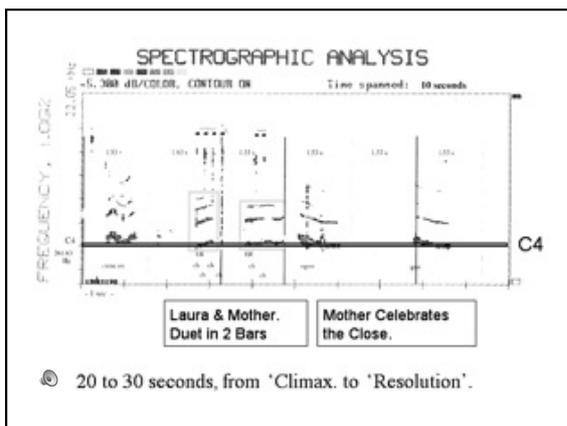
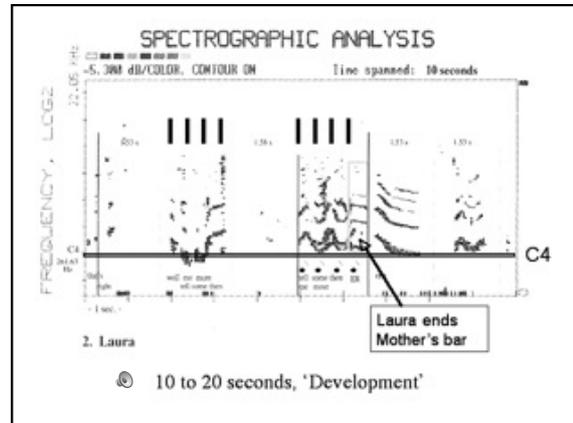
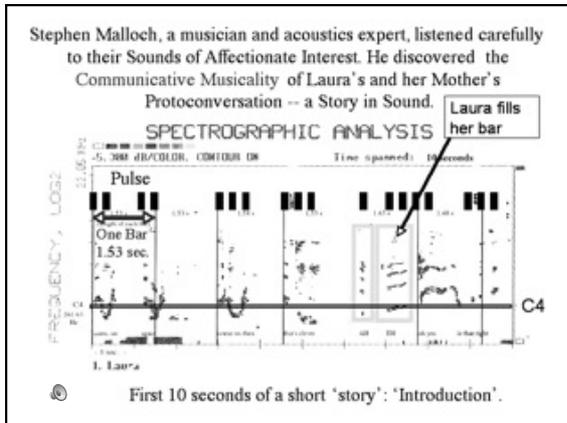
How the intuitive mastery of time and energy in moving communicates by sensing messages in the expressive 'flow' of the energy in others' movements!



Communicative Musicality!
Exploring the Basis of Human Companionship!

Stephen Malloch and!
 Colwyn Trevarthen!

Oxford University Press 2009!



COMMUNICATIVE MUSICALITY
(Malloch, 1999)

Music communicates because it engages an **Intrinsic Motive Pulse (IMP)** in the brain.

The sense of 'musicality' comprises:

- (1) **PULSE**: A rhythmic time sense (syllables, the beat, phrases and longer elements);
- (2) **QUALITY**: Sensitivity for the temporal variation in intensity, pitch and timbre of voices and of instruments that mimic the human voice;
- (3) **NARRATIVE**: Perception of the emotional development of the melodic line, which supports anticipation of repeating harmonies, phrases and emotional forms in a vocal or musical performance.

Narrative

- Pulse and Quality are combined in the forms of emotional narrative, **which allow two persons to share a sense of purpose in passing time.**
- We examine the musical companionship that is created with her baby as a mother shares a protoconversation or chants a nursery rhyme.
- We conclude that Communicative Musicality is vital for companionable communication between mother and infant.
- Stephen Malloch (1999)

LANGUAGE
What the Mother Says: A Different Layer of Communication With the Same Narrative Melody -- the Same Rhythmic Sense of Purpose in Time

INTRODUCTION	DEVELOPMENT	CLIMAX	RESOLUTION
1 Come on 2 Again 3 Come on then 4 That's clever 5 * 6 ***	7 Oh yes! 8 Is that right? 9 Well tell me some more then	10 Tell me some more then 11 * 12 Ooorrh 13 Come on 14 Ch ch ch ch + **	15 Ch ch + *** 16 Ahgoo 17 Goo

