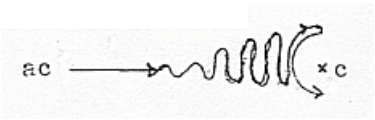
Charge

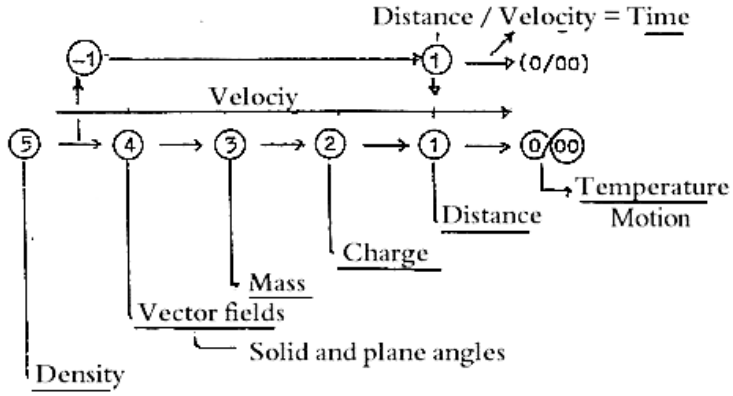
The question is put by D. Park in his book "The modern physics"**,** a pocket, from 1967 in Swedish, and he said there that physicists hadm't any answer.

The question awoke in this author the thought that charge could be interpreted as a "braking" of motion in direction inwards; a conception that became the direct origin to this dimension model in 1970.



A car for example, with constant velocity 90 km/h, colliding with a concrete pillar, would lose some of its length and transforms along a new vertical co-ordinate axis. (Cf. objects, if with velocity of light, loses their length dimension according to Lorentz' transformations!)

The question what charge actually is, "in reality", can presumably only be answered by the physicists through other concepts or mathematical formula for connections that forwards the question to those other terms.



Charge as a 2-dimensional shell character:
According to first suggestions about physical quantities and their mutual relations and identifications in a dimension chain, Charge is **presumed to be a 2-dimensional quality** in relation to Mass when this is analysed as 3-dimensional (We could think of dimension degrees in a simple chain or perhaps level degrees in a superposed chain of levels.)

One simple argument is of course that (+/-)-charges implies a **polarisation of matter**. And geometrically of 3-dimensional volumes in microcosm, in atoms in an inner nucleus and an outer electron "shell".

According to physicists the Charge **in atomic nuclei i**s also of a **shell character**, a shell that in heavier atoms is thickening inwards towards something like a high plateau and the the talking about potential barriers à la crater-walls.

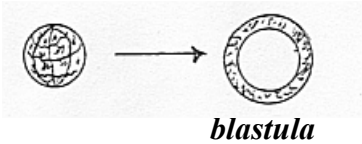
(Of course, charge is hardly the concept for the creation of surfaces separating celestial bodies and vacant space in macrocosm, but should be viewed as related as everything in this model…See about F_A- F_G-forces and F_E-F_M-forces here.)

Permeability:
Charge, interpreted as a shell building property, as a barrier, can be associated with the concept and physical quantity "permeability" (μ).
The permeability is inversely proportional to the charge squared.

$Charge^2 \sim$ (is proporional to) $1/\mu$ $[\mu = (M \times D) / Q]$ (M = Mass, D = Distance)

That is to say, the higher the charge, the more impermeability.
This seems to support the hypothesis about Charge as a "surface" property, as a 2-dimensional quality.

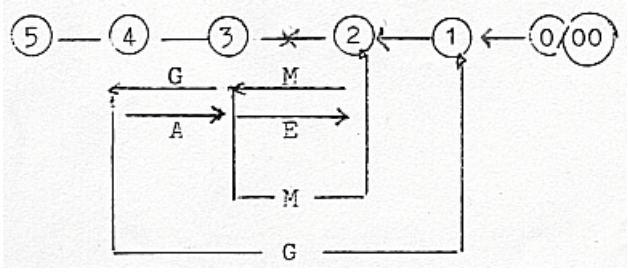
Embryo of an atom!
From the aspect of higher d-degrees towards lower degrees, the step Mass → Charge as Surface could be compared with the step from an embryo as a filled ball of cells to a "blastula", a cell membrane around an inner hollow with extra-cellular liquid - as a first "built-in anticentre":



blastula

(Note that at the blastula stage the cells get differentiated roles depending on angles of direction, with the "animal pole" upwards and the "vegetative pole" downwards. Compare the differentiation of electron shells around an atom through the so called "quantum numbers", which reasonably should have its correspondence in the nuclei.) Cf. further down about quarks.

