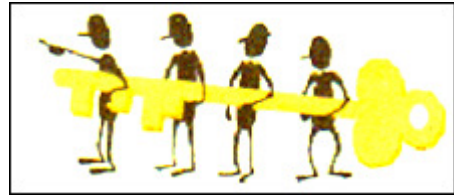


Borders of a Human Being ... seen out of Information Sciences.

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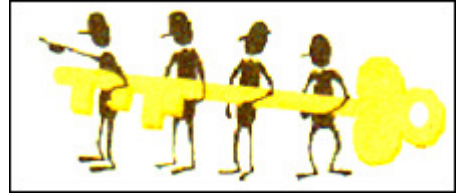
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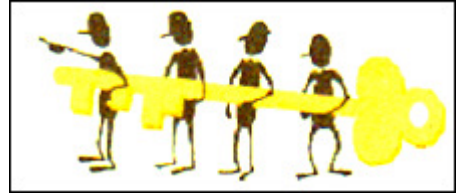


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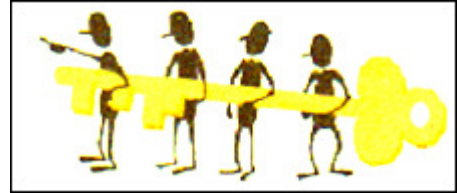


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God is not the border of a human being, but the border of a human being is godly ...

Georges BATAILLE, French Philosopher (1897-1962)



I. Introduction & Abstract

Informatics in technical reality is coming nearer and nearer to the “biological” human being. It seems to be necessary to protect humans against excessive demands by hardware of Cyber world and especially against computers as machines and their software.

The human being as evolutionary species on one side is measured in a very long development time of thousands of years, the IT on the other side works with human creativity and in much faster time intervals of some years or - maximal - decenniums only. These times show a big difference in both areas. The execution-times of the biological human being and his general surroundings on one hand and the IT with her applications – in electronic speeds - on the other hand are an outstanding conflict of time. Humans don't act like computers!

The structure of this work is given by the biological organism, but also the thinking and feeling of a human being. He has senses, instruments for movement and mental abilities as a whole. The human being in nature science is a biological object and in the human society an individual subject with own self awareness und personal intelligence. Compared with all living subjects he has the highest developed consciousness of his own person. The modern science seems to make them unimportant.

The goal of this work is, to find the biological and psychological borders of the human being and protect him in a preventive medical kind against coming dangers like for inst. bad stress and following sickness. Theoretical Informatics has to find out principles, rules and ways of thinking for human-orientated IT to avoid this danger.

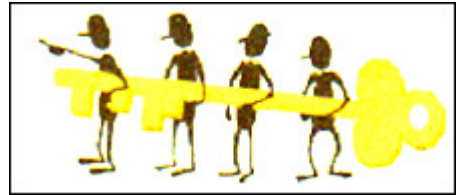
There is no demand on finding out all at once but a beginning on a scientific level is intended.

This work is thought as the first foundation and compendium for all main themes of HO (Human Orientation).

Besides a speciality out of biology is described new - The Rules of Mendel, a biological stimulus for informatics.

2. Key Words

borders of the human being – the human senses – the human behaviour – human skills – Rules of Mendel - self-consciousness – feeling - intelligence – human stress



3. Human Being and Machine, an old theme

Since knowledge of mechanical laws of nature in 17th century the human being is comparing every technical artefact with himself. He always tried to use the actual newest knowledge in mathematics, physics and mechanics to understand the human body. A permanent metaphor **human being – machine (man - machine)** exists since we found laws about work, energy, speed and acceleration or electrons and electrical current. (1) The words „human motor or artificial intelligence“ are some examples. This is showing how fascinating technical subjects where and are for the human life.

Some actual philosophers use the terminus „post humanism“, they try to victimise the human body (Ray KURZWEIL, Frank SCHIRRMACHER). In science fiction a human body – machine - identity is a new terminus. It is a hybrid between a human being and pure technical artefacts of all forms in fantasy named „CYBORG“. The fascination comes from a mixture of horror and rationality and is reigning the world of cinema since the 90th of the 20th century. The serious nature sciences built a wall against them of course but the film world is living very well from it.

Only **medical sciences** have the right to “cut” in the human body. They do it for healing purposes only and protect the human life. MRI (Magnet Resonance Imaging), endoscopes and transplantation of living organs have to be done in a scientific way and are allowed in an ethical consensus only. In genuine nature science **it’s serious to separate the human being as biological organism and all artefacts** of fantasy and technique that we can imagine.

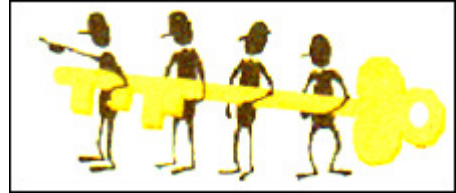
4. Human Being and Informatics

The roots of information sciences are mathematics, physics and electro techniques at the time of **Alan M. TURING (1912-1954)**, **Claude E. SHANNON (1916-2001)** and **Konrad ZUSE (1910-1995)**. Informatics (from words information and mathematics) never before was known. This science has the ability to control work-sequences of machines and even roboter streets by software programs, which are - simply defined - written text codes. This makes possible a repeatable, automatic and precise performance. A computer makes sometimes his work better than a human being. There is now a new control level between mechanical arms, levers and desks of switches – a “writeable text” in a specific form, the software.

The word **software** was created new in the 70th of the 20th century. Analogue the word **hardware** has been said first time for all physical parts of a computer.

Both parts are very much expanding and will be developed rapidly in future. At end of last century software development and design was a good paid work for educated programmers (= a new elite in IT at that time). I made this carrier after study of electro techniques.

Soon the IT recognised that the development of software is really new and has no rules. To mark this status the terminus “**software crisis**” was defined. All interested persons started



to develop methods and standards worldwide. Today (2009) we have already such a standard.

The latest style is **UML (= Unified Modelling Language)** and is learnable in about half a year. So now nearly no problem is unsolvable in developing new software. Software is creatable today very fast and easy. IT (Information Technology) is now about 40 or 50 years old.

Besides - since informatics exists - the IT always thought about human biological borders. **K. KUPFMÜLLER** made 1959 („Informationsverarbeitung für den Menschen“) first calculations. But they were too reductionist. The knowledge of special human brain-biology and the experience in long-time-working at a computer were too small at that time. In the last years, after hard – and software, a third great part of information sciences was found: **theoretical informatics**. This science defines structures, terms and ways of thinking in IT. It's sometimes called a “structure and form building science” and leads over physical hardware and logical software in direction of more abstraction. Today nearly all other sciences are touched by this new knowledge – as an instrument for organisation and structuring.

It's possible to range this new science **under philosophy** and to set it **over nature sciences**. Mathematics is used as a necessary “instrument of theoretical informatics”, but not only this. The human language got also important.

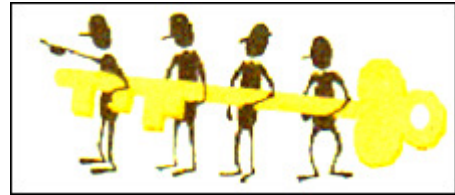
The possibilities for storage of software and attended data grow better and better. Hardware becomes more and more little and physical condensed. The response- and compute-times of computers become more and more short. Humans as responsible controllers come to their biological borders. Humans can't be made faster and faster. If humans can't come back to their original missions and abilities in a moral and emotional way, frustrations, demotivations, over loadings and over stressing can appear and cause a lot of diseases. That can be sicknesses of soul and mind down to real physical organic disturbances.

Informatics has today a dimension of public, national and worldwide economy and touches also healthcare. We have to research these connections to take care on human health and destroy possibly coming crisis's.

Separated from speed and possibilities of next generations of new computers (= computers in dimensions of quants) **the biological human being has his own times for reaction, action and life**. Humans can't change their reaction times by themselves. **Therefore the human biological possibilities have to be separated strongly and pragmatically from that of informatics**. At the same time humans and their genuine values have to be protected. Informatics has to be forced to learn, know and obey the human rules.

Informatics has to accept the behaviour and laws of nature of humans. This leads to a new paradigm -> **Human-Orientation (HO)**.

Scientific informatics knows that human behaviour and abilities never can be made by best of artificial objects in any equal way. Humans are living persons; they are not creatable like dead physical machines. Biology is much more complicated than physics, but biology uses all laws of physics. Biological scientists call it the reductionism of physics. Physics as science researches per definition matter only. A computer is a dead matter – humans are living



persons. **The great connection between informatics and biology is the human being.**

4.1. Benefits for Humans

At the beginning of our Age of Information we are still in a phase of fascination, as always with new things. Informatics is a **symbol of modern life** and an established tool in the human society.

As actual benefits you can see

Ability of Storage: We use the computer **to store data in a technical way**. These data can be changed very fast and with predefined physical instruments. In a second moment we can **print them on paper too**. That's a big change. Think on the painful work of a book-writer before **Johannes GUTENBERG (about 1400-1468)** or of a secretary at a writing-machine in the last century.

Automatic performance of repeatable and equal sequences: The **repetition (performance in loops)** is a kernel-element of every software. An electronic computer can do this much faster and perfect than a human.

4.2. Human Losses

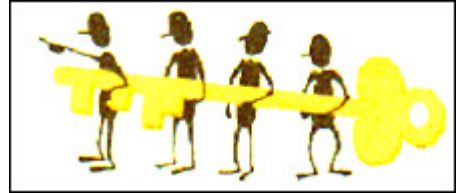
Like every technical innovation informatics brought even losses and new dangers too, which are slowly recognised more and more. It's not useful to delete the computer, but it's useful to make the computer more and more working so as the humans need them.

The greatest losses and dangers:

Lack of Motion: Mainly the human head is working at a computer (eyes, brain, ears). The rest of the human body is not forced. Manpower can be brought without involving the whole body. Since the beginning of industry it was the goal to give the manpower to the machines, but now we have passed over this goal. We need too much specialised human brain power, that's an execration of techniques. The human being as biological species can't change himself. Techniques have to be changed so that work and motion is combined. This will not be done from the revenue-orientated industry. The whole human society has to order it.

