

# **Vertebrate Growth and Form**

## **A whole-body approach**

This paper describes the author's private research into vertebrate growth and form, involving computer modelling of AC and DC fields associated with the spinal and autonomic nerve chains. Working downwards from the whole body, and applying conventional field methods, it complements the genetic and cellular approach. The 2D and 3D models considered here assume the existence of a stable pattern of electrical sources throughout development, and that expresses itself in different ways according to the overall size.

## **1. Introduction**

Energy fields.  
Structural forces.

## **2. Basic embryology**

Gastrulation, gradients.  
Organizers, somites.  
Spemann, Child, Needham.

## **3. DC biofields**

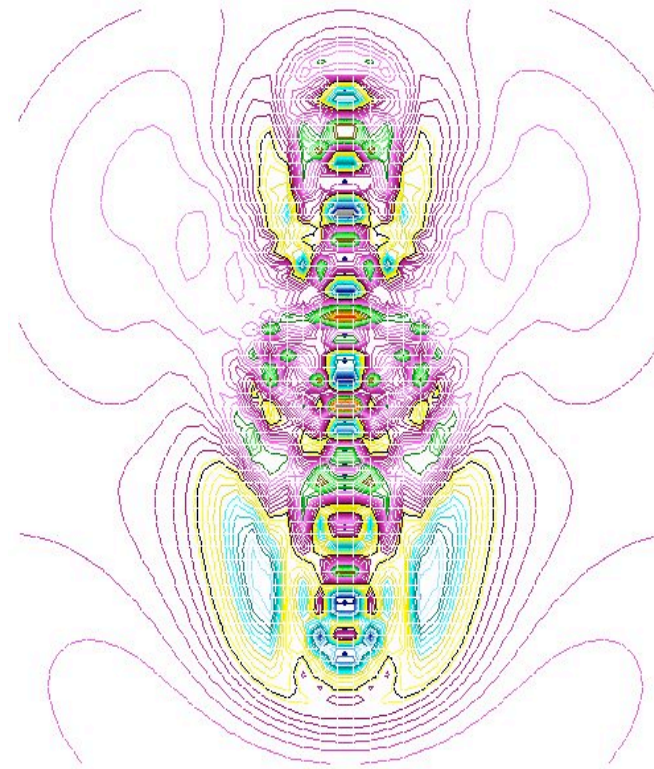
Burr, Becker.  
Glial and Schwann cells.

## **4. AC biofields**

Tesla, Adey, Delgado.  
ELF nervous system.  
Personal experiments  
Patterning effects of AC sources.

## **5. 2D models (1980s)**

Cerebrospinal geometry  
Contouring experiments.  
Frequency sequence, conduction speed.  
Growth and time.

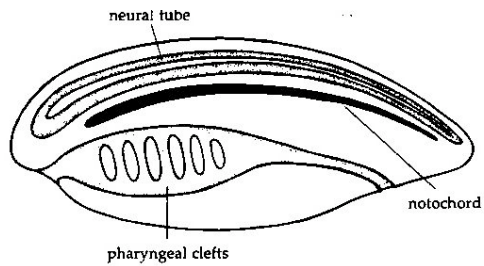


## **6. 3D models (2006-7)**

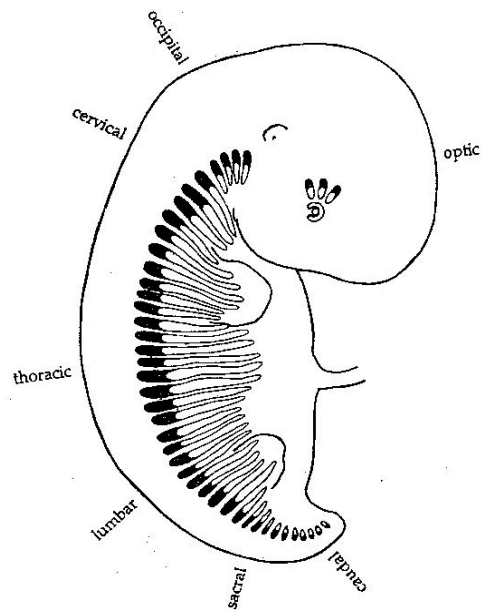
Symmetry and asymmetry,  
Spinal/autonomic nerve chains.  
Front, side, transverse contours.  
Internal asymmetry, helical DC field.

## **7. Wider issues**

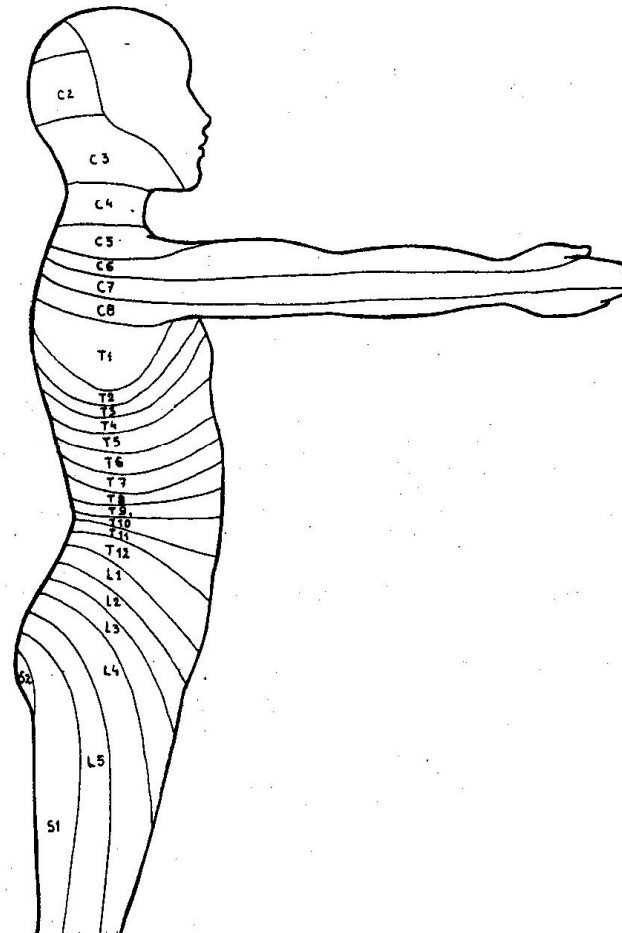
Biological resonance.  
Medical use of ELF oscillators.  
Geomagnetic field effects.