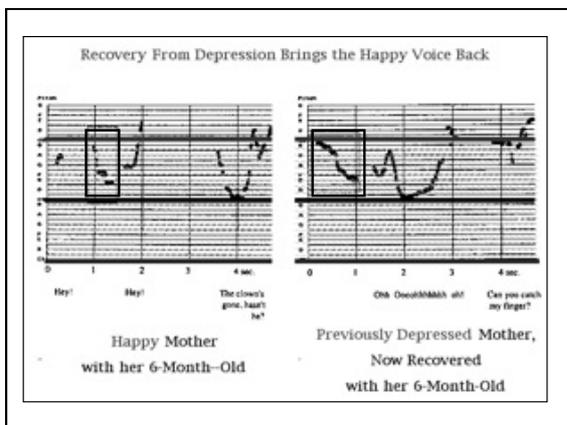
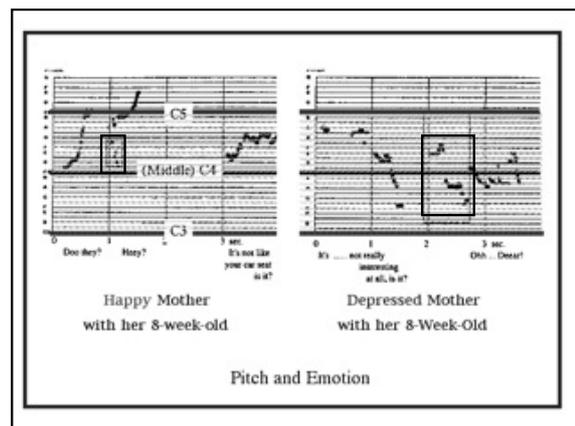
WHEN THE RHYTHM OF VITALITY IS NOT SHARED,!
 JOYFUL INTIMACY BECOMES DISTRESS!
 Babies detect when the rhythm is wrong. Then they express their sadness at loss of 'contingency' -- when 'out of touch' in the dance.!

Research of Prof. Lynne Murray at Reading University, and Dr. Maya Gratier in Paris, has explored how the mother-infant dyad is affected when interpersonal timing is disturbed, experimentally, or by illness.!

**DEPRESSED MOTHERS"
 LOSE MUSICALITY -- THEY CANNOT SHARE MOTIVES AND FEELINGS"**

When they talk with their infants, taking part in adventures of action and of thought is more difficult for both. "

The baby may become depressed, too.



WHEN THE RHYTHM OF VITALITY IS NOT SHARED,!
 JOYFUL INTIMACY BECOMES DISTRESS

Babies detect when the rhythm is wrong. They express their sadness at loss of 'contingency' -- when 'out of touch' in the dance.!

Researches of Prof. **Lynne Murray** at Reading University, and Dr. **Maya Gratier** in Paris, have explored how the mother-infant dyad is affected when interpersonal timing is disturbed, experimentally, or by illness.!

Lynne Murray's !
Test of the !
Infant's Sensitivity!
--1975

INTERRUPTION

NORMAL

BLANK FACE

(Trevarthen, Hubley and Sheeran, Scientific Foundations of Paediatrics, 1981)

Lynne Murray's Double Television "
Replay Test!

Baby Shona, 8 Weeks, in one Room, "
Her Mother in Another. "
They See, and Hear, Each Other on Television!

Shona cannot find her mother's face!

She gets a fright when the microphones squeal!"
What's that noise? Oh! That's horrible!!

Shona's mother is immediately 'sympathetic' "
Oh dear, I don't want to see a pouty face!

The noise is corrected and she sees her mother"
There you are!!

“That’s better!”!



What a funny mother!!



What’s going on in your head?!



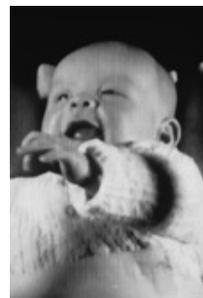
What I have to say.!



Silly, billy girl!!



You make me laugh!!



A happy baby in contact after one minute of play"
(No comment)!



The happy minute of Shona's mother is **replayed.**"
She is out of touch, withdrawn, sad!
when mother is just a recording!



The same moment in the mother's TV behaviour"
Live, in communication. **Replay.** Avoidant.!



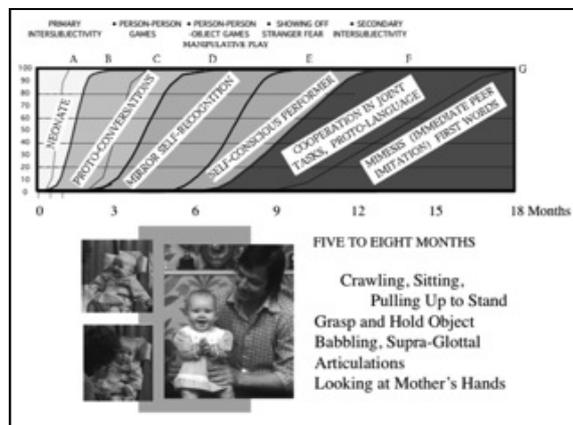
The happy minute of Shona's mother is replayed.!