Lack of Communication: Working at the computer changes the manner of human dialogs. Humans start to talk and think faster and don't like details. Balancing of all parts of the body is neglected. Humans overstress their brain. If a human answers to a human question after a long working period at a computer, his answer comes very quick, dominating and without feeling. Frustrations and conflicts between humans arise. Individual initiatives in circles of friends and in families only can trigger this overload.

Lack of Creativity: Human sequences of feeling, social motivations and relations between humans are in danger. The human phantasy is influenced by computer controlled processes. The human brain can not work process-orientated (7) like a computer. A process orientation creates in the human brain assimilated ways of human thinking. After some time structures and systems without life influence or even delete the human creativity and



originality. Only conscious negotiation and separation from computer work from time to time brings back originality of the whole human being.

5. The human body, as a whole

Involved are the medical areas anatomy, physiology or medical methods in diagnostic and technical visualisation. Here is the goal to find out **limits, norms, standards and styles for a healthy life of a modern human being.**

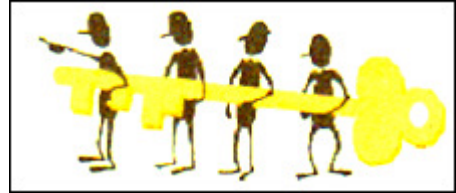
Working men are mostly healthy. What is expectable from healthy men without oversteering them? How can we overcome overpowering and temporary stress? Where are the limits for making alarm to greater organisations: hospitals, preventing of health, researching of healthy persons, assurances, public organisations, governments and whole states? What has to be done if long-time oversteering is detected?

After preventive medical services organisations for work (employers and employed persons), organisations of all professions, working societies and associations and the public government have to be involved.

IT has changed the world of working very much. Now – after starting **ergonomics** at the end of last century – it's time to protect the humans in a much more thoughtful and extensive way. Technical fascination of informatics can overkill the dangers for human health. These are coming very slight and long termed. As responsible scientists in informatics we can't hide them or move them without reaction to the future.

It makes sense to write down biological and physical rules for the human being in general. We want a healthy world – private and at work – with our computers.

Volker HESS, a well known German medical historian in present time, was talking already in the year 1997 about the „**objectivity of the human body**“. In diction of information sciences we can say: We want to collect data about the biological, living organism “human being”. The main part of all existing data are „stored or dead“ data. „Living“ data are important at diagnostic made by biologists and medical doctors. They visualise and generate these data with technical instruments, use them for diagnosis and react „live“. We can say they extract information from data. If they store these data they make again „dead“ data. (2) The scientific jump from mechanical to living objects was done first about 1790. **Antoine Laurent LAVOISIER (1743-1794)** is called one of the fathers of modern chemistry. The French medical doctor Francois **JACOB (*1920)** called it the „**chemistry of all living**“. In reality the human being is not only an object according to Volker HESS. Humans are more. Humans are real subjects **with own intellect und consciousness** (Kevin **MARTIN**, Prof. of Neuroinformatics at ETH Zürich in (1)). The **human brain** can't be defined by an algorithm and is not constructible. It has own permanent living structures. If it's necessary it can change – as actually required. If we think about ourselves in reality we compare our personal single knowledge with that one of many interested specialists. All of them have „their own mirror of nature“ in her head. **Knowledge** never can be eternal or unchangeable. It is living in every person and like all biological organisms it is also mortal.



Every organism is unique according to theory of evolution. No biologically absolute equal organisms are possible. Even twins differ in single cells (genes, protein-molecules). The single human being - as the most complex form of life we know - has no 1:1 double (9, p49).

- **Every human body is a biological individuum.**

6. Human Properties

Since detection of **evolution** (= development) by **Charles Darwin (1809-1882)** in the years 1838 till 1859 and of **rules of heredity** by **Johann Gregor Mendel (1822-1884)**, it's commonly recognised, that certain human traits (biological forms and characteristics) are "ruled" evolutionary and genetically.

The theories of Gregor Mendel were published in 1865 and again detected by **Hugo de VRIES, Erich TSCHERMAK** and **Carl CORRENS**. They are valid since 1920-1930. The biologist **Ronald FISCHER** combined in 1930 the theories of Darwin and Mendel in a **Theory of Evolution**.

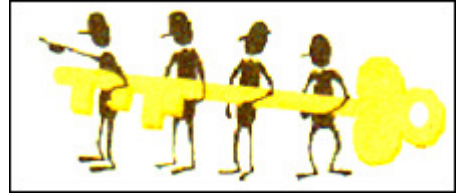
By identification of the **DNA** by **Oswald AVERY** in 1944 the biological „organism“ was found where evolution und heredity really happens. In present times all human genes with their DNA in all parts where detected by a team of over thousand worldwide spread scientists.

The most important **ontogenetic selection**, which humans perform, is the search of their sexual partners. Humans search their partners very individually. All human feelings enclose all (unconsciously and consciously) known biological signals of physical status and actions. These feelings and signals define which partner should be selected.

In a genuine **biologic-organic** way nature makes the **next selection** in the sexual coitus of man and woman. Only the strongest male sperms come to the female egg cell first.

Human eggs and sperms have all traits of the new human being inside. Single traits are defined by „**Rules of Heredity**“. Humans are like animals and plants **diploid (= double) organisms**. Every human gene stores a certain trait in two chromosomes. Most healthy genes should vary very much, so the owner of genes should be healthy and strange.

The **variation** of genes (= human biological properties) is performed by biological fertilization. The new life (baby) is owner of a combination of gene-sequences of father and mother. And - till now - only a new sexual fertilization creates a new variation of humans. Not only healthy traits are involved but sick one as well. **Inbreeding** can amplify this trend. **Biological very strange, healthy parents** are the best biological basis of new life.



6.1. Evolutional and genetic body-characteristics

Important human traits are:

6.1.1. Colour of the skin

It's spread in a continuum from bright to dark. At special skin colours are accumulation points (white, brown, dark brown,) depending on geographic place of living and belonging to a special people.

6.1.2. Colour of hair

The connection to human character is mentioned very often.

6.1.3. Body forms

Here individual traits like form of head, nose, and body as a whole are mentioned. A special group are traits of geographic regional separated people on an island or in a rainforest. People which never had contact to other people, have other common traits sourced by evolution. One typical trait is

6.1.3.1. Body size

The average body size of all humans has grown since the middle age. As proof we have in central Europe stored knight's armours, which can be seen originally in different castles and museums. All of them or near most of them would be too small for man of today. The distribution of body size is statistically a bell-shaped curve (GAUSS) with maximal value and average value, a real continuum. (5, p184-190)

6.2. The Rules of Mendel in an actual view

For theoretical informatics it's very interesting to know something about these rules. They are a real algorithm. Here is an overview. The data come from (10).

These rules are valid for living objects with diploid sets of chromosomes and haploid gametes, i.e. humans and most of high developed animals and many plants.

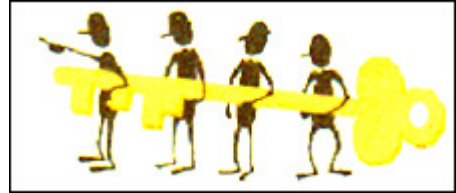
Some more terms:

Parental generation (P) generation of parents, father and mother, they pass their genes to the next generation

Filial generation (F) generation of children, who get the gene-pairs, F1 = 1st filial generation, Fn = nth filial generation

Genotype genes, real pair of genes (hereditary factors) for one trait, supposed theoretically by Mendel

diploid set of chromosomes all chromosomes in pairs



haploid gametes sperms and egg cells of humans, they have only one chromosome
Gene the hereditary factor, supposed by Mendel, word comes from W. Johanssen in 1904, today: it's one section in the DNA (deoxyribonucleic acid), always 2 alleles

DNA (deoxyribonucleic acid) a structure in form of a double helix, the biological data store for creation (transcription) of the biologically active RNA (ribonucleic acid) and the biological control data for the transcription, one of transcribed RNA is the mRNA, mRNA can be translated to a protein that is the trait

Genome all genes of an organism, humans have about 24.800 genes

Chromosomes found 1842, word means "colour body", appear mostly in pairs, these biological structures carry the genes in a row one after the other, they are in centre of kernel cells, consist of DNA and proteins (chromatins), humans have 22 different chromosome pairs (autosomes) + 2 single sex-chromosomes (= gonosomes, XX for woman, XY for man)

Chromatin is the mixture of DNA and proteins in one chromosome

Allele one gene on one specific place in one chromosome, can be changed from outside, mostly a pair = 2 alleles exists in one cell, word was created in 1902 by W. BATESON

homozygote genotype is „reinerbig“, the 2 alleles are equal

heterozygote genotype is „mischerbig“, the 2 alleles are different

Phenotype real picture or evidence of a trait, defined by Mendel himself

uniform phenotypes ore genotypes are equal, defined by Mendel himself

reciprocal crossing it doesn't matter which one of the 2 alleles comes from father or mother

inheritance the biological proceeding of passing genes

dominant the allele that appears as phenotype

recessive the allele besides, exists only in genotype, not in phenotype

dominant-recessive inheritance phenotype of children comes unchanged from father or from mother (dominant or recessive)

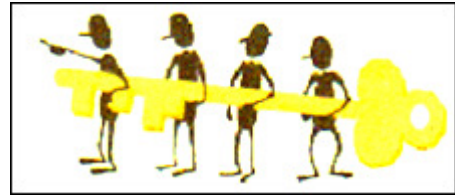
intermediate inheritance phenotypes of filial generation are a blend of mothers and fathers genotype

Crossing Over modern term, chromosomes exchange more than one gene during heritage in an independent way, if they are on one chromosome they should have a wide distance, otherwise a heritage in groups is performed

Meiosis is the reduction of diploid chromosome-cells to haploid gametes (eggs or sperms)

In heritage of humans two different haploid gametes (egg cells and sperms) build a new human. Mendel found certain factors and rules how they control single traits. He found them by researching plants. They where so exact that about 50 years later the biological genes where found, which did that what he supposed in his hereditary factors. Therefore he is so famous today.