Negative (inward) and / or "inverted" velocity?
In a dimension chain there are 2 d-degrees "branched off" at d-degree 3, and looking the other way around from d-degree 0/ 00 of Motions inwards, in "negative" direction, we can see them meeting in the middle of the chain.



That is a view connecting Charge as property with negative - and or "inverted" velocity inwards or the like; perhaps squared, perhaps also with an added factor of acceleration? (Velocity, outwards, in this model identified with the d-degree steps, the "quantum jumps" outwards.) Cf. the relation Mass - Gravitation - negative Acceleration.

How If we should transform the physical qualities Mass and Charge into expressions for distance and time, metres (m) and seconds (s):
Suppose that Mass is interpreted as 3-dimensional and coupled to negative acceleration (~ gravitation), and that Charge is interpreted as 2-dimensional and in some way seen as derivative of Mass:
Instead of Time as of d-degree 1 (one pole of this d-degree), we have to presume that

this pole represents the inverse of time, 1/T, the frequency f, with d-degree 1. What do we get, in terms of derivatives?

- Mass (M): $M \sim - m \times f^2 = - m/s^2$
(Mass as equivalent to negative acceleration.)
  - y´(derivative with respect to the frequency)

- Charge (Q):$Q \sim - m \times f$ (Charge as negative velocity, - m/s)

- y´´ (secondary derivative of Mass, derivative of Charge)

- Distance (D): $D \sim -m$, the right d-degree and quality but in negative !

Charge becomes the integral of negative distances! (Cf. the speculation about the strong interaction force.)

EM-fields and Charge:
Charge as property is coupled with EM-fields according to established, well founded science - in the same way as Gravitational fields are connected with the property Mass. As written about forces and "MEGA"-fields the EM-force is here seen as differentiated and identified as such in d-degree step 3-2.

The EM-force or field becomes the inner connection and binding force between charges of complementary structure and signs in d-degree 2 as presumed here: Charges seen as the results of an underlying em-field,polarised and "inverted" to particle-like structures through a d-degree step.

We have two aspects at least on this presumed "inversion":

1. One is the change from electromagnetic waves outwards to inward (negative) direction. The dimension chain seen from the d-degree of motions we get built-in motions and curved 1-dimensional potentials at d-degree 2, the more particle like character (see about EM-waves here).

Compare first when quanta of em-waves (with motions in 3 dimensions) in inward direction gets absorbed by an atom and transform into higher, "circular" amplitudes of the electron orbitals.

Then we have the fact that a photon with enough of kinetic energy can give birth to pairs of electrons, e-/e+: Yet this only occurs, so it is said, in the neighbourhood of heavy atom nuclei (or atoms?), "which can absorb the momentum of the photon". Why? We could interpret this condition in such a way that heavy atom nuclei as Masses define the direction of the photon (a unit of waves) **as inward direction** - that is towards higher dimension degree.

If so, this could give cause for the first hypothetical interpretation of "Charge" as a property developed as "surface" out of "a braked motion" in direction inwards, connected with negative velocity.

Further, in direction outwards, zero-charged elementary particles as π° and Σ° can disintegrate directly into electromagnetic radiation. This seems to show on a primary "inversion" of em-waves into unpolarised zero charges..

2. "Inverted" could also mean a role exchange between E and M, the two forces F_E and F_M in the em-field:

Within **plasma physics**, as said elsewhere, there are formulas which describe the proportionality between p and e related to M and E respectively:

p+ ~ M^2

e- ~ E^2

The underlying EM-field shall perhaps be considered as squared - ? - in the transformation into "particles". And p+ and e- should represent opposite complementary relations of the combination E and M. (Anti-matter the inverse.)

If we in em-waves can see the magnetic component as the anticentre pole from "vacant space"(with heritage from the 00-pole), the proton - with most of the mass gets the centre role, the electron the anticentre one.

As said about "MEGA"-fields: with the proton responsible for the most of the mass of the atom, the electron for the kinetic energy, and mass related to the G-force, these formulas seem to show on a connection between G- and M-fields, A- and E-fields.

(If p+ is proportional to M^2 according to the formulas, it could perhaps be interpreted as result of a minus-energy squared giving plus-energy ?)