**Primitive vertebrate structure**



**Human somites**



**Human Dermatomes**

Distribution of spinal nerves to the skin

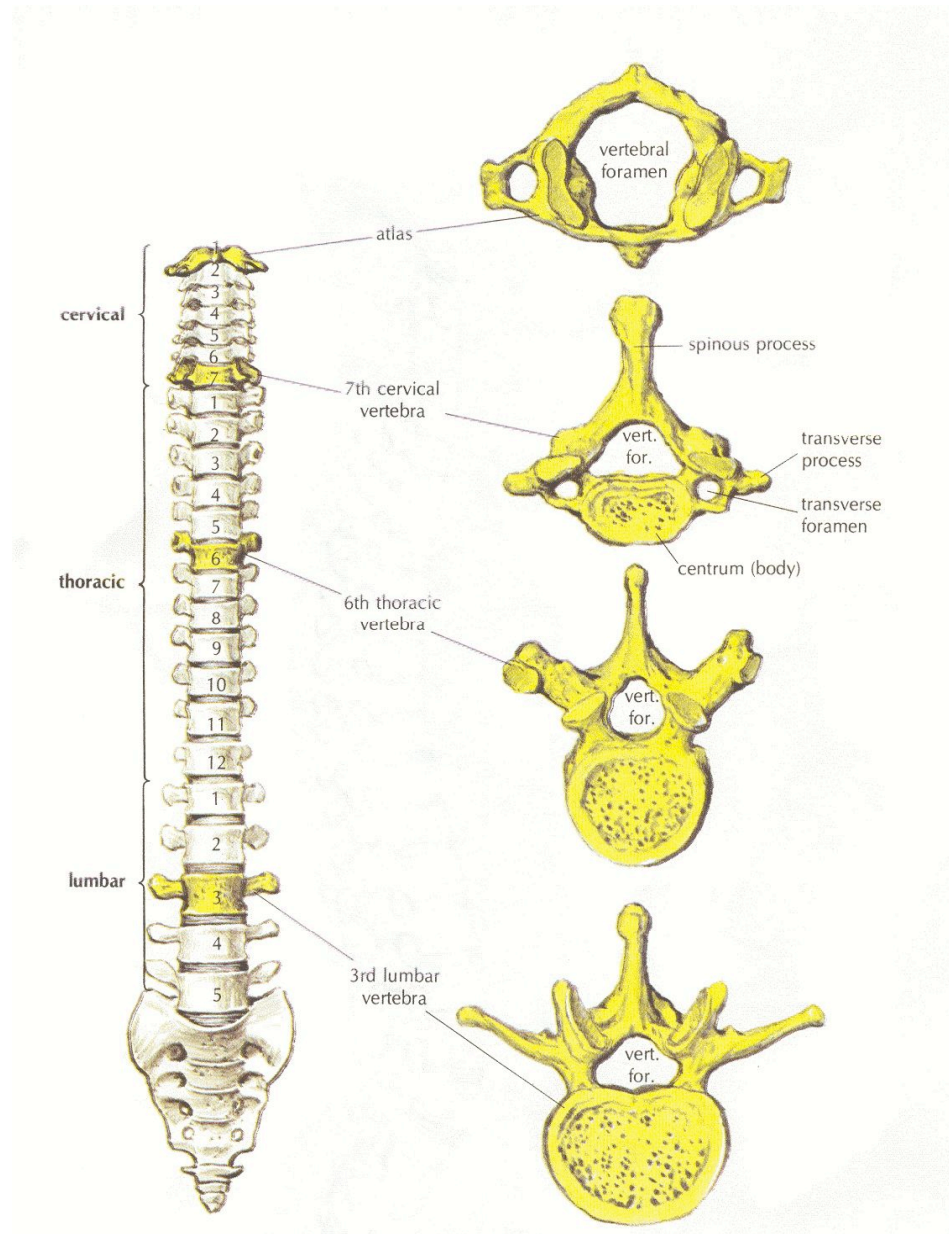
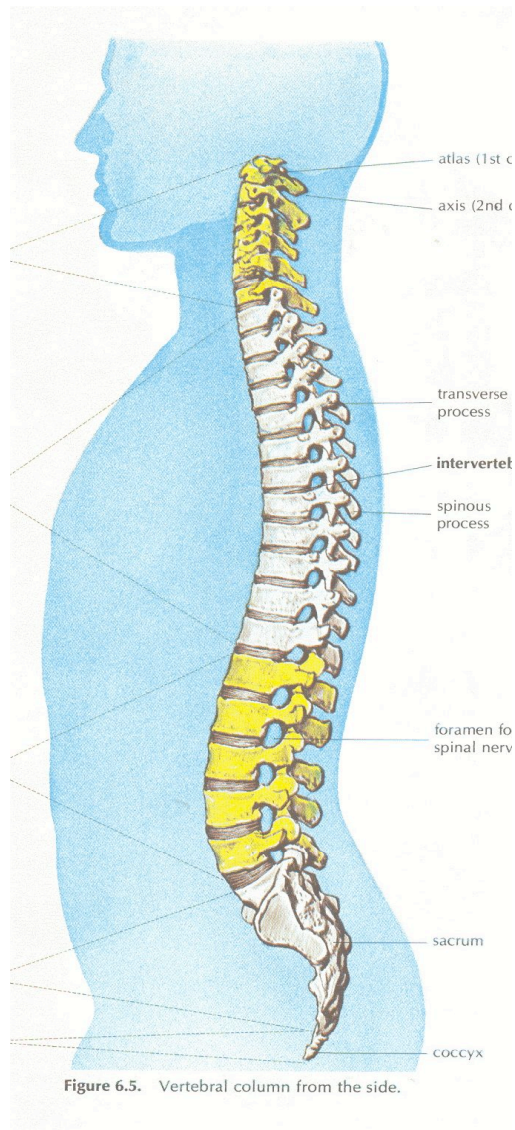
*‘The fundamental progress in electrostatics and current electricity is due to Clerk Maxwell's genius in seeing the formal resemblances between the conditions to be satisfied in those subjects and those satisfied in already solved problems belonging to other subjects.*