Shona is out of touch, withdrawn, sad!
when mother is just a recording!



GAMES & RITUALS, "
WITH PEOPLE "
AND WITH THINGS"

Person-Person, "
with a performer's pretence "
then"
Person-Person-Object with 'toys'.



GAMES & RITUALS DEVELOP, WITH PEOPLE & WITH THINGS

Infants first become attracted to **Person-Person games**, and show a performer's pretence.!

Then they are attracted to **Person-Person-Object** games with 'toys' that tempt their imagination and skill, inspiring companions to tease.!

And babies become increasingly 'self-conscious'!

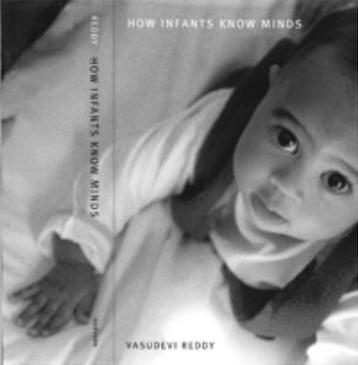
'SELF-CONSCIOUSNESS' AT 3 MONTHS!



Vasudevi Reddy's study of babies' 'coyness' in front of the mirror began her interest in 'other awareness' .!

Harvard University Press 2008!

There are precious ideas here, well worth sharing with behavioral science, philosophy, anthropology and related disciplines -- Jerome Bruner!



Professor Reddy's new book, on 'second person psychology'

Rhythmic body games, music, songs and dancing become part of the fun of the life of the family ."

They are sharing their special rituals and dramas with babies, feeling them intimately in their bodies and minds, and remembering them in a **'proto-culture' or 'proto-habitus'.**"

They negotiate the invented life of meaning in play.!

Leanne, 4 months: Enjoying a song. Reaching for a ball.!

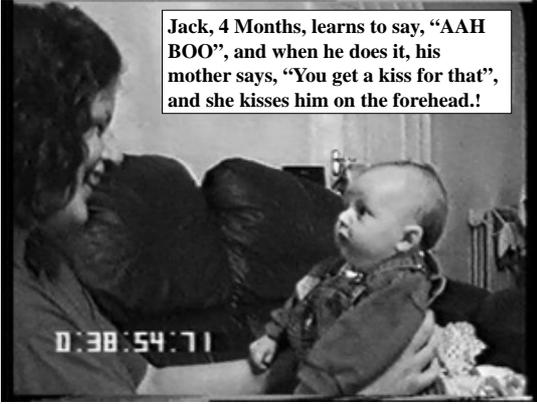





Looking about.
Ignoring mother"

"If it's your foot you want, here!" !

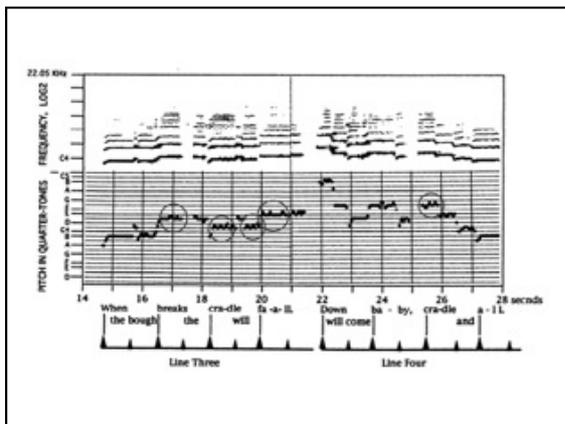
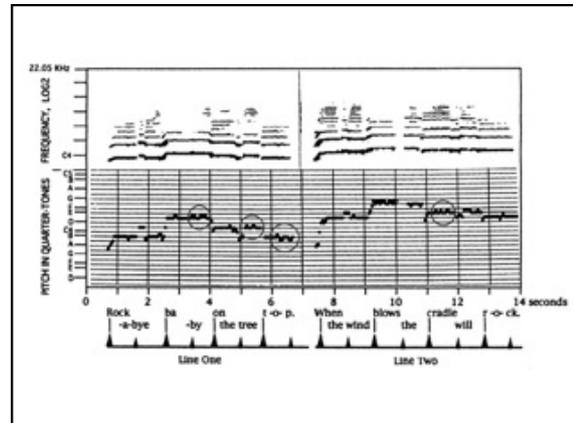
Jack, 4 Months, learns to say, "AAH BOO", and when he does it, his mother says, "You get a kiss for that", and she kisses him on the forehead.!