He used peas in a lucky and empiric way. The phenotypes of different researched traits come always from different chromosomes. He used also only homozygote parent plants. So a clear basis for developing his rules was found.







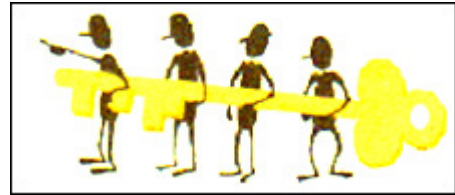
6.2.1. Rule of Uniformity or Reciprocity

We have 2 homozygote parents (parent generation P_I) which differ in one trait. They „marry“. The children (filial generation F_I) are uniform (equal) in that special trait. The 2 alleles of that special trait are also heterozygote and have a reciprocal crossing.
 If the heritage is dominant-recessive all children have in phenotype the trait of father or all have the trait of mother.
 If it is intermediary all children have a blend of parental traits.
 If the gene is on a sex-chromosome (gonosom) it's an exception. Than heritage is not uniform, intermediary heritage is very seldom (no hermaphrodite).



dominant-recessive heritage





	Individuum 1	X	Individuum 2				
Phenotype, trait of P	red	X	white				
		X					
Genotype (alleles) of P	red, red	X	white, white				

	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Phenotype, trait of F_I	red	X	red	X	red	X	red
		X		X		X	
Genotype (alleles) of F_I	red, white	X	red, white	X	red, white	X	red, white



intermediary heritage

	Individuum 1	X	Individuum 2				
Phenotype, trait of P	red	X	white				
		X					
Genotype (alleles) of P	red, red	X	white, white				

	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Phenotype (trait of F1)	pink	X	pink	X	pink	X	pink
		X		X		X	
Genotype (alleles of F1)	red, white	X	red, white	X	red, white	X	red, white

6.2.2. Rule of Splitting or Segregation

If a parent generation P is uniform in phenotype and the genotype is heterozygote the phenotype and genotype of filial generation F1 is splitting or segregating in different parts. This P can be also the F1 from Rule of Uniformity or Reciprocity above. Then we have grandchildren generation F2 or second filial generation. We suppose this case for better understanding of this rule.

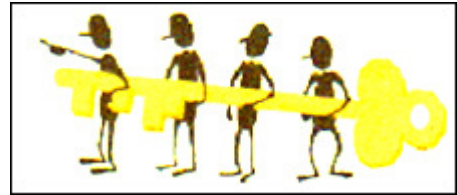
This genotype of the original P generation of Rule of Uniformity is now important for phenotype and genotype of F2.

At dominant-recessive heritage:



- the genotype of two quarts of the F2-individuals is homozygote
- the genotype of two quarts of the F2-individuals is heterozygote
- the phenotype of one quart is recessive (from P, F1)
- the phenotype of three quarts is dominant (from P, F1)
- c) is one half of a), that means homozygote and dominant
- one third of d) is the second half of a), also homozygote but recessive
- two thirds of d) is the rest of e), that means heterozygote but dominant





At intermediary heritage:





- the genotype of two quarts of the F2-individuals is homozygote
- one quart has the phenotype of one P, the other quart has the trait from the second P
- the genotype of the other two quarts of the F2-individuals is heterozygote
- the phenotype of these other two quarts are a plug of both P, they have a new trait





dominant-recessive heritage





	Individuum 1	X	Individuum 2				
Phenotype, trait of P	red	X	white				
		X					
Genotype (alleles) of P	red, red	X	white, white				





	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Phenotype, trait of F1	red	X	red	X	red	X	red
		X		X		X	
Genotype (alleles) of F1	red, white	X	red, white	X	red, white	X	red, white

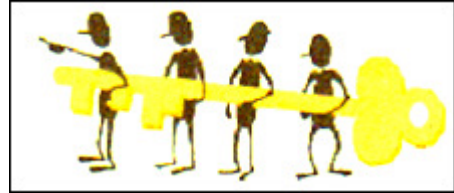
	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Phenotype, trait of F2	red	X	red	X	red	X	white
		X		X		X	
Genotype (alleles) of F2	red, red	X	red, white	X	red, white	X	white, white

intermediary heritage

	Individuum 1	X	Individuum 2				
Phenotype, trait of P	red	X	white				
		X					
Genotype (alleles) of P	red, red	X	white, white				

	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Phenotype, trait of F1	pink	X	pink	X	pink	X	pink
		X		X		X	
Genotype (alleles) of F1	red, white	X	red, white	X	red, white	X	red, white

	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Phenotype, trait of F2	red	X	pink	X	pink	X	white
		X		X		X	
Genotype (alleles) of F2	red, red	X	red, white	X	red, white	X	white, white




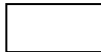
6.2.3. Rule of Inheritance or Independent Assortment

This rule controls the inheritance of 2 traits of 2 homozygote individuals. It is defined for dominant-recessive inheritance. If an intermediary inheritance appears his rule can't be used. These 2 traits are inherited independently from each other.

It's significant that in the F2 generation (grandchildren) all homozygote and heterozygote possible combinations of the P generation (grandparents) appear. They have a relation of 9 (dominant):3:3:1. This is an extension of the former rule of 3:1 for one trait.

This rule is valid for independent genes on different chromosomes. If they are on the same chromosome they need a big distance for a crossing over. Otherwise groups of genes are inherited.





dominant-recessive heritage

phenotype, 2 traits (colour and length) of **P**:
 Individuum 1 X Individuum 2
 red , short X white, long
 

homozygote genotype (alleles) of P:

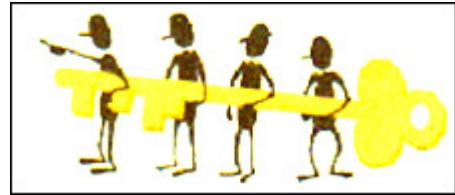
colour-gene in a single chromosome : red, red X white, white
 length-gene in an other chromosome: short, short X long, long

uniform phenotype of F1:

colour and length of	Individuum 1	X	Individuum 2	X	Individuum 3	X	Individuum 4
Colour	red	X	red	X	red	X	red
(dominant)							
Length	short	X	short	X	short	X	short (dominant)
							
















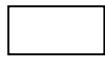
heterozygote genotype (alleles) of F1

colour-genes: red, white X red, white X red, white X red, white
 length-genes: short, long X short, long X short, long X short, long



phenotype of F2 (grandchildren of P):

colours and length of:

Individuum 1	Individuum 2	Individuum 3	Individuum 4
red short	red short	red short	red short
			
Individuum 5	Individuum 6	Individuum 7	Individuum 8
red short	white short	red short	white short
			
Individuum 9	Individuum 10	Individuum 11	Individuum 12
red short	red short	red long	red long
			
Individuum 13	Individuum 14	Individuum 15	Individuum 16
red short	white short	red long	white long
			

genotype of F2 (grandchildren of P):

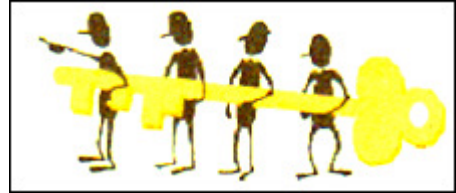
colour and length of:

Individuum 1	Individuum 2	Individuum 3	Individuum 4
red, red short, short	red, white short, short	red, red short, long	red, white short, long
Individuum 5	Individuum 6	Individuum 7	Individuum 8
white, red short, short	white, white short, short	white, red short, long	white, white short, long
Individuum 9	Individuum 10	Individuum 11	Individuum 12
red, red long, short	red, white long, short	red, red long, long	red, white long, long
Individuum 13	Individuum 14	Individuum 15	Individuum 16
white, red long, short	white, white long, short	white, red long, long	white, white long, long

So the combination of **9** red and short : **3** white and short : **3** red and long : **1** white and long appears.

For more than 2 traits the heritage is much more complex, especially the human sex has own rules. We can take these Mendelian Rules today as a very simple example for existing rules in heritage.

Important and genial is the found difference between phenotype, genotype und the existence of alleles, genes and chromosomes. Mendel found this rule in an only empiric but very exact



way. He supposed theoretical structures and rules without finding the biological organism. His found rules are valid today too. That made Mendel famous.

50 years later the biological structure DNA (double helix) as the storage of the biological data was found. This DNA is reigning the heritage. Today all different 24 human chromosomes are discovered with their chromatins (DNA + proteins) and their transcription of an active acid (RNA). The biological organisation of heritage is well known and basis for new expeditions in the world of genes and proteins.

6.3. Ontogenetic properties

6.3.1. Body weight

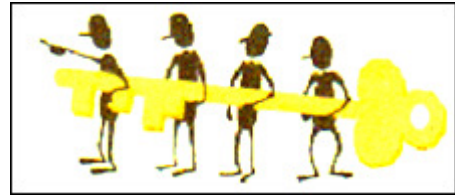
This body weight is a big problem today in the Industrial Countries. Technical machines have conquered the body work. That brings a new human problem. In the Industrial Countries the human bodies are not used enough. If humans are not working with their body they have to make sports for recreation. Otherwise they get sick because of adiposity or circulatory diseases. These are the most important causes of death (2008) in the Industrial Countries.

Therefore we have to find a way to connect human work with movement and using of the whole body. Sports have to be integrated in human life in an elegant way. The efforts of corporal movement have been planed away of human life till now. Through informatics and working places at computers we have reached a point of return. If we don't find new solutions we have a lot of new self-produces diseases in the Industrial Countries. Humans need jobs, works and lifestyles which use all parts of our body, the brain and the muscles. The goal has to be the **healthy corporal workload** and not more avoidance of corporal movement. We have to find a healthy agreement between body and brain at work and at home, the whole day. If we can work more with brain and body we live healthier. Only in very special cases (high mental concentration) we should not move as till now. But after these phases we need conscious recreation of our body. The work at a computer strengthens the eyes and the brain in a way that we don't realize. We have to make body movement after some hours of work at a computer. Otherwise our brain doesn't work optimal for long time.