(According to definitions of old classical mechanics Magnetic flux and flux density is proportional to Mass, while Mass appears as proportional to Electric field intensity. Electric flux and flux density is proportional to Charge, while Charge appears direct proportional to Magnetising field intensity. Electric field intensity.

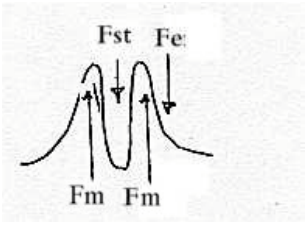
Reading these definitions in a very simple way, we could perhaps see them revealing a role exchange between the poles M and E from field intensity to flux.)

If we take the quotient E/M of these physical concepts, we get the expression:

$[Q^2 / M] \times [s / m^2]$ for flux and flux density, the inverse expression for the field strength. In the factor $[s / m^2]$ or the inverse we could imagine one time factor (s) transformed to a distance factor (m) in the relation for acceleration: m/s^2. (See about motions.)

The potential barrier?

About the formulas with components of EM-fields squared: perhaps we could imagine the potential wall of the nucleus as 2-dimensional, squared to a 4-dimensional curve: The strong force Fst acting in the middle, the magnetic component Fm in the wall, the electric component Fe outside in opposite directions...?



Compare the "tunnel effect": α-particles able to pass through the potential barrier with much lower energy and expected. The α-particles then are said to have "negative velocity" inside the barrier.

N.B. Here there is mentioned this **negative velocity** which here primarily is assumed to characterise the charge property.

Spin 1/2:

In opposition to the quantum of electromagnetic fields (the photon with spin 1) the charged particles proton and electron - and other elementary particles with mass, the so called "fermions" - has spin 1/2

Something has happened in the step from force fields to matter.

According to Hawking one can describe this property spin as how much the quantum has to be turned around to look the same again. The number 1 of the photon's spin means that the photon has to be turned one revolution, 360° Spin 1/2 means that the

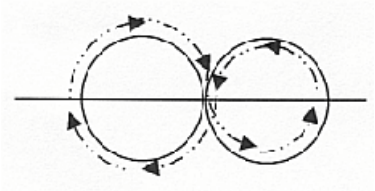
fermions, the more "material" particles, have to be turned around **2 revolutions (!), that is 720°** How explain that?

The first suggestion here is to imagine a band witch is twisted once to an "8", giving two loops: If we start at the outside of one loop, we will after one rev come to the inside of the other loop and then after 2 revolutions back to the starting point on the outside again.

The condition for this interpretation is that we have a 2-dimensional "band", with an inner side and an outer side.

Hence, this could be another argument for interpreting charges as 2-dimensional structures. (And of course for interpreting Matter as a question of structure complexity. Quanta of forces are attributed integer spin. Yet note that these "carriers" of forces in the standard model concerns the outer relation or interaction between units, in terms of the model here, not the same as the inner bond as common origin.)

We could also imagine a wavelength of a sine wave as "reflected", turning back again, inside and outside coupled to directions and (+/-)-signs of co-ordinate axes.



Even if this aspect on spin has relevance, there are **problems** too: Electrons with apparently simple structure has spin 1/2.

(Electron paired through opposite spin as taking opposite directions in the double-loop above, starting from inside and outside respectively? Cf. illustrations of the electron figurations in different atomic shells: some electrons parted with half along the (+)-axis, half along the (-)-axis of the co-ordinate system.)

Neutrinos has spin 1/2 too, but it's not sure if they have any mass. And the recently found, invented or produced W-bosons, as carriers of the weak force, have both charge and are extremely heavy - but are attributed spin 1.

This implies that there isn't any simple correlation between the complexity of structure (the mass property), charge and spin number. We should at least have untwisted "bands" too for the property of charge.

Physicists point out that **spin isn't an ordinary rotation** of a particle. We could probably (?) associate it with that one d-degree of motion which according to first fundamental postulates in this model is attributed to the 4th d-degree of vector fields: Opposite spin directions with roots in the inward / outward directions of 4th d-degree. Built-in motions of polar field components, geometrically transformed in lower d-degrees.

(Could there possibly exist some correspondence in macrocosm? Not only does the planet Mercury rotate around its axes and in an elliptic orbit around the sun. Also the (geometrical) plane, the orbit itself as a 2-dimensional "structure", rotates (if rightly understood), in a way which Einstein solved, setting it in relation to the gravitational force. Connections ???)