Thus baby action songs and nursery rhymes begin, in every society. !

The baby soon learns the rules of play, joining a poetic culture that becomes more and more practical. !

The rhythms and melodies of its actions " and tones will help hearing what sounds of speech mean while making sense of others' gestures and actions, feeling the **movements of meaning** in all their forms.!



A FAVOURITE ACTION SONG!

Round and round the gar-den,!

• ‘ • ‘ • •!

Ran a ted-dy bear,!

• ‘ • ‘ • • -!

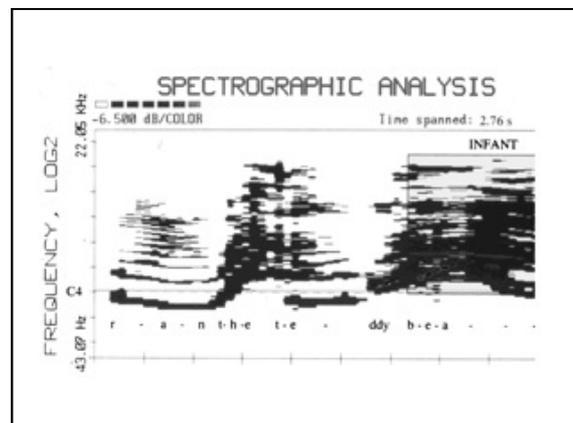
One step, two step,!

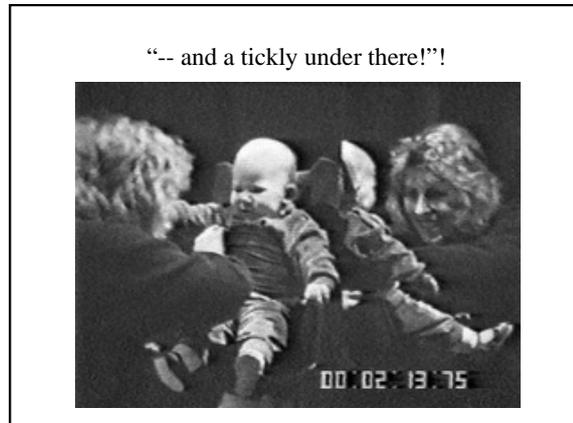
• • • •!

Tic-kl-y un-der there.!

• ‘ ‘ • ‘ • -!

Leanne, 5 months. "Round and round the garden", with *Interest* and *Pleasure*!





A POPULAR SCOTTISH CLAPPING STORY!

Clappa, clappa handies,!
 • ' • ' • •!
 Mommy's at the well,!
 • ' • ' • -!
 Daddy's away to Hamilton,!
 • ' • ' • ' •!
 To buy wee Megan a bell.!
 ' • ' • ' •!





Emma, 6 months!
On father's knee.!

Her mother says,!
"Clap handies!"!

Emma 'shows' or!
'performs' !
to the camera, !
with intent look !
and a proud grin.!

(Photo © John and Penelope Hubley, 1979)!

That's pride!!



But, With a Stranger she is worried and 'Ashamed' !
-- He does not 'get it' .!



Even a nice stranger is hard for a 10-month-old to bear.




And Mother gets told off!!

DEVELOPMENT OF
COOPERATING IN TASKS "

Beginning the endless game of "
cultural practice"



"Master Baby" by Sir William Orchardson, Scottish National Gallery. !
A one-year-old with her mother. Person-Person-Object Game.!

**Secondary Intersubjectivity & Sharing Tasks
With Good Company = 'Cultural Learning'**

At about 9 months a change in the infant's motives and interests begins **cooperative practical learning!**

The baby's curiosity about what other people are doing with voice and eyes, and the things they use with their hands, leads to **following directives, trying to make conventional messages and trying to use objects properly -- as tools. !**

This is vital preparation for learning language to name meanings. **Language is built in shared action; it depends on the rhythmic musicality of moving. !**

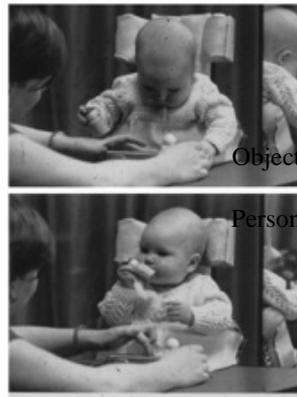
BUT BABIES, LIKE SCIENTISTS, CAN BE BUSY ON THEIR OWN!
(As Piaget observed)!



We and Leonardo observed infants intent on knowing and doing, while mothers watch, with a smile.!