*...Thus, if to every point of a region of space can be assigned a definite value of a variable whose values are descriptive functions of the organism, the region can be called a field. ...In an electrostatic field one has simply the idea of a totality of values of the potential function associated with a certain set of points. For convenience the equipotential lines or curves on which this function is constant are then often drawn in. But the equation (function) contains all this information in itself. Would it not be possible therefore to arrive at some such equation if we knew the properties of the substances involved, their speeds of diffusion, and also the geometrical distribution of competence or reactivity? In the near future we can hardly hope for such complete knowledge.’*

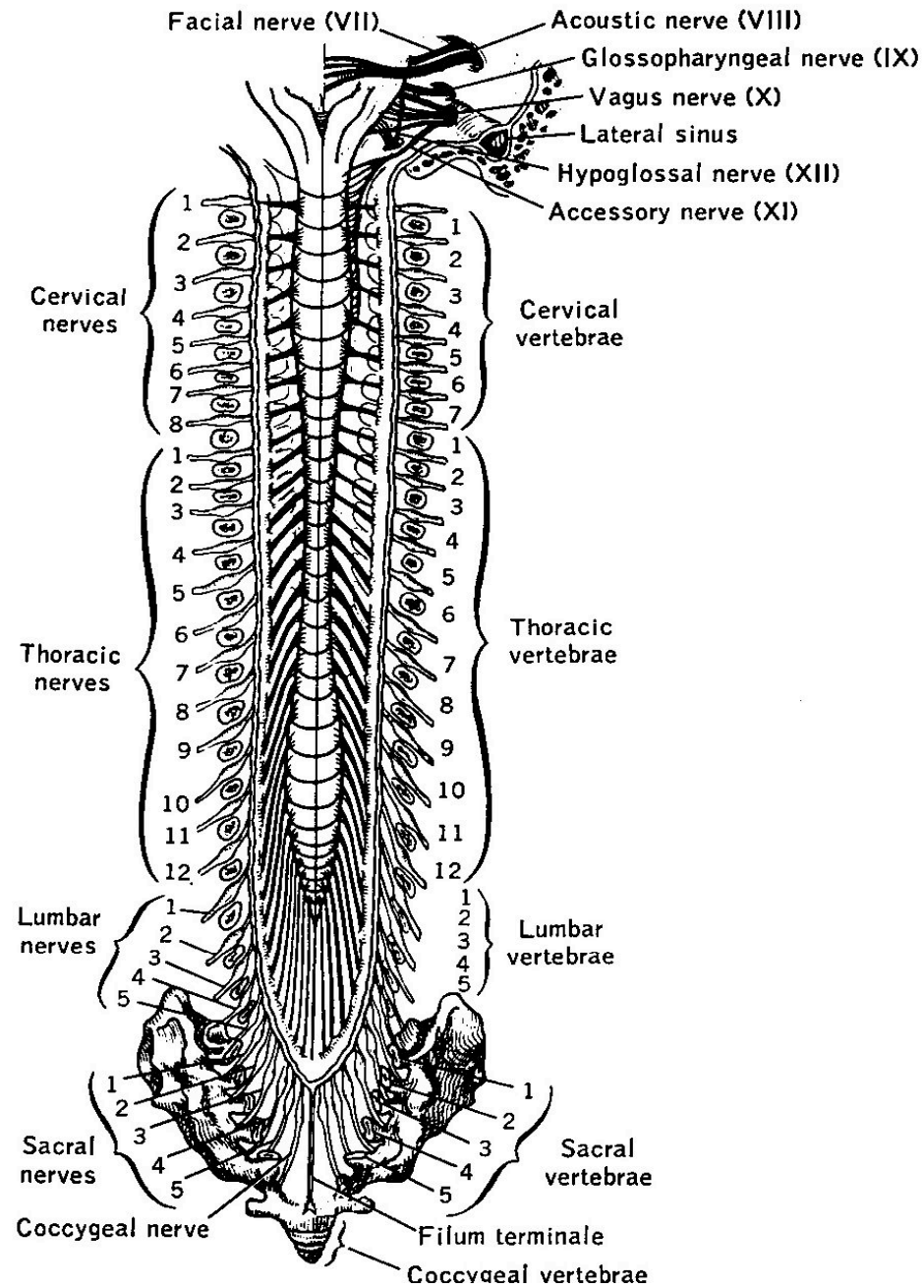
**Joseph Needham**

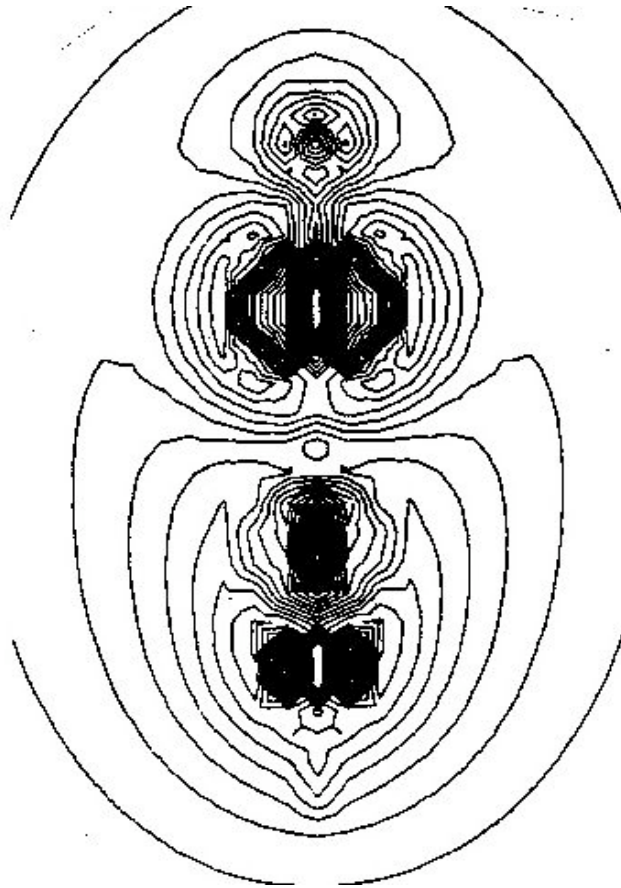
*'The universe in which we find ourselves and from which we cannot be separated is a place of Law and Order. It is not an accident, nor chaos. It is organized and maintained by an Electro-dynamic Field capable of determining the position and movement of all charged particles. For nearly half a century the logical consequences of this theory have been subjected to rigorously controlled experimental conditions and met with no contradictions. ...If it were not for this 'overriding authority' of the Life-fields, you and I could not exist in our present form because the complex molecules of which we are composed could not build themselves on their own - or by chance - and could not retain their composition.'*