What we reached till now is the passing-over of hard human body work to machines or factories. This is a reached goal for the human health and should not be missed in future.

In medical prevention of diseases we use the BMI (Body-Measurement-Index) as norm for ideal body weight. Therein is age, body size and body weight calculated to one index-number, which defines sickness or healthiness.

Perhaps we can find a **worldwide standard for work**, which includes all parameters which have to be recognizes. This standard should include certain criteria's, that can be solved or not. So the level of whole **work or lifestyle** would be valuable.



6.3.2. Birth Rate and Fertility Rate

The used source of all statistical data is “**Deutsche Stiftung Weltbevölkerung**”, **Hannover, 2008**. Some data come from European Union.

Birth rate is the amount of births per 1000 inhabitants.

Fertility rate is the amount of children per woman.

The **amount of mothers, aged 15-19**, is valid per 1000 women.

Infant mortality is the amount of died children per 1000 births.

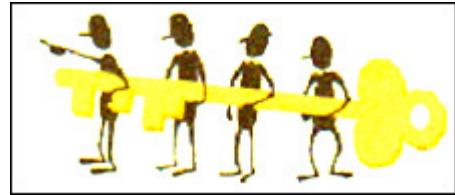
	Europe	Africa	Northern America	Latin America and Caribbean	Asia	Oceania	Australia
birth rate	11	37	14	21	19	18	14
fertility rate	1,5	4,9	2,1	2,5	2,4	2,4	1,9
mothers, 15-19 years	17	103	45	36	40	26	14
married women with regulated contraception	56 %	22 %	69 %	64 %	61 %	59 %	75 %
infant mortality	6	82	7	23	45	25	4,7
serviced births	99 %	47 %	99 %	83 %	58 %	84 %	100 %
HIV- infected adults	0,5 %	4,0 %	0,6 %	0,5 %	0,2 %	0,4 %	0,2 %

Very remarkable is the low birth rate and fertility rate in **Europe** and the three times bigger one of **Africa**.

Also remarkable is the low regulation of birth in **Africa**, wherefrom comes the big birth rate.

The connection between infant mortality and served births is easy to see. **Africa** and **Asia** come out very low.

In 2008 **Australia** is leading in (no) infant mortality.



The HIV-infection in **Africa** (8-times more than in the rest of the world) is still a big problem in centre of Africa. **Asia and Australia** have at present time less than a half of HIV-infected persons in **Europe**.

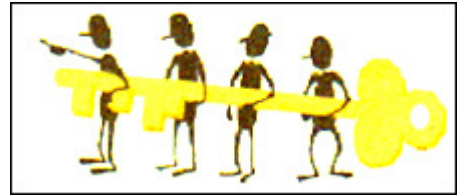
Other connections are shown in following table:

	Schwitzerland	Austria	Germany	Developing Countries	Industrialised Countries	Whole World
birth rate	10	9	8	23	12	21
fertility rate	1,5	1,4	1,3	2,8	1,6	2,6
mothers, 15-19 years	4	12	9	57	25	53
married women with regulated contraception	78 %	65 %	72 %	55 %	58 %	55 %
infant mortality	4,0	3,7	3,9	54	6	49
serviced births	100 %	-	100 %	57 %	99 %	62 %
HIV- infected adults	0,6 %	0,2 %	0,1 %	1,0 %	0,5 %	0,8 %

The three countries in **German language-area** are in the actual data of 2008 mainly better than the average of all Industrialised Countries. Remarkable is the relative high number of young mothers in **Austria**. One third of them is the number in **Switzerland**. The births of married women in Austria are low.

Relative high is the number of HIV-infected persons in Switzerland.

Very clear is the confrontation of Developing Countries and Industrialized Countries.



You can see also how much Developing Countries influence the world-statistic.

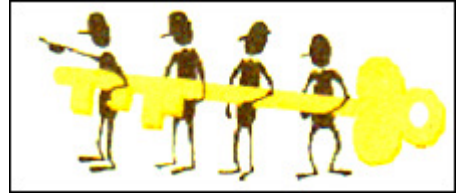
6.3.3. Youth and education

In the Industrialised Countries this theme differs according to level of education and talent. A development phase finishes with 14(16) at low mental ability and reaches till 26(30) at high intelligent talents. All steps of professions between have their own borders.

The Developing Countries suffer on small possibilities of education. The Emerging Countries have both – regulated school education and not regulated or missing education. The share of the population of the **teenagers under 15** in different countries was in 2008 as follows:

Germany	14 %	Schwitzerland	15 %	Austria	15 %
Europe	16 %	Africa	41 %	Northern America	20 %
Latin America and Caribbean	30 %	Asia	27 %		
Australia	19 %	Oceania	25 %		
Industrialised Countries	17 %	Developing Countries	30 %	Whole World	28 %

You can see a remarkable younger population in **Africa, Latin America and Asia**. The participation of teenagers under 15 is in **Developing Countries** nearly a double of the number in the **Industrialised Countries**.



6.3.4. Life-interval to earn money

In the Industrialised Countries this lifetime is varying in the different profession groups. The aught time for education is varying depending on the necessary levels. The real professional working time is starting after education.

During age for working a permanent learning is necessary, because the professional knowledge is growing in last centuries. We know much more in our professions.

First of all the **young people** are welcomed. They have the newest knowledge after education, want a work and do what the older working men say.

In Industrialised Countries we have also a new problem. If these best educated employees have a good situated level on their work place, they try do get read of the **older workers**, because they don't have the newest knowledge and loose soon necessary motivation and joy. The actual critical **life time** is **about 40**. Older people loose their worth's in the working IT world and can be substituted by younger employees, if they don't take care on leadership.

In IT we have an ideal active-working age till about 40 (biological end of growth).

After 40 the employed workers have mainly more experiences than IT only. They have found new professional goals in financial management, entrepreneurship or ownership of capital. They have to hold the factories as a whole, but they don't want to do the evolutionary IT-upgrading as the younger ones.

This phenomenon is new since about 1990.

6.3.5. Age for getting child's and founding families

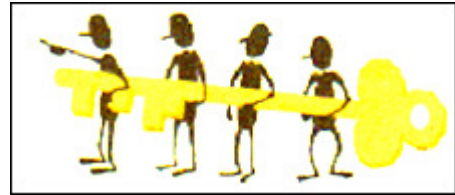
It's different in the sex of the people. Men are normally older than women, when they marry.

In the Industrial Countries women like to have children after a good education, so the age for female marriage is climbing from the biological best age of 22 up to about 30.

The female biological border for getting babies of 40 is also climbing up. New mothers - older than 40 - are more and more a fact.

6.3.6. Healthy age after professional work

In the Industrialised Countries a pension-system is established, which guaranties a constant "evening of working age". The starting time was till now about 60-65 for men and 55-60 for women. In future these ages will be more variable, because some people can and want work more and some can't reach these legacy levels because they are sick.



In the Developing Countries no pension systems exist or the income out of them is too low for life. Older people live then in legacy social structures in their families. They live from their children.

The borders in the Industrialised Countries for this age are about 65 till 80. But they are variable more and more.

A big influence comes from modern organ medicine, the people grow older. It's remarkable that this modern medicine has also borders. In actual time it's important that the nerves grow older than before. Till now we can't substitute nerves like other organs. The new danger is that we get organic healthy persons but with old and soon very sick nerves. Most famous examples are mental dead persons which live organic but not mental. The amount of mental diseases is growing. So we should reach a growing old age for organs and nerves in the same speed. But till now the biologists and neuroscientists have no success.

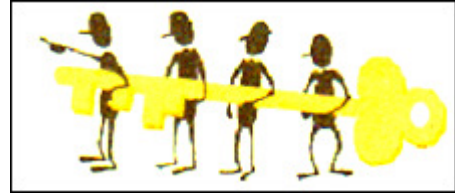
The participation of living people over 65 was in 2008 as follows:

Germany	19 %	Austria	16 %	Switzerland	17 %
Europe	16 %	Northern America	13 %	Africa	3 %
Latin America and Caribbean	6 %	Asia	7 %	Australia	13 %
Oceania	10 %				
Industrial Countries	16 %	Developing Countries	6 %	Whole World	7 %

Very clear is the share in **Europe** which is five times higher than that of **Africa**. Very small too is the part of **Latin America and Asia**.

6.3.7. Age of aught personal care

In this age at the end of a human life every human person needs care. It takes about 3 to 5 last years of every life and remembers to the childhood. For this old man personally respect and regard is necessary. They need a permanent care. This can give only persons who are educated for their work and in lucky cases related. How people act with their old people that shows how cultured they are.



Every clever state will try to provide for these people their own families first. Only if related people are not living an action from state is necessary.

In actual times in Industrial Countries extended families are very seldom. Small living rooms (rented or bought) are up to date. The child's want to live very early in their own rooms and houses. Only some families try to life together, to live in one house in different rooms or in houses around the house of the parents. In these extended families a personal contact and care is possible in an optimal way. But they are seldom.

In general we have to use the ethical rule that old people have no pains and can live and die in human dignity. An old man should be possible to provide his death and to accept his end of his live in peace and consciously.

6.3.8. End of human life

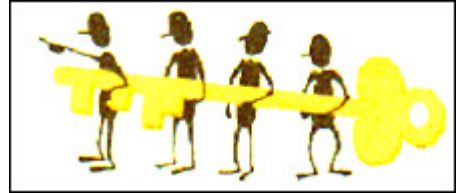
Francis FUKUYAMA (5, p 88-108), a well known consultant of presidents of USA, writes, which social consequences the higher lifetime will have in Europe, America and Japan. While on the southern halve of our earth the age of dying will stay deep, the participation of older man will grow rapidly on the northern halve of our planet. The medical care has been improved there very much.