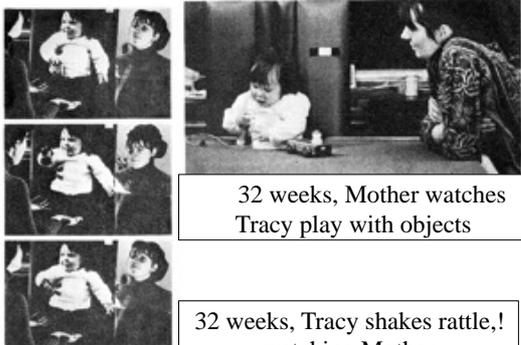
THE BENOIS MADONNA



TWO SEPARATE ATTENTIONS!
"Put the man in " the truck!"!

Object!
Person
Emma, 7 months!
Is bright, but she! doesn't get her ! mother's message.!
She is too young to ! share the purpose " of a task.!

"Don't chew it.!
Put it in there!"!



32 weeks, Mother watches Tracy play with objects

32 weeks, Tracy shakes rattle, ! watching Mother

Leonardo!
The Benois Madonna!

Jesus is intent upon the flower, and Mary has an affectionate smile!





TWO ATTENTIONS!
 "Put the man in " the truck!"!"
Object!
 or"
Person?!
 Emma, 7 months!
 Is bright, but she!
 doesn't get her !
 mother's message.!
**She is too young to !
 share the purpose "**
of a task.!
 "Don't chew it.!"
 Put it in there!"!

Then, at about 9 months an important advance occurs in having experience at the same time. !
 The baby's increased interest in **what other people are doing** and the things they use leads to following *directive* messages, trying to make conventional messages or to use objects 'properly' -- in the approved way. !
This Joint Attention, with Synchronised Evaluation of Experience is vital preparation for learning language to name, or *refer to*, meanings or conventions of 'human sense' .!

For Basilie, 12 months, it is easy and amusing.!
 "OK, If that's what you want me to do."



"Here, put this one in the truck!"!

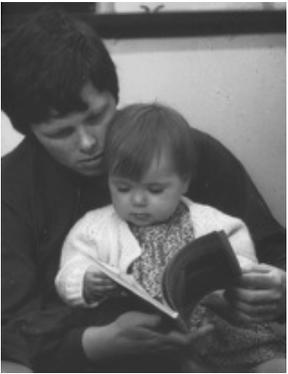
No problem!!



Happy?.



"Oh, what a clever girl!" !
 (Yes I am good, aren't I)!



Basilie pointed and !
 vocalised a !
 'protolanguage'!
 request for the !
 magazine.!
 Her mother said,!
 "Oh, she recognizes
 the *National Geographic* by !
 its yellow cover, and !
 likes to look at the !
 pictures."!"
 Sharing meaningful things



Children Are Story Sharing Creatures, From Birth!
That is why a book and a telephone bill !
are very interesting for a one-year-old

Adegbenro, Lagos, like to play his piano with his mother.!



(Photo © John and Penelope Hubley, 1979)!

Mother and uncle in Adegbenro's *Zone of Proximal Development*!.



(Photos © John and Penelope Hubley, 1979)!

But Adegbenro is a capable and proud performer on his own.!



(Photo © John and Penelope Hubley, 1979)!

Adegbenro asks for !
his favourite rattle.!



His mother gives it to him.!

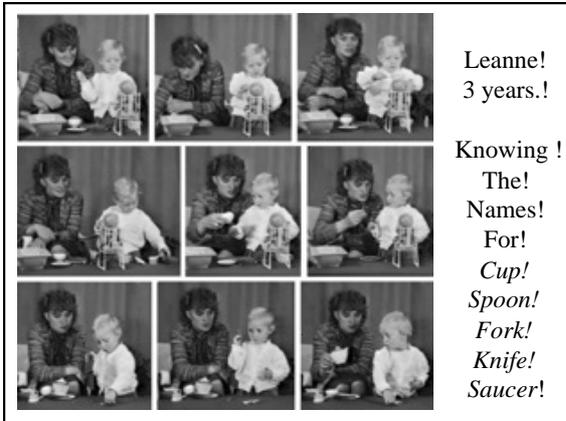


(Photos © John and Penelope Hubley, 1979)!