**Harold Saxton Burr**

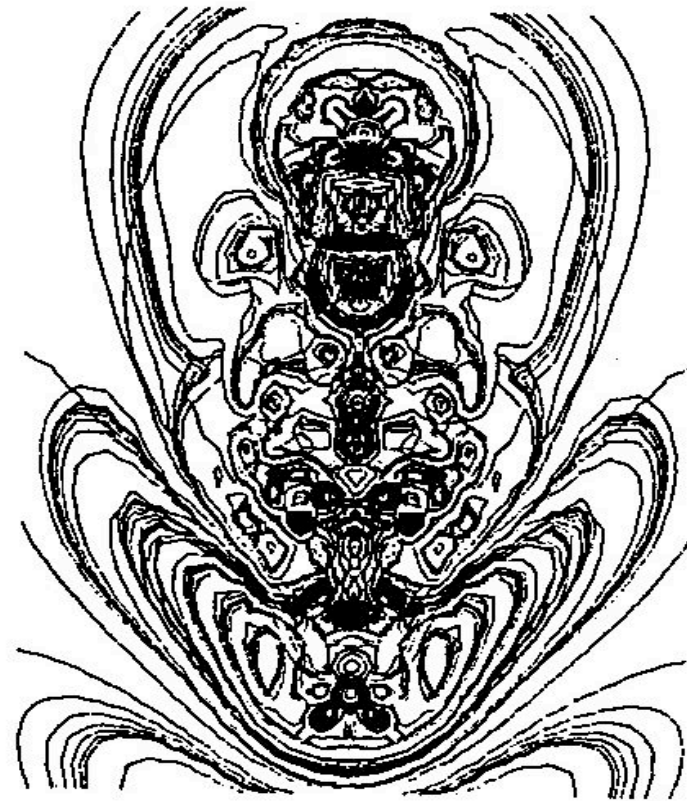






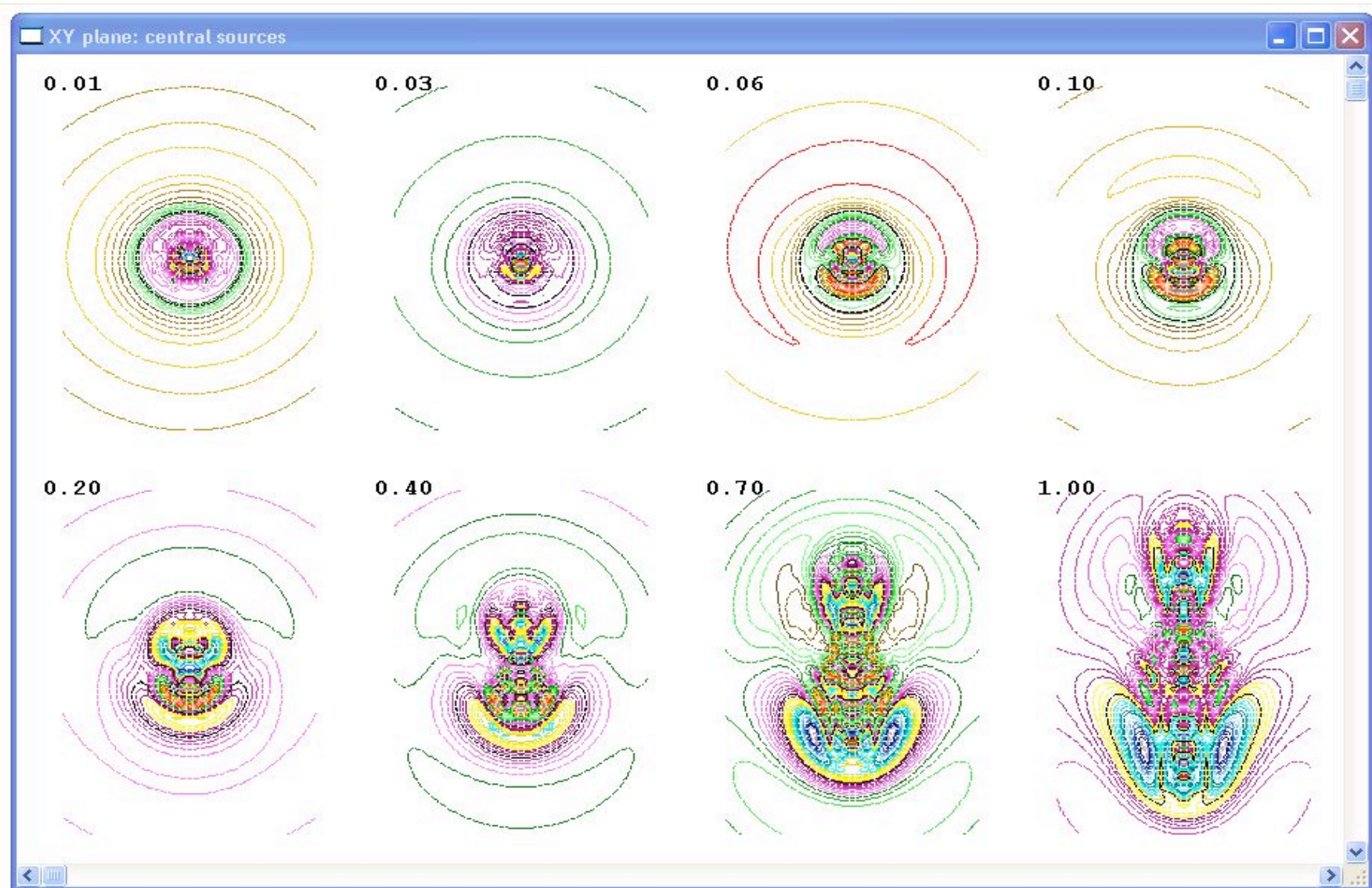


**First 2D picture of equipotential biofields  
5 trunk and 3 head sources**



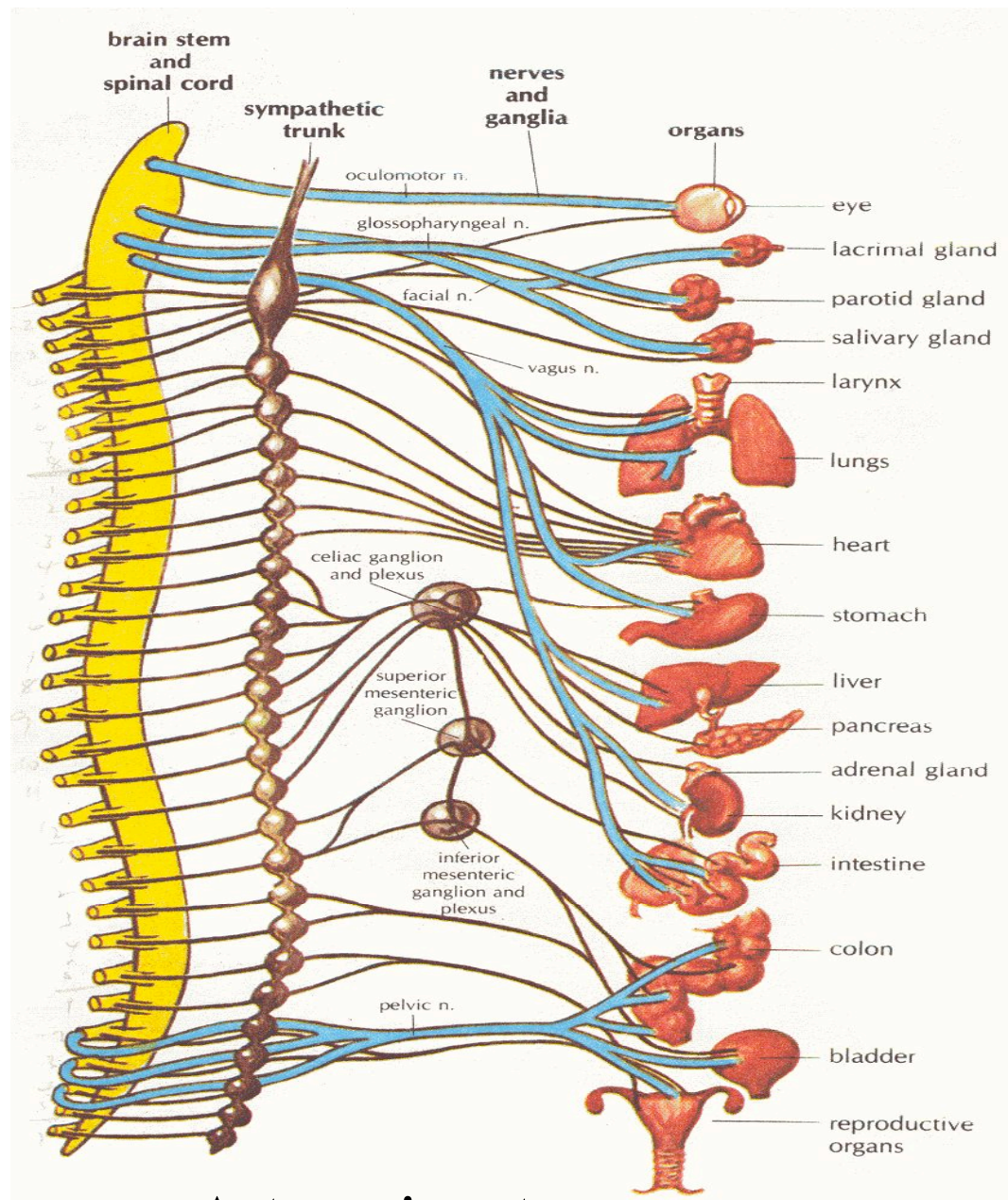