The world population has new problems.

An actual statistic of the average dying age of men and women in 2008:

Europe	Women	79	Switzerland	Women	84
	Men	72		Men	79
Africa	Women	55	Austria	Women	83
	Men	53		Men	77
Northern America	Women	81	Germany	Women	82
	Men	76		Men	77
Latin America and Caribbean	Women	76	Industrialised Countries	Women	81
	Men	70		Men	74
Asia	Women	71	Developing Countries	Women	68
	Men	68		Men	65
Australia	Women	84	Whole World	Women	70
	Men	79		Men	67
Oceania	Women	78			
	Men	73			

In above table you can read that **Switzerland, Austria and Germany** have a very high dying age. **Australia and Northern America** follow.



In **Industrialised Countries** the life age is clear higher (+ 10 years) than that in the **Developing Countries**.

The lowest life age is in **Africa**.

6.4. Deliberately and consciously got properties

Besides corporal strengthening are the will for a **comparing fight** and the **will to win** genuine human properties.

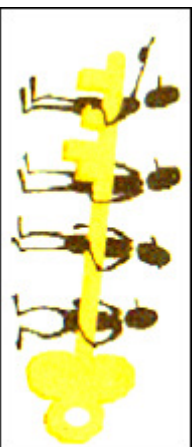
An extreme form of this human need is the **organisation of wars**. This should happen only if states can't reach consensus in political dialog and all possibilities to solve differences where used. Only then a real injustice can be solved by power. Every war brings death and deletion. A modern form of wars is the **terrorism**. Many wars in the last decades happened in the **Developing Countries**. Most of them where stimulated by pure revenue-orientated business interests in **Industrialised Countries**.

A worldwide community can prevent such wars out of own power. The **United Nations-Security-Council** already exists. This organisation is working, but is till now to slow to have effective influence as needed. By acting too late many wars can't be prevented or stopped. Till this organisation is possible to find a definite end of a war a lot of deletion is done. A worldwide **Caring for Peace** should be better organised more and more, to find out the real sources of conflicts. This organisation should solve conflicts before the last possibility - war - happens.

A definite positive and civilised form of competition is **sport**. Worldwide and regional sport events are a cultivation of living together of all people. They have an invaluable worth in mind. They bring regional economic profit too and can be used to reorganise unused areas in towns and regions around towns.

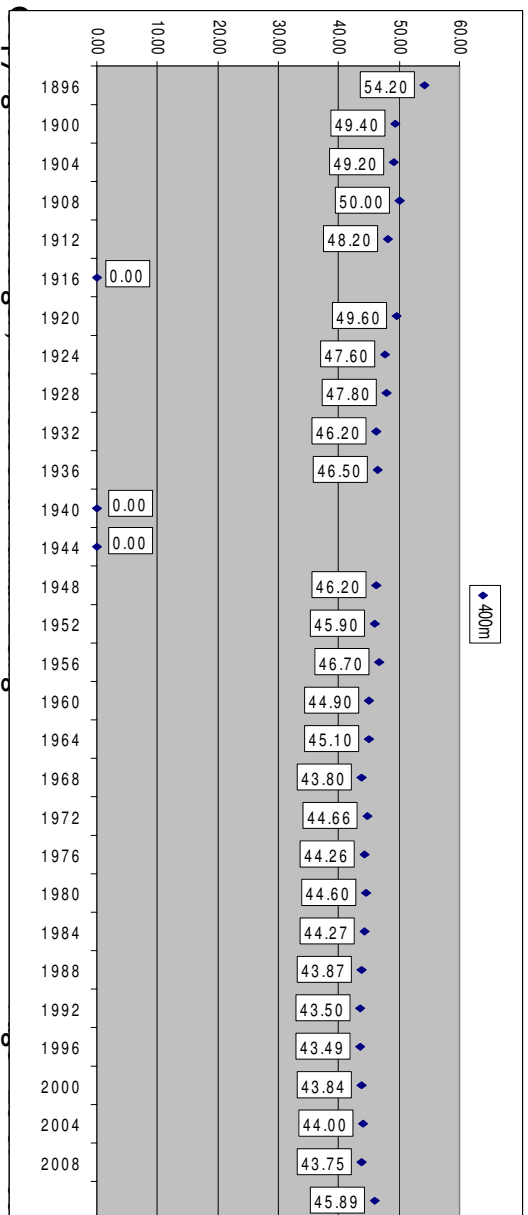
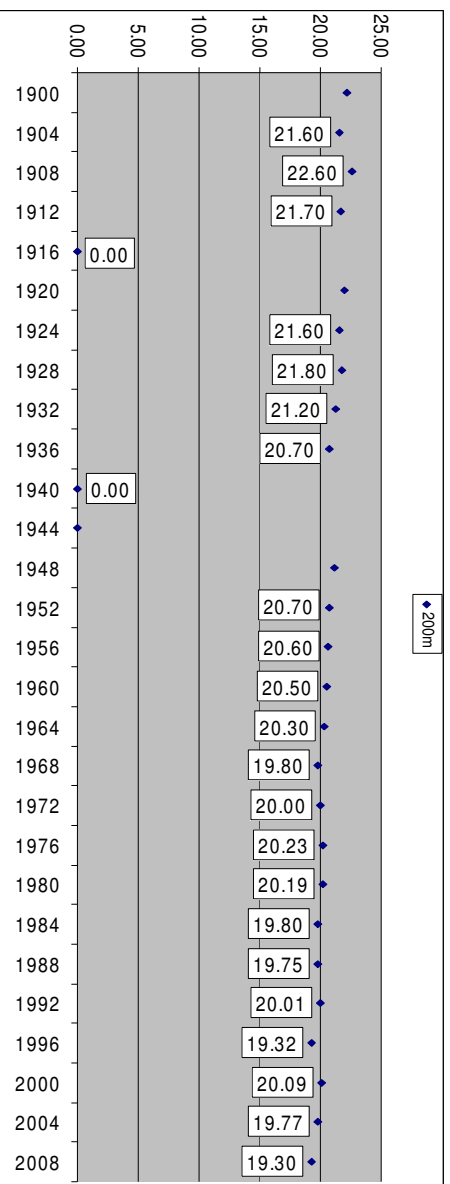
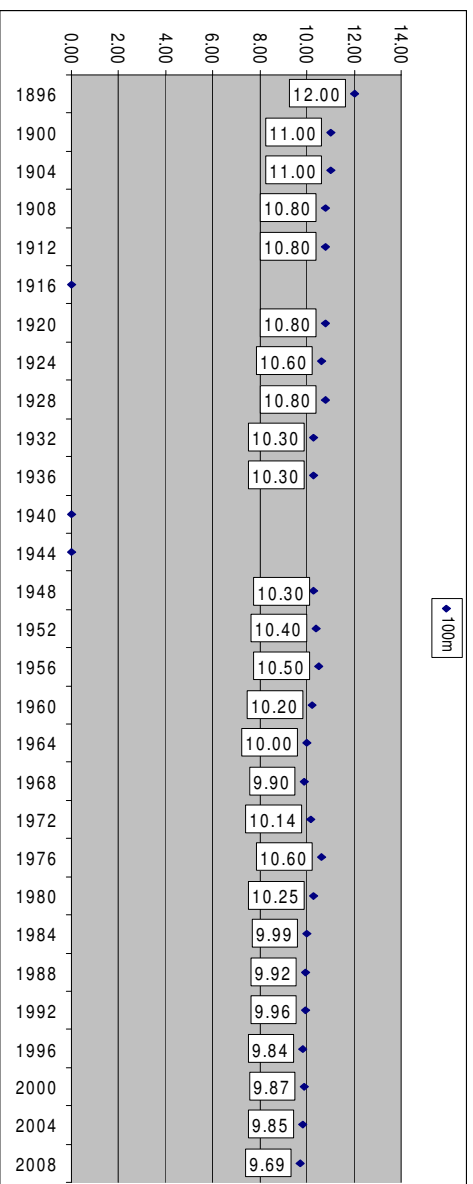
The will to win is a personally proof of capability and profit. It brings also prestige in the own society. Besides it's usual today to get commercial revenue too.

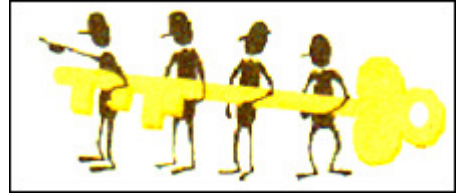
How much the capability of sportsmen is improvable shows following table:



Olympic Games in New Age: Men

run times in seconds





These statistics from Olympic Games show clear that the human only will can improve abilities too. We can speak from a **deliberately evolution**. Of course we have to separate this evolution exactly from the biological evolution of Charles DARWIN.

The Latin maxim of the Olympic Games - "citius, altius, fortius" - "faster, higher, stronger" is showing exactly this will to go on, to improve the human abilities. These word where set by the Dominican Monk Henri DIDON (1840-1900). Pierre de COUBERTIN, the re-founder of Olympic Games of our New Age heard these words from him at a sport event and made a proposal to use them as Olympic maxim in 1884. They where used officially first time in 1924.

6.5. Differences by sex

Today the sex-gene in the chromosome region Yq28 is a proofed biological fact. Very low only are the influences of mixed sexuality (trans sexuality) or homo-sexuality. It's a common scientific consensus that these not typical sexual facts are biological genetic facts. The differences between man and woman have to be seen as a genetic inherited property. Today it's a trend of women to get the same rights as men. Women forget their biological differences. They see only losses and no profits in their be-not-a-man. The source of this not human way of thinking is the orientation on ratio only. Women don't want to stay at home alone; they want to be with their husbands in the whole life. Our working world is organised very rationally. Every man or woman is seen as an near equal calculated object with calculated abilities.