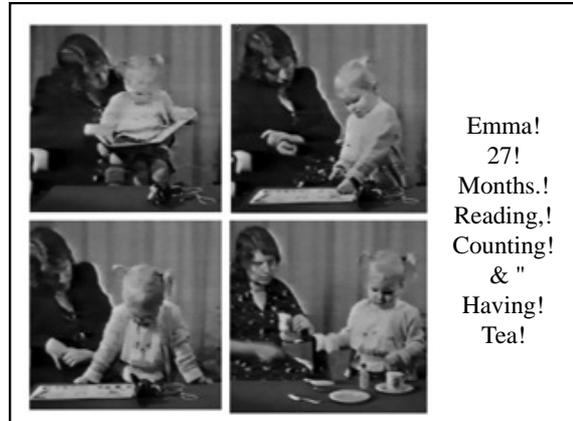
“Look what
I’ve got!”!
Mother
smiles.!

(Photo © John and Penelope Hubley, 1979)!



Leanne!
3 years.!

Knowing!
The!
Names!
For!
Cup!
Spoon!
Fork!
Knife!
Saucer!



Emma!
27!
Months.!
Reading!
Counting!
& "
Having!
Tea!



Imaginary hot tea and cake. It is the ritual that matters!



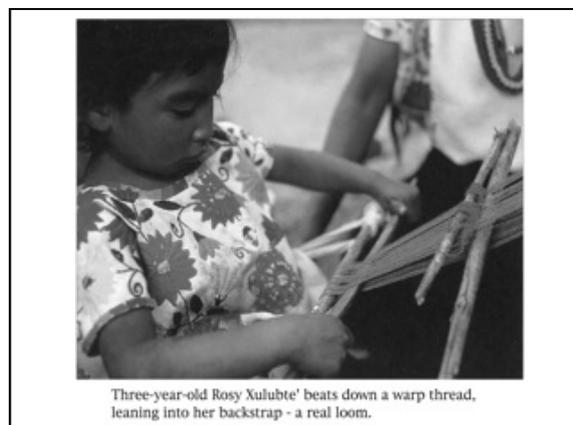
Caring for doll, having sympathy, mostly.!



**Weaving
Generations
Together**
Evolving Creativity
in the Maya of Chiapas

Patricia Marks Greenfield

How little girls in Mexico learn to weave. (They call school 'paper learning'!)



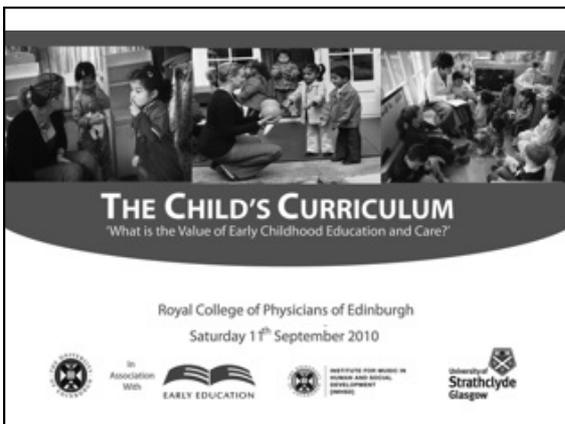
Three-year-old Rosy Xulubte' beats down a warp thread, leaning into her backstrap - a real loom.



Aunt, 10y., makes heddle for Rosy. Others are involved, too.

THE PRESCHOOL WORLD IS ONE
OF THE RICHEST TIMES OF
LEARNING

Toddlers seek friendships with parents,
peers -- people of all ages -- and want to
show the serious fun of what
companions know and understand. !



A Place of Pre-School Education "
in all kinds of Useful Knowledge!

Where meaning grows in companionship, making
a community beyond, but with, each family!
letting each child's talents thrive!

Stories, personalities and the rituals of agency
become more elaborate, and there is more
understanding of the view points!
and feelings of others!

Cameron House Nursery School
Edinburgh!

(With permission of the Head Mistress)