**31 trunk and 15 head sources**





### Developing embryo

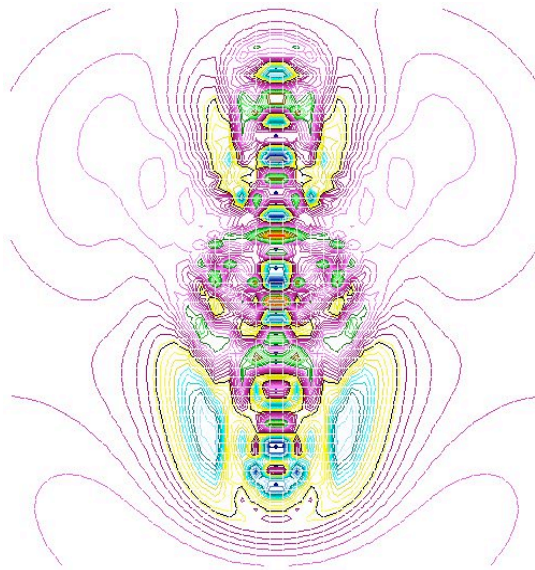
Numbers indicate relative size. Smaller embryos magnified to show more detail.



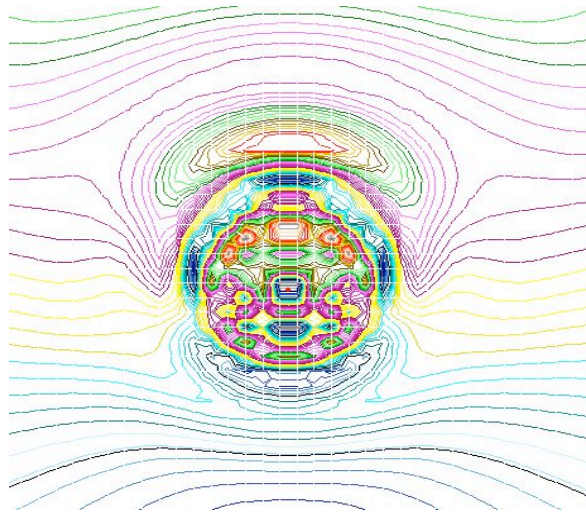
## Autonomic system

Sympathetic and Parasympathetic nerves