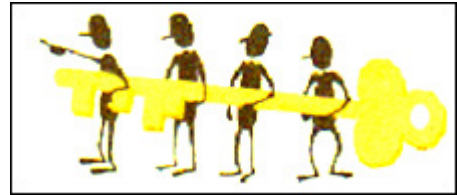
The life styles of men and women are very much orientated on calculated working places and planned job performances. And these job-places are separated and need high mental concentration. Only very rich families have the possibility to live a life near a family structure. That's a bad side of our social structure in our post-modern century.

The main differences are the different body buildings and biological contents of life. I can't go to deep in the theme man-woman. What I want to fix is, that this theme is also a main theme in the HO (Human Orientation). We have a lot of divorcements in families because they are missing their main goal of being centre of love and life.

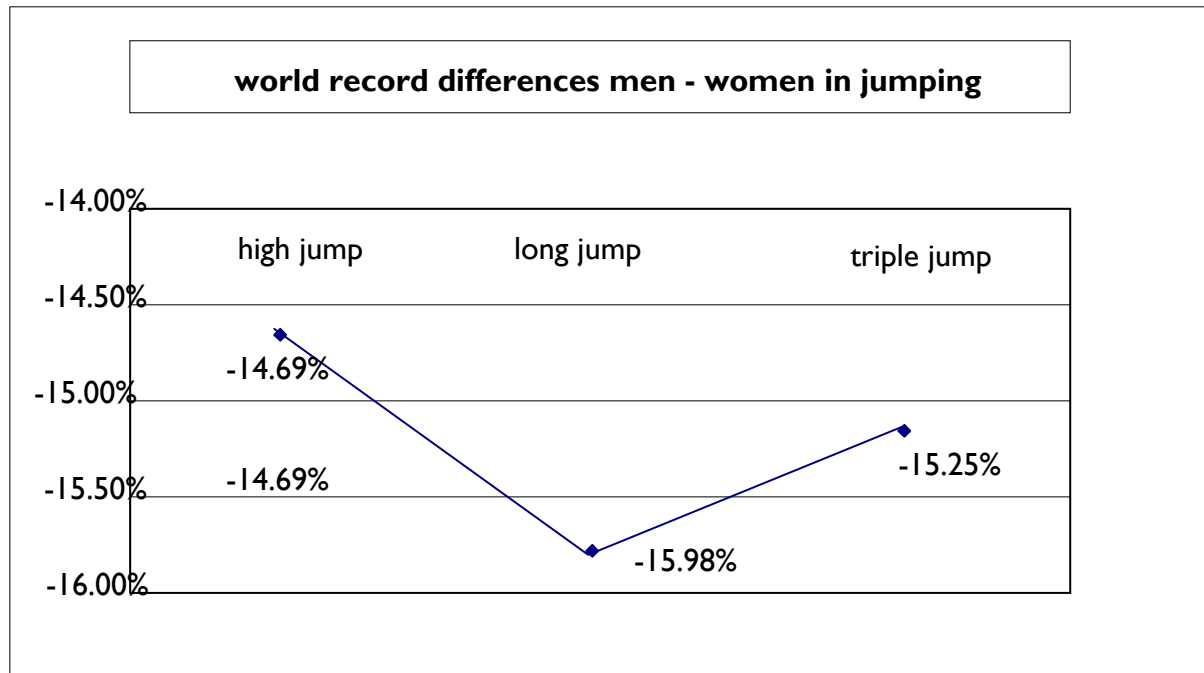
Not at all the value of women should never be reduced. What we can do is to find out how we can make informatics more active for families. Perhaps we have to reduce IT in families? The genuine advantages of women have to be involved in this HO-paradigm, which means biological sex has to have a value in IT too.

Below are some biological differences shown in top sports. Own extracts of Olympic data and results of world championships can be seen:

Depending on sport discipline differences in the reaches times can be shown between man and women from 8.26 % to 12.39%.



For jumping the world records differ between men and women from 14.69 % till 15.98%.



data source : Homepage of International Olympic Committee (IOC)

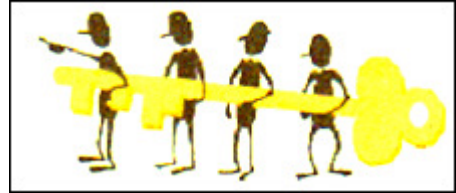
These diagram is drawn to show the principal biologic difference, what is confidentially done. One possible suspicion of a devaluation of women is included. But only in the sense, that women want the same sorts of sport as men. The enforcement goes more in direction of finding women-like sports and not sports that men do. Women would more take care of special women like and men-attractive disciplines.

The equalisation of women to men had in Europe an historic source during the world wars in the 20th Century. Men where in the army and the women had to take care of the entire home and had to work in the industry for production of arms. At that time they realised that they can do the same work on the machines as men. After finishing of that wars in Europe women worked on in industrial factories besides their men.

Difficulties came therefore to the **families**, because now both parent-parts had to work. These families can only be childlike if grandmothers or -fathers could take the education.

In the Industrialised Countries we have now new problems:

working too much and being overstressed as too specialised persons
 finding no work because of global transferring of work in cheaper continents.



We have a separation of working place and living place, where the family lives. The coming together of these families is only possible for some hours in the evening or in the weekends. A real family-life during the week is reduced.

If young mothers stop their work only for a $\frac{1}{2}$ year to get their baby, these babies get a lack in personal ability to get and give love in later life. **Every child should have a free and loved start of live till 4 years.** He needs this early loved and caring surrounding for development of his own healthy personality. Only if the parents are not able to give this love, a public substitution in this age is a positive influence.

In **extended families** also grandparents of older relates can take over education. That's one reason more to prefer and support extended families in our time and in future.

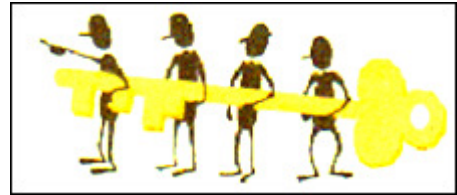
After these first 4 live years children are able to take over harder conditions, if these are explained in love and confidence. If they have lacks in these 4 first years of their life they can't repair them in their whole following life.

If women negotiate their biological mission to get and bear children they have a lack in their personality. Of course not every woman can be a mother too, but it's in the biological nature of a woman to get a mother too. If women don't learn to takeover all pains and heaviness's in this connection they loose a genuine worth in their live. That's today a problem of education, social valuing and even surviving of a whole community. Fertilisation and biological extension is a genuine biological property of every human being.

If woman can't find a sense in their role as mother they need intensive upgrading of their value hierarchy. In Industrialised Countries women in our time start to live a "better" life in consume and commerce and start to negotiate their biological role to get a mother with as much children as possible.

That guides to a birth rate that can't guaranty the survival in next decades. Immigration of biological stronger people is following like a law of nature.

So Developing Countries can overcome the Industrialised Countries in next decades, if Industrial countries are too weak to survive by their own children. See tables later on.



The **different life expectation** of men and women is also very interesting. The following table shows actual age differences of men and women in 2008. Women in average get older than men.

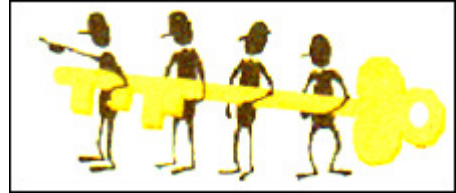
Europe	7	Switzerland	5
Africa	2	Austria	6
Northern America	5	Germany	5
Latin America and Caribbean	6	Industrialised Countries	7
Asia	3	Developing Countries	3
Australia	5	Whole World	3
Oceania	5		

A clear higher difference is in Industrialised Countries. It's in fact more than twice of that of Developing Countries. Asia and Africa have the lowest differences of life age of men and women.

Does the **Intensity of Industrialising** devaluate the life age of our men?

Latin America, Australia and Oceania have higher differences too.

That's interesting fore more researches, here only headlines can be shown.



6.6. Borders of human musculoskeletal system

The human body consists of **210 bones** and about **600 muscles**.

Simple moving - units are:

- Mimic of the head
- Neck-muscles
- Backbone
- Muscles around the backbone
- Shoulder-bones
- Shoulder-muscles
- Arm-muscles
- Arm-bones
- Pelvis-muscles
- Pelvis-bones
- Leg-muscles
- Leg-bones
- the whole musculoskeletal system
- musculoskeletal system - bones and their movement
- musculoskeletal system - muscles.

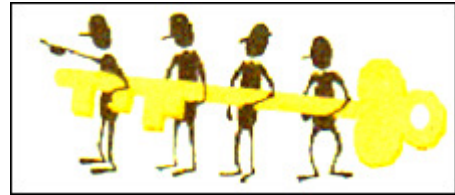
Every unit has borders in speed and energy. It would go here too far, to go deeper. Special knowledge can be found in scientific anatomy books.

In the industrial world of work a pioneer has to be mentioned: **Frederick W. TAYLOR** (1856-1915). He developed first time in the world a scientific management of production-processes in industry. At that time a big part of production had to be done by human workers. He fractionised single human works into single units or elements and improved so the efficiency of work.

Today the humans should not work in machine-driven production-sequences too much. This **assembly line work** is the lowest form of work. Only humans with low mental abilities do this work. It's against the human nature, to do the same always in the same way and this for long time. We should try to minimise such works.

Intelligent humans like an intelligent control-function of automated work. The humans want to decide in cases of stops and want to reign the assembly line during production. Till now we made production lines for making products, the humans where a necessary object or factor in it. Now we should try to give all repeatable equal work steps to machines and think about how humans can control it. Not human have to be a part of machine lines but machine production has to work like human need them. A **user interface** has to be made more and more carefully.