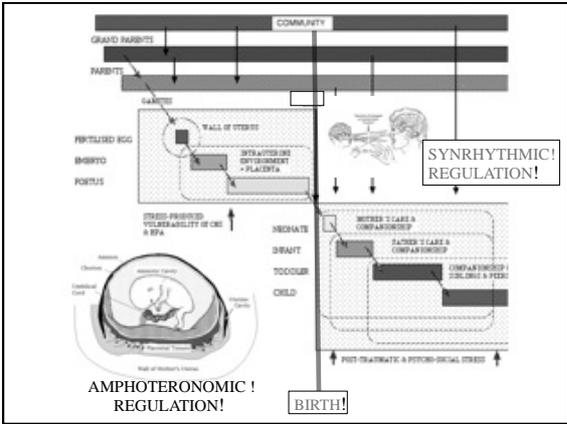
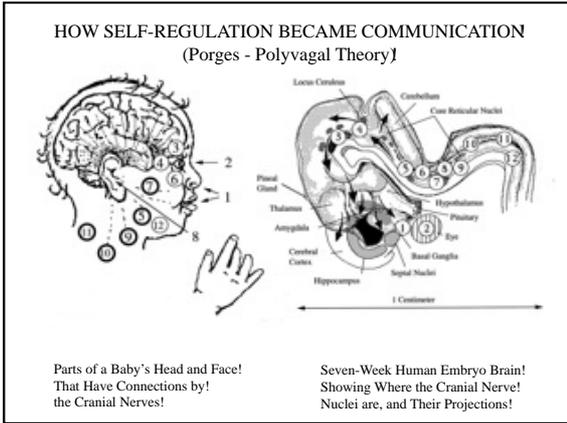
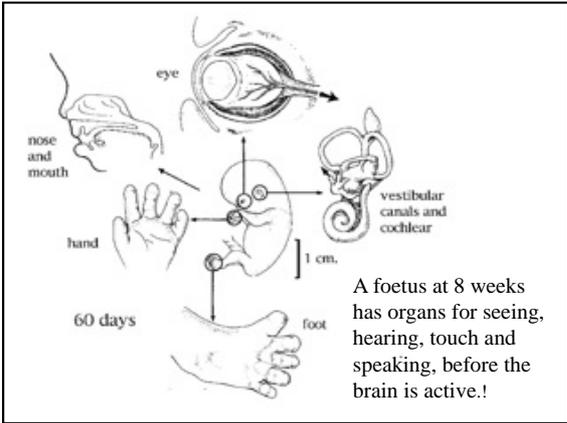
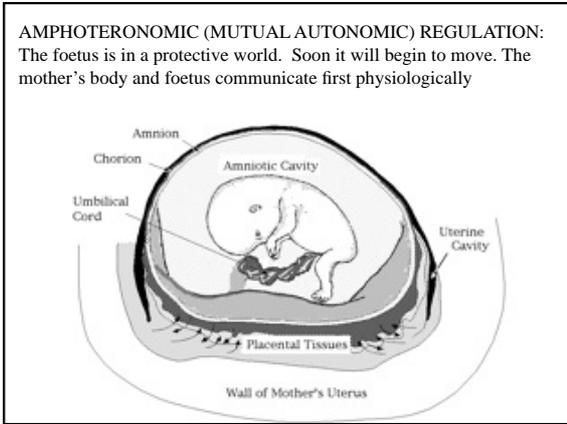


Cameron House Nursery School, Edinburgh (With permission of the Head Mistress)