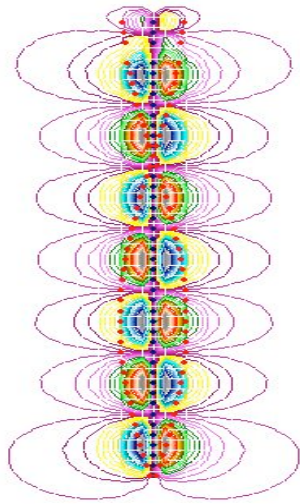
3D fields, front view  
through spinal axis



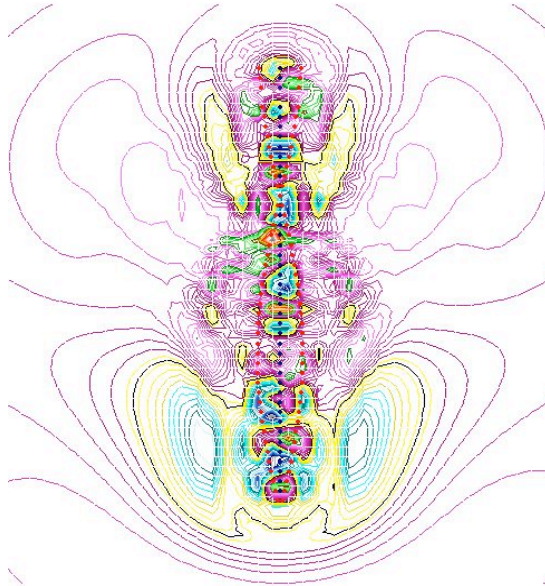
3D fields, transverse view  
through heart region



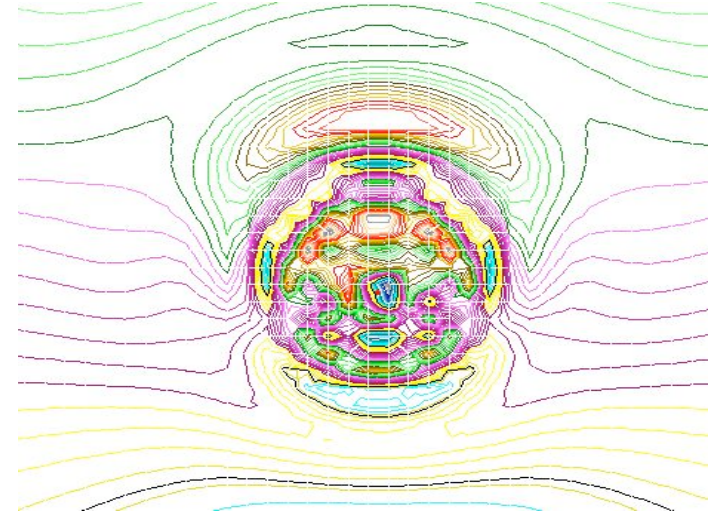
3D fields, side view  
Through spinal axis



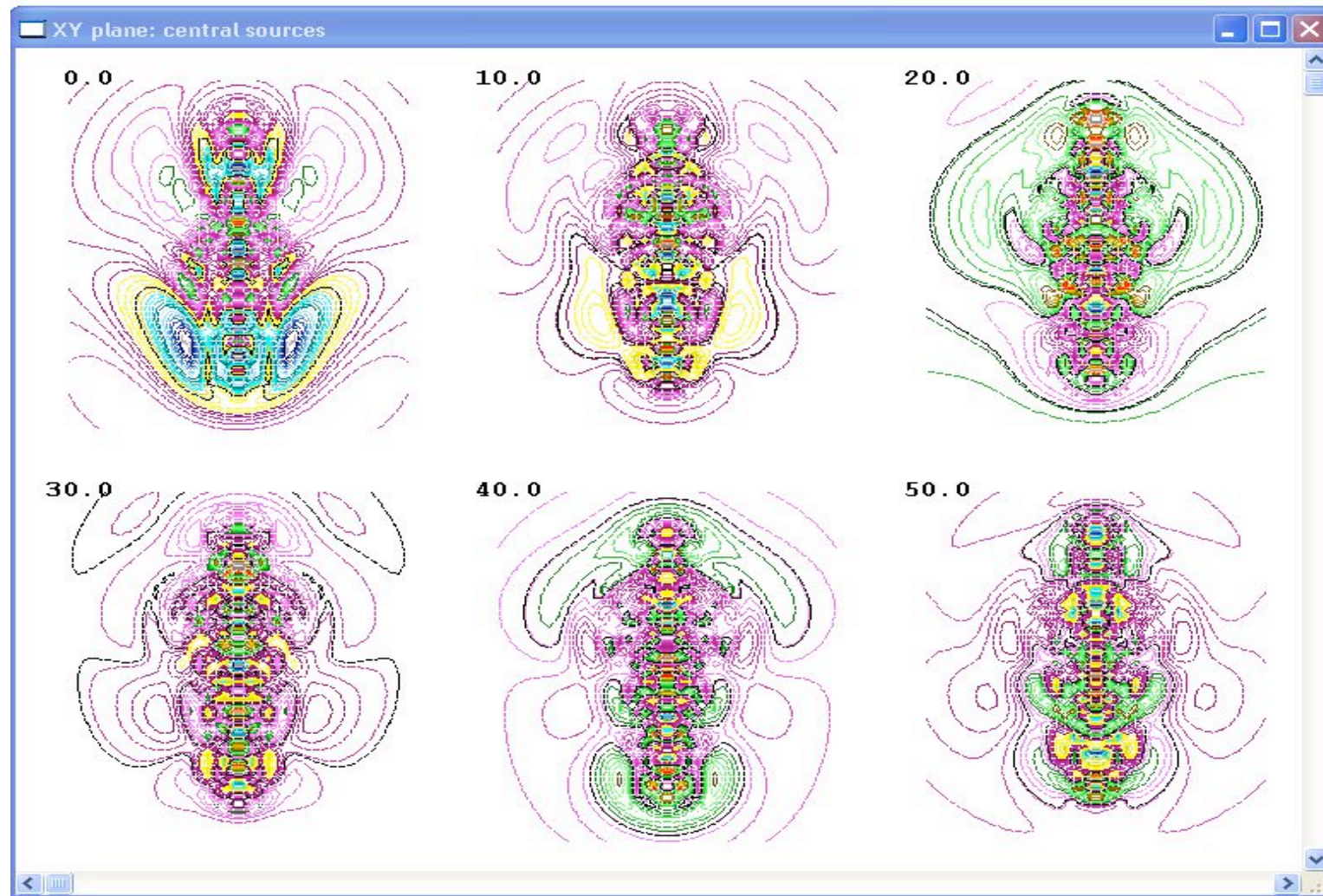
DC helical field  
around spine



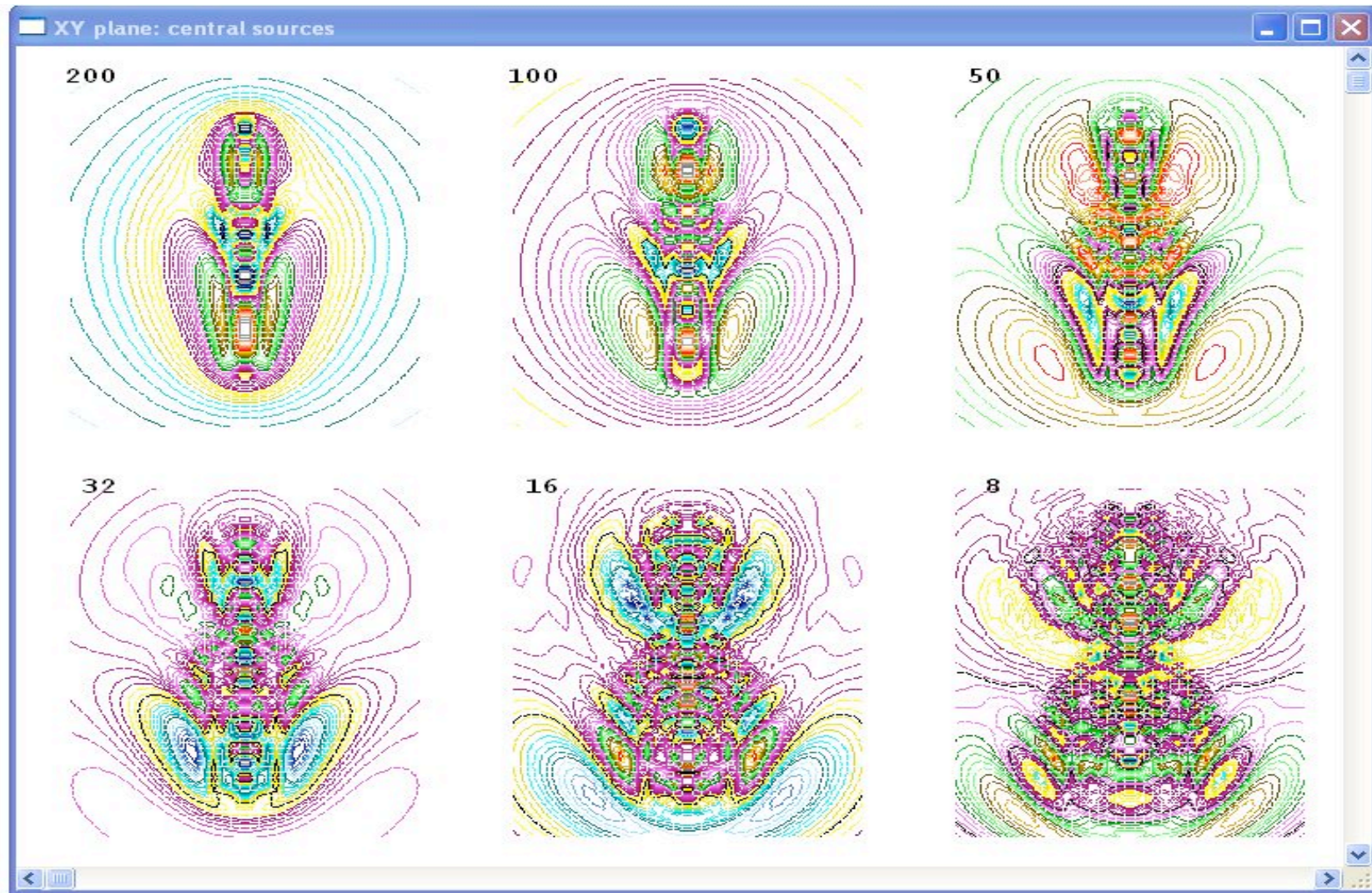
Internal bilateral *asymmetry* with DC helix