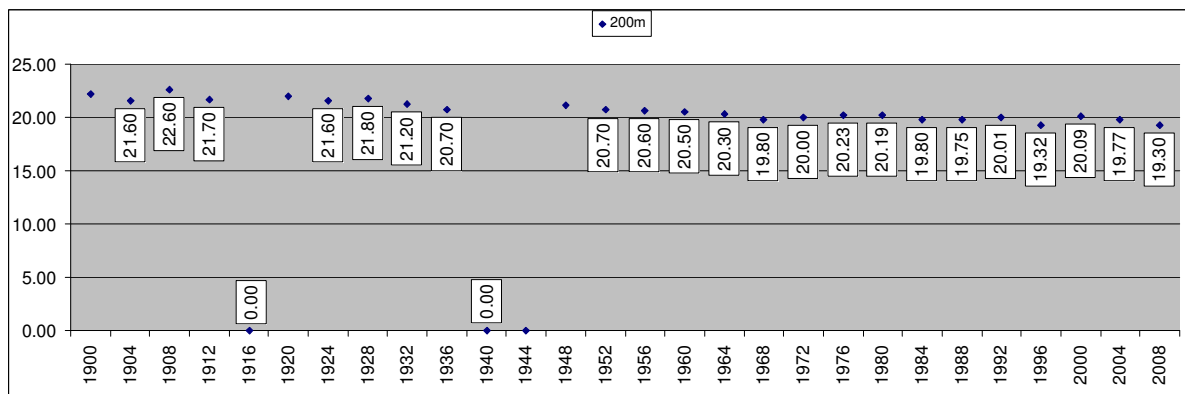
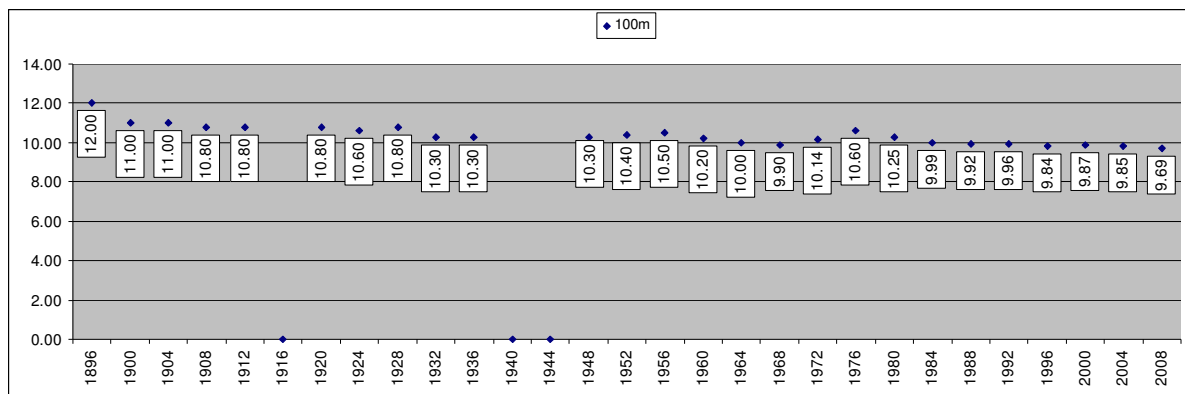
The permanent improvement of single movements is today also in **sports and especially in top sport** very interesting. It's typically that the **human psyche** gets important in those



cases. An equalised, healthy and funny human is able to reach his goals much better than a frustrated, tired and expanded one.

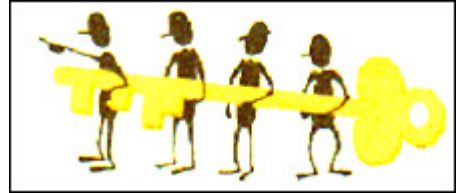
Sport limits per example: Olympic Running

Olympic Game of New Age: Man



These data are not usable in the world of work; we have to reduce their values.

These historic and actual limits show very clear that humans have **biological limits in their movement**. It's possible to improve these limits in some cases, but they exist. So we have an examined fact.



6.7. Movement and Cognition

The whole human musculoskeletal system has an important influence in his cognition. An inseparable connexion between cognition and movement is existing (12, p156 ff). Both improve themselves.

Test series of **ENNENBACH** and **Richard HELD** in the years 1987 till 1989 brought, that humans learn a new surrounding better and faster if they have free movement.

RITTER says in 1987 "To make learning of a correct surrounding possible a motoric interaction with the surrounding is necessary". It goes so far that our cognition is adapting herself to the real surrounding. **KOHLER**, University of Innsbruck, lets in time 1928 till 1970 test persons carry prism-glasses which changed top and bottom and left and right.

These persons reacted to this new cognition and could act. **FOERSTER** wrote in 1985, that after laying down the prism-glasses the turned around recognised world turned back in the opposite direction. This is happening at beginning in the surrounding of an arm-length, a footstep and after two or three months in the whole visual area. A lot of other tests came to the same results (**VARELA** 1988, **BACH Y RITA** 1962 and 1993).

So we can say: **Movements organise the human cognition.**

The cognition is organised and adapted to known patterns till she is congruent with the true and real surrounding.

All organs (organs for movement and all senses) have to bring the same congruent facts in our brain. The senses adapt themselves to the organs of movement. The human being is „physically and organically adaptive able to learn“.

6.8. Movement and mental work

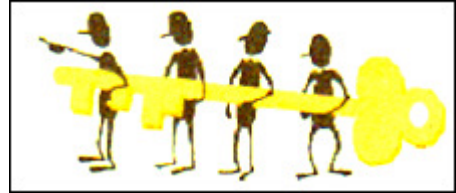
Besides of cognition of a new surrounding in our life, which is made possible - as described above - through movement we have to do sometimes **concentrated mental work , like reading, learning or thinking.**

This needs a quiet, stabile and friendly surrounding. The performance is in the brain - only by reading, hearing, learning and thinking. Every student is learning how to work so. This case is different to learn a new life surrounding. We only want to improve our knowledge, our data in our brains. Then we need movement to recreate our brains in brakes of intensive learning phases.

Movement seems to prevent intensive, detailed and deep learning. Not moving, feeling for something, sniffing or tasting of something is important too. Then the human has to be quiet and concentrated.

This mental phase of concentration is not permanent possible. Humans need after such phases phases of refreshment and equalisation of body and brain. If we don't do this, we can't learn very much. We consist of body and brain and we can't strengthen only one of them for long time.

The **work at computers** needs this mental concentration too. The most usage have eyes and brain. All other doings (button pressing, quiet sitting, sitting with straight backbone) are



too equal movements over long time (sometimes for hours) - a partial strengthening of arms, necks and backs.

On intensive work at a computer-screen we can **loose the feeling for time**.

Further on we can loose the **ability for an interesting dialog between humans**. The behaviour of dialogs adapts to the fast computer response times. Out of own experience I can say, that after some days working at a computer without talking in little brakes between, I need some hours to come in the time rhythms of humans for speaking with each other. I have to think about speaking slowly. The **variable dominance in a dialog** has to be refreshed also. A computer destroys the attendance to hear exactly what the dialog partner says and to wait till he has said all, what he wants to say. We have to remember that our dialog partner is a human being too and not a machine. If we don't change this dialog-behaviour our partner will stop a dialog because he can't say what he wants.

A conscious change and intensive attention to the human partner will bring a dialog with rich contents.

Scientific tests with clear data are actually (2009) done worldwide. They attest in main parts my personal experiences as described above, but the results are explained in different ways in America and Europe.

7. The biologic limits of human senses

Since about middle of the 19th century humans researched this theme scientifically.

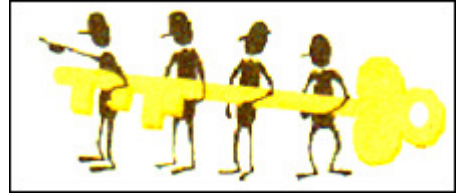
As prime father can be seen **Ernst Heinrich WEBER (1795-1878)**. His **Weberian Law** was a great success. He defines in it, that the cognition of a changing stimulus relative to the stimulus himself is constant. If a stimulus in his strongness is growing he also needs a linear magnification of its difference in order to realise the difference. In short: a greater stimulus needs for changing also a greater difference.

Together with **Gustav Theodor FECHNER (1801-1887)** he is the founder of psychophysics as new science at that time. It can be seen as early root of actual psychology und neurosciences.

The scientists tried to find laws through new specialised test applications. Touching, tasting, the taste itself, hearing and seeing got in the focus. But he results where not exiting, because the research methods where too much reduced to known mathematics and physics. Usable technical tools where found later on the end of the 20th century. In (3) you read about the last results on this way of thinking.

Actual results are very common for scientists. It's possible to measure electrical pulses around brain regions, so we can say we know electrical movements in certain parts of our brains. Also a relation to single sense organs is in a visual way possible. Exact measurement in the brain is nearly not possible, because the complexity of our brain is still not structurally definitive. In actual time (2009) we only know a possible organisation of our brain.

Real proceeds are known in measuring of single nerves, beginning from brain leading over spinal cord till the end of nerves in the muscles of whole body (4). The transmission of living data (electric charge-pulses, nerve cell diffusions by ionisation of atoms and walking on by



charge differences) is clear explainable and visible. A physical substitution of whole nerves is in present time (2009) not yet possible. Proceeds where done in the connection of separated members or extremities, as long as the nerves where not “closed” naturally.

Ways where found to motivate the whole person by mental will training to build new nerves - for instance in the spinal cord. But the time intervals for such proceeds are years. As mentioned before the need in researching the Central Nerves System is very high. The medical scientists don't yet know how they can influence nerves so that they reorganize or live longer.

Now some notes to limits of our senses. The selection here is fitting to my personal scientific interests. Specials values are findable very easy in Internet and in the scientific literature of specialised disciplines. For this over viewing that would go too far.

7.1. Seeing

On the retina of the human eye are about 120 mio. rods and 6 mio. uvulas. They conduct in 1 mio. ganglions, which transmit the signals for seeing (4).

7.2. Hearing

Humans can hear in a frequency interval of 10-20 up to 16.000-20.000 hertz.

The sound pressure (amplitude of an acoustic oscillation) is **at a frequency of 4000 hertz** most powerful. That means that the human being can hear this frequency best. At all other frequencies the amplitude has to be greater to have the same subjective hear feeling (4, p318ff).