More about Spin here.

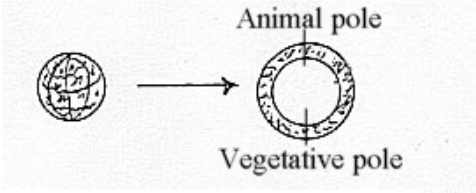
Quarks - partial charges and gastrulation:

The physicists observed something like three divided parts or areas in the proton, and experiments with shooting quanta on the proton and registering the spreading pattern

gave the theory about protons consisting of 3 "quanta", the quarks. These should have the charge **+2/3, -1/3**, **+2/3** (to get the charge unit +1).
In spite of this "quanta view" on these quarks, they have never been possible to set free, and the assumption for the present is that they cannot be. (Well, we cannot pick out the rooms from a three-room flat either.)

Where do we else have such a construction?

A suggestion here is to look at the embryology step from a blastula to gastrulation. The blastula as a shell of cells already has a defined "animal pole" and "vegetative pole" in opposite directions:



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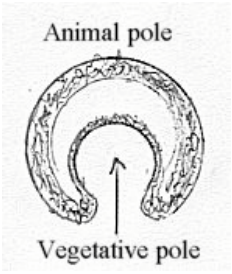
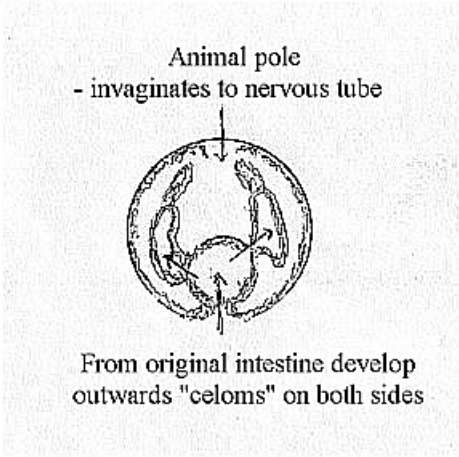




The vegetative pole invaginates into the blastula, as drawn inwards and forms the intestine and the device for nourishment from outside (the original mouth), read for the proton the "vacant space" (see about Matter). The process illustrates the (partial) building-in of the 00-pole, the surroundings.

From this original intestine the cell membrane as "2-dimensional" evaginates on both sides "outwards" to hollow forms, so called "celoms" which develop upwards.
The Direction of the first invagination of the vegetative pole is inwards, to read as "negative" energy which could be associated with the presumed negative charge of -1/3 of the d-quark.

The Direction of the evagination of the celoms is outwards, which then could be associated with the positive charge of the 2 "up"-quarks in a proton, two times +2/3. According to estimates the two "up"-quarks have also only half the energy (~5 MeV) than the "down"-quark (~10 MeV).

The process illustrates
- the building-in of vacant space into the nuclei,
- a certain combination of positive and negative energy in interaction,
- charge as 2-dimensional structures like the cell membranes,
- the reason for the difficulty to set the quarks free,
- and, not least, a "negative curvature" of space (where surfaces grow faster than proportional to the radius squared),but inwards!.

Hence, **already the proton could reveal** this main principle in biology for the development towards life.(*See booklet Biology, sv,)*

It could be that we also have a combination of what the mathematicians have called an **elliptic and a hyperbolic geometry.**

Perhaps we could bring the similarity a bit further:

It's from the inner membrane of the celoms (read positive up-quarks) that the **sexual organs** are developed: compare the proton's relation to electrons - and the sexual polarisation with that of charges!

What about the **animal pole** (its development not included in the simplified figures above)? Apparently in charge of the whole! The central part of its membrane invaginates, induced by a meeting with the ventral membrane, to form inwards the tube of the central **nervous system.**

We could possibly imagine this small invagination as the electron in **a neutron*** when it disintegrates into p+ and e- (and ν) outside an atom, that is without the drawing force from the complementary pole. Remember the central nervous system as responsible for also the communication with the outer world - and ditto for the electrons, forming molecules and so on...!

The other membrane around the animal pole is growing circular downwards, forming the surrounding skin of the embryo (while the vegetative pole is growing radially in its invagination). So does the electron shell around the proton.