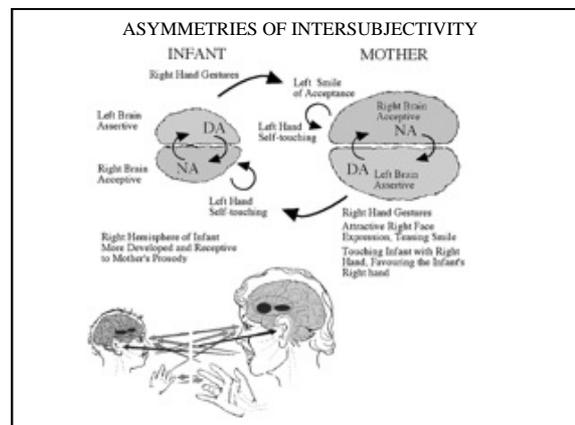
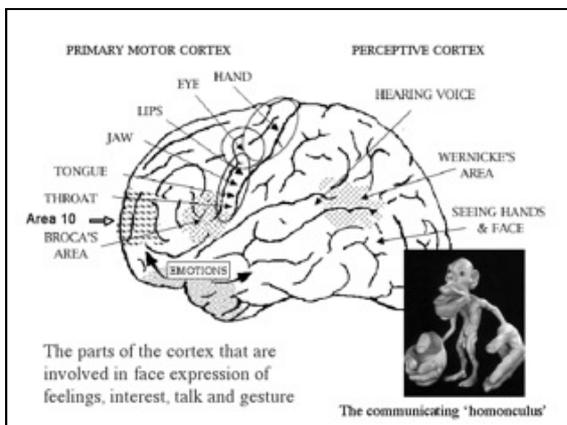
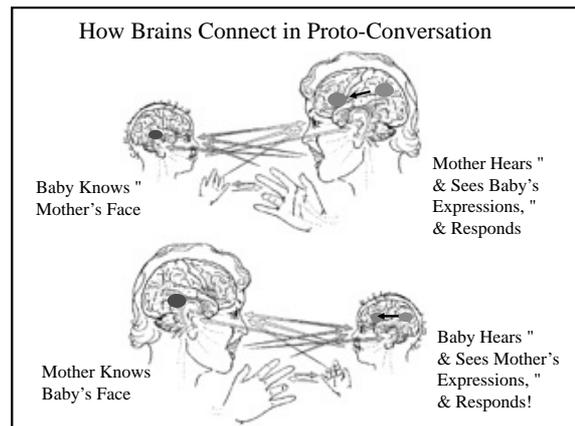
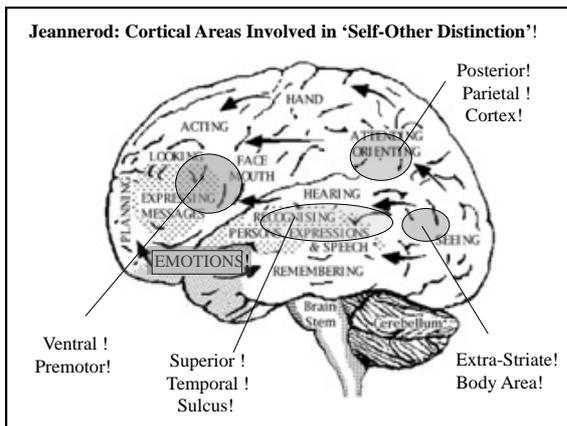
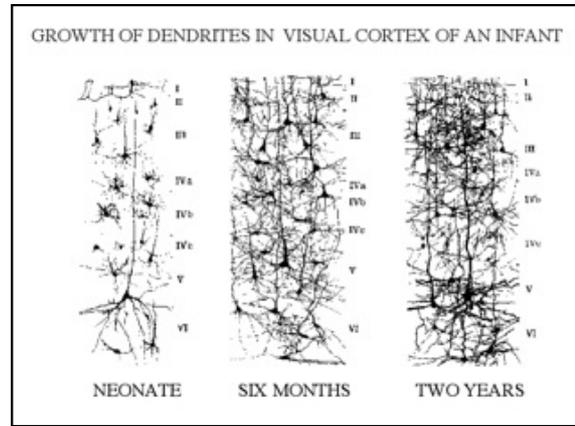
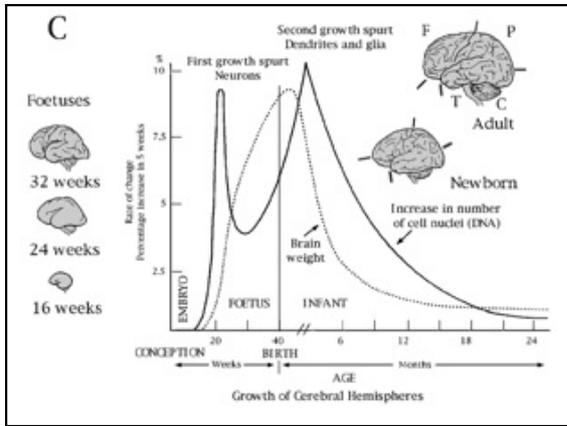
HUMAN"
PSYCHOBIOLOGY"

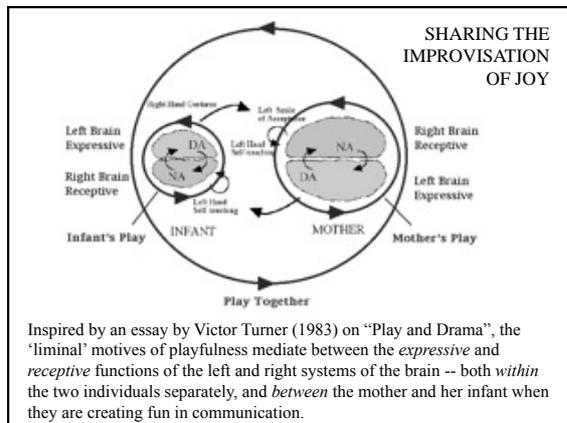
How Brains Are Made To
Move Our Bodies "
and Each Other

An infant's brain is an active part of an integrated human person, a Self, with purposes seeking experience that will make possible the development of actions that are stronger, more effective, more meaningful, more imaginative and more reflective.



POST-NATAL BRAIN DEVELOPMENT





"My aim is to show, although this is not generally attended to, that the roots of all sciences and arts in every instance arise as early as in the tender age, and that on these foundations it is neither impossible nor difficult for the whole superstructure to be laid; ***provided always that we act reasonably as with a reasonable creature.***"!

John Amos Comenius (1592-1671) *The School of Infancy*.
Translated by D. Benham. London, 1858. (Quoted by Robert
Herbert Quick (1894). *Essays on Educational Reformers*.
London : Longmans, Green and Co.)!