A value for orientation is the **sound intensity level**. It's the quotient

actual sound pressure p_x /defined fundamental sound pressure p_0 .

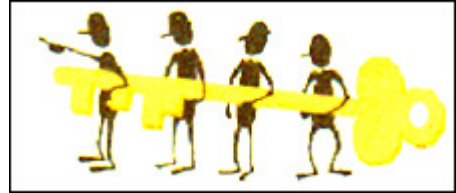
The unit of measurement is **dB (decibel)** and is logarithmic.

Definition: the **sound intensity level $L = 20 \log p_x/p_0$.**

$p_0 = 2 \text{ cross } 10 \text{ exp } -5 \text{ Pa (Pascal) (= average human hearing level).$

If the sound intensity level goes up by 20 dB, the genuine sound pressure goes up by factor 10. And: a level increase of 40 dB is a real increase of the sound pressure by factor 100.

Hearing in a room (stereo hearing) is possible because we have two ears. In (4, p 340) is written that we can hear up from 3 degrees of differences of locations. Thereby the **minimal realisable differences of time** is up from 3 cross 10 exp minus 5 seconds that are 0.3 microseconds. The **lowest hearable sound level difference** between left and right ear is defined by 1dB.



Conscious Hearing: Every human is able to hear consciously to a certain spot in a room. He can concentrate his senses (eyes, ears, mind) to hear only one certain sound source. In human brain other sources can be suppressed.

A special biological fact is the organic-physical **upper hearing level of 5 kHz**. According to (4, p 333 ff) the inner ear, named **Cochlea** and the net of nerves behind can conduct a maximal frequency of 5 kHz. All frequencies over this limit are composed by periodical repetition by the human brain. So we can hear the interval from 5 kHz up to 20 kHz too. Till now this fact is not researched satisfactorily.

The sensual cognition is till the Cochlea genuine mechanical. An **air-pressure-wave** is conducted from the eardrum to the middle ear. In the middle ear this wave gets mechanically amplified (impedance adaption) by hammer (maleus), anvil (incus) und stirrup (stapes). The air wave gets changed into a **fluid wave**. The stirrup transfers the mechanical wave to the oval window. This fluid pressure is conducted in the whole Cochlea, turns under a membrane at the end and can be equalized by the round window as a border to the middle ear.

The **Cochlea** is surrounded by bones.

She has three main parts:

the **Scala Vestibuli**, upper part of two and a half windings, is filled with Perilymphe (fluid), the **Scala Media**, a separating membrane and the **Scala Tympani** (lower part) , is also filled with Perilymphe.

The sound wave comes from the middle ear through the oval window and is conducted by the Perilymphe in the Scala Media. Depending on frequency it conducts the signal on different districts to the Scala Media. An equalizing wave goes back through the Perilymphe of Scala Tympani to the round window.

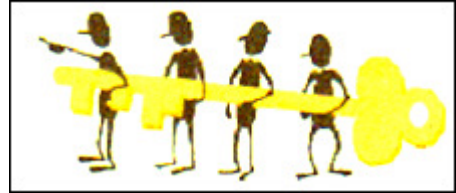
The genuine change of the mechanical wave into an electrochemical nerve signal is made in the Scala Media. She is filled with an inelastic fluid (Endolymphe). The wave from Scala Vestibuli comes on the Reissner Membrane into the Scala Media. There the Tectorial Membrane covers the sense hairs, which roots in the hair cells in the Basiliar Membrane. The outer sense hairs led to the Tectorial Membrane, the inner sense hairs are free swinging on top. Out of the hair cells on the bottom come the **hear nerve fibres** and build the **ganglion spiral to the brain**.

The outer hair cells (3 rows), the inner hair cells, some base cells and the Basiliar Membrane build the kernel of our hear organ, the **Corti-Organ**. The parallel movements of Tectorial Membrane and Basiliar Membrane, which is carried by the Endolymphe, generates in the nerve cells under the sense hairs (Stereozilles) an adapted electrical charge spreading, which is transported over nerve fibres to the brain. (4)

Physical compendium:

Copyright F. Plochberger, Borders of a Human Being

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A **mechanical air pressure wave** comes over eardrum into the middle ear, gets amplified and transmitted to the oval window. The mechanical wave changes to a **fluid wave** in an incompressible fluid („Hydrodynamic Coupling“). This fluid wave is changed in the Corti-Organ to an **electrochemical signal pattern** and is conducted neuronal to the brain. It's remarkable that the Corti-Organ can transfer maximal 5 kHz. Higher frequencies can probably be recognised by timely periodicity of the sound signal.

The human **Corti-Organ** has about 3.500 inner and about 12.000 outer hair cells. From every hair cell come some (up to 20) hear-nerves-fibres (13).

A comparison of **amount of see nerves: hear nerves is 10 : 1!** Counted are the nerve fibres leading to the brain.

The human ear can hear a **minimal frequency difference** of yet 0.2 %. A halve-tone-step is to be valued by about 6 %. Humans can hear **minimal sound differences** of 1/30 of a half tone or 1/60 of a full tone step.

The **smallest recognisable time difference** of the human ear is in the interval 6-10 microseconds (6-10 sec exp minus 6). Specialised music conductors reach about 3 microseconds.

About other sense organs like

- touching, feeling,
- sniffing, smelling or
- tasting

not very much data are reachable for me till now. In IT they are also not very important till now.

8. The human brain, biologically

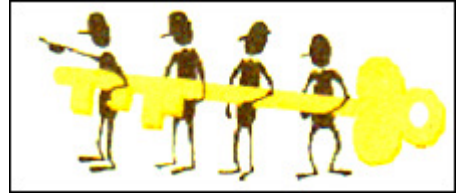
The scientific identification is “**neurosciences**” and is a very important branch of modern biology or medicine.

Our brain is the organic unit where the control of all ore life functions of nearly all our body is done.

Today the human brain is the **criterium of life or death of humans**. Our legacy heart can be substituted by mechanical pump-machines. The **artificial blood-circulations** can be made too. Also breathing can be controlled by **artificial lungs** or cleaning of blood can be made by **artificial kidneys**. All that gets sense only - if the human brain is healthy.

The **Human Death** can be defined only negative: he appears, when a human being is not living any more. Humans consist of brain and all organs of their body. The **Death of a Brain** is an irreversibility - today a clear criterium for death. All other organs can be substituted in parts or as a whole.

In human brain all (conscious and unconscious) accidents are researchable. The structure and organisation is visualisable by newest technical tools (EEG = Electro Encephalo Gram,



MRI = Magnet Resonance Indicator). We only can measure peripherically. In 2009 it is tried to rebuild some neuronal connections in an artificial way, what was a sensation in the beginning. But we can't reach the whole biological function. We never can rebuild a whole human brain. Neurosciences will be very useful to heal diseases of the brain, like Dementia, Schizophrenia or Brain Tumours. These diseases are increasing because our brain usage is needed and stressed more and more.

Besides of these reductionistical technical-physical artefacts new good looking strategies where found. They use **therapeutic proteins from genomes and stem cell research** - what are **living organisms** - for healing. A group around **Prof. PLÜCKTHUN**, University Zürich started 2008 to develop biological structures by biologic engineering und induced the results in sick living cells.

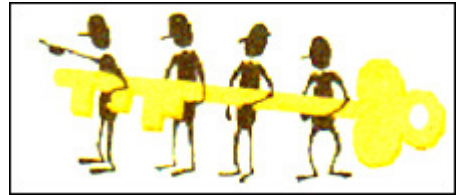
The biological age-limits of human beings are founded in the human genes (DNS), in central nerves system and in the organs themselves...

Besides the brain in the human head a part is in the venter („**ventral brain**“). It's located around our stomach and takes about 1/5 of our brain work. It's working fully by himself and is connected permanent with our “head brain”. The ventral brain is reacting spontaneously and emotionally and is seen as the kernel of our emotions. The phrase „a decision out of stomach“ is already well known. Literature can be found at the ventral-neurologist Prof. **Michael SCHEMANN**, TU München.

The control of the body is conducted from brain over nerves in our spinal cord in our backbone till the single nerves leave this backbone between single vertebrae. Then they guide into muscles and organs of our body.

Foundation of neurosciences is the research of the anatomy and function of our human nerves. In this area medical sciences are back in comparison to organic medicine. The expected higher life age brings more diseases of human nerves and human brains, because they are not yet repairable. An old and aged society would be catastrophically, if it would not be healthy. The age between 65 and about 90 should be or can be more and more a “**healthy age**”.

The **high-care phase** at the end of every person's life will stay in future too. This age should be planable for each person. It should be without pains, a human like going down of life. It's traditional known in all cultures. It takes about 3 years and is the natural change and preparing of dying. For every person it should be possible to reach this age in freedom and free life, consciously and humanlike. The care should be done by children or near relates and only in some cases from not-related but professional educated persons.



8.1. Found single biologic control functions in the human brain

8.1.1. The spatial SIMON-effect

In connection with stimulation of senses and reactions by movement **J.Richard SIMON** found a remarkable effect (14). He was researching this area first, many researchers after him found the same results. **In 1967** he started together with **RUDELL** a test as follows: Test persons got earphones. They should press according to their heard signal a button left or right. In the headphones they heard the words „left“ or „right“ by accident in the left or right ear. If the content of the word was the same as the side of the ear, the test persons were quicker. When in the left ear the word “left” came, the reaction time was shorter than in that case that in the left ear came the word “right” - the same into the other directions. The special scientists of psychology call this fact „**correspondence**“ **between stimulation and reaction**.

According to a big amount of tests (14, p 12 ff) - the **realised spatial relation** between stimulation and reaction of the test person is important (look at chapter „Movement and Cognition“, above). That brings heavy design-rules for all up to date WWW-designers!

8.1.2. Thesis of the referential coding according to **HOMMEL (1993)**

Thesis:

Observers use certain **