**** Why more neutrons in heavier nuclei? One association is to oxygen molecules H2O where H-atoms can attract the other side of the O-atom in another H2O-molecule.(?).***

In simple geometries: these complementary growing directions of the membrane, circular and radial, illustrates the postulated poles of 3rd d-degree in geometrical terms, between which the 2nd d-degree of surfaces is presumed defined. (And we have of course a lot of "convex and concave" forms of surfaces too, as in sine waves.
The embryo development concerns batrachians (frog type).

The embryo simile, spin 1/2 and p ~ M^2, e ~ E^2:

The development of the membrane from cells around the neural plate is a growing both outside, downwards, and inside along this surrounding membrane, with circular form. This could illustrate the interpretation of spin 1/2 too: one loop of the "8" or twisted band turned into the other. (Skin and its deeper layer, "epidermis" and "dermis".)

Perhaps there is also a connection with he formulas from plasma physics which indicated squared relations between p and M^2, e and E^2?

Phase-displacement between E- and M-components?

Can we guess that there is another phase displacement between E- and M-components in Charge (or between charged particles) than in electromagnetic waves (90°)? One of 45° ?

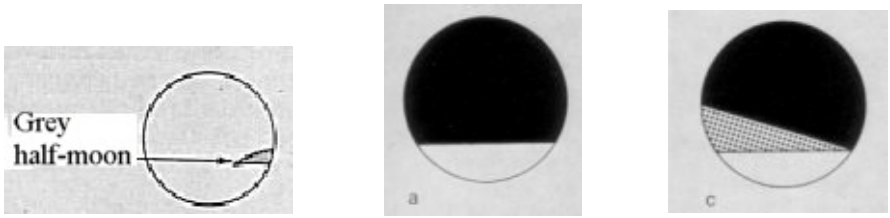
The preliminarily supposed angle in d-degree 2. Tan +/- 45° = 1, taken as unit for the charge of p and e?

Compare the phase displacement of 90° in EM-waves as a **means to propagation**. Charges do not propagate as enclosed units.

Radiation outwards also **implies jumps** between (energy) levels, as d-degree steps. Not charge as a mostly "static" property coupled with "particles" of inward direction. If we should believe in the simile with embryo development above, and interpret the opposite forces as E- and M-components, we have both the polarity of c-ac, 360°, the antiparallel of 180°, and circular to radial, 90°. representing the angles in d-degrees 5-4-3 according to first suggestions.

What about a phase displacement or angle of 22,5°- 45°, in d-degree steps 1-2, which should be closer to a parallel (!) relation? Is there anything like that, perhaps in squared forms in plasma physics perhaps, according to the relations p ~M^2, e ~E^2? Eventually connected with the development of quarks?

Keeping to the embryological approach we have a curious thing in the development on the 2-cell stage: the so called "grey half-moon" of the membrane at the lower, vegetative side, somewhere in the direction of 11,25--22,5 - -45° as it seems: This area must be represented if an individual shall develop.



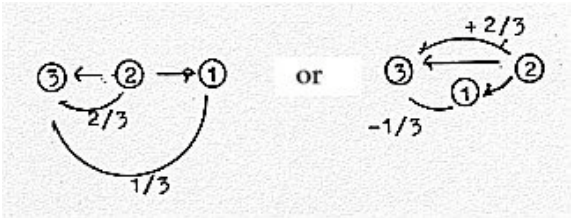
a, c: Grey half-moon before and after its creation

(Figure from R. Olsson: Koordatzoologi Stockholm 1971 and P.E.Lindahl et al: Zoofysiologi, Stockholm 1967..)

We could perhaps also note the direction of celom evaginations from the original mouth or intestine above.

Another aspect on the angle of 45° concerns what the electron shell reveals: 8 electrons make a full shell: 360/8 = 45°. There are many other angles in these shells through all "quantum numbers", and they surely should correspond to the nucleus, revealing its structures.

A third aspect is to imagine these smaller angles connected with the partial charges of quarks. Most implified:



2 < 2a------(1)-------2b
3 <3a-------(2)-------3b √2, +/-1 = tan (45° +/-22,5°).
4 < 4a------(3)-------4b

Some mathematical operations - ? -:

Arctan 1 - arctan 2 = arctan **-1/3.**
Arctan 3 - arctan 2 + arctan 1 = **+4/3**, divided 2 x (+2/3)
Arctan 5 - arctan 1 = **+2/3**
= Arctan 1 - arctan 1/5 (45°- 11,3°).
(0,2= tan 11,3°:cf. presumed rest angle 11,25°.)