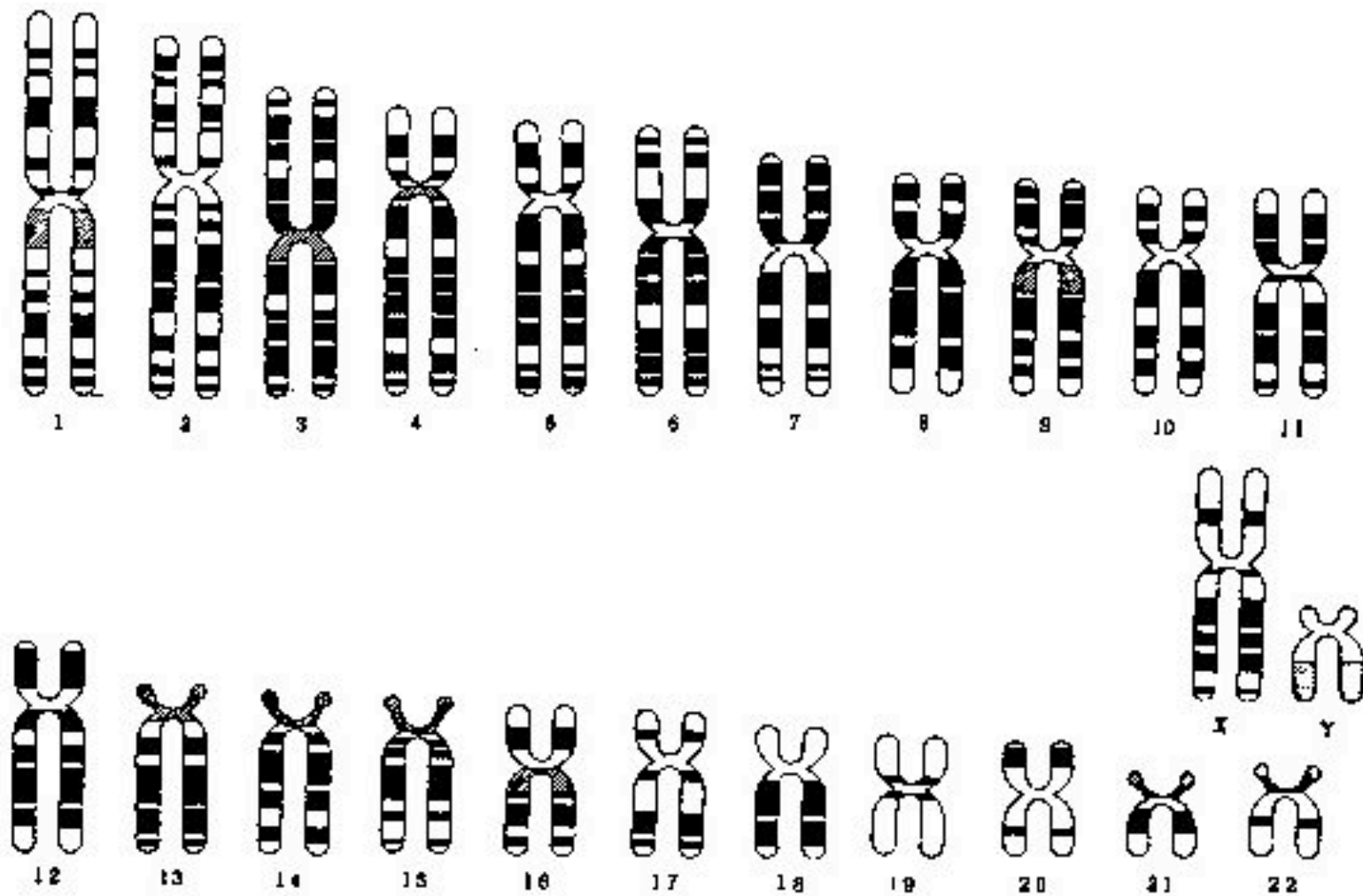
Time progression at 10-second intervals  
The first picture represents the synchronized state.  
The others show energy focused in different regions.



### **Changing conduction speed**

Numbers indicate relative conduction speed close to the spine





Human chromosomes