Tan 45° +/- 22,5° = √2, +/- 1
Tan [arctan 3, +90°] = - 1/3 (arctan 3 + arctan + ∞ !)
Arctan 7/4 - arctan 1/2 = arctan +2/3 (33,69°.)
Arctan √2 has values: sin = √+2/3, cos = √+1/3:
$[\sin(\arctan\sqrt{2})]^2 = +2/3$, $[\cos(\arctan\sqrt{2}]^2 = +1/3$*

An association: A connection to amino acids (mass numbers), grouped according to codons *(table* here*)**:***

Cf. About π and √2, reading 2-figure numbers, the 10 first in each:

√1/3: 0,57735026 91 — Two-figure numbers

> Sum **1011**

√2/3: 0,81649658 09 = sum of the "exponent series", see Amino acids and the Codons

Alternately numbers **√1/3** and **√2/3,** upper and lower series

05	08	77	16	35	49	02	65	69	80	57	81	73	64	50	96	26	58	91	09
Sum			**192**				**352**					**367**						**100**	
			292-100				**252+100**					**208 +**		**159**				**100**	
x100:			$5^{2/3}$				$4^{2/3}$					$3^{2/3}$		$2^{2/3}$				$1^{2/3}$	

Much more about the amino acids and codon groupings will be presented, partly here ***and partly on another home page.***

*E- and M-components, if associated with sine and cosine numbers, should perhaps be squared to trace the charges: In the other direction then, at least one of the numbers is reasonably an imaginary one, coupled to inward direction.

(And what about sine-cosine relations and numbers in a non Euclidean room?)

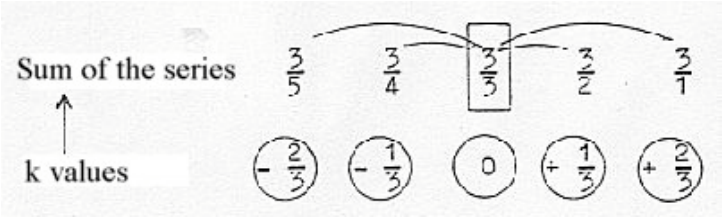
Other operations:

a. Geometrical series:

$$a + ak^1 + ak^2 + ak^3 \ldots + ak^n :$$

Sum of the series for k > -1 and < +1: $\frac{a}{1-k}$

Suppose a = 1, k = charges of quarks: then we get the sum of the series to number 3 divided with the 5-4-3-2-1-numbers, - in this order:



(The proton charges should then include or enclose one factor from 3-4-step, connected with mass and gravitation, and two of the d-degree 1 in relation to 3.).

b. 2/3 = sum of the series 1/2 + 1/8 + 1/32...etc, next number always a quarter of the previous one.

c. If partial charges were interpreted as 10 power exponents(!)
Cube root out of $10^1 = 10^{1/3}$, out of $10^2 = 10^{+2/3}$

Through three operations repeated, all numbers through oscillation approach and end up in these +2/3 and -1/3-numbers as exponents to 10.
1. x 10,
2. Inversion (/\ ).
3. Extracting the square root, √ .

$10^{+2/3}$ - $10^{+1/3}$ = 2,48 = the difference in quotients between the n/e and p/e, proton and neutron in relation to rest mass of electrons: 1838,6 - 1836,12.

Attraction - and Repulsion between p and e:
In closer analysis physicists have noted factors of both attraction and repulsion.

There are certainly several ways to explain this fact, but one could refer to different, complementary impacts from E- and M-components in the protons. (Simplest perhaps imagined as a repelling force from the negative built-in vector field in the proton, an attracting force from the positive partial charges.)

Some such view should be able to explain why electrons not "fall into" the nucleus (as planets not fall into the sun, in spite of gravitation).

Critical notes:
According to proposed basics in this model higher d-degrees act as binding forces in (next) lower degrees, and lower d-degrees as polarising forces towards higher ones.

How is it possible to define "volumes" of d-degree 3 - unpolarised - as such binding force? What should it be? Easier to define Mass + Vacant space as poles 3a and 3b as this binding force. Do we have any representation of the unpolarised unity of Mass and Vacant Space?

Nest question: the d-degree of Motion, 0/00, movements to and from each other, should be the force separating charges +/-, creating and defining Distance as concept. But this concept is of course much wider, defined through each d-degree step where 1 d-degree is "lost".

Some more comments in this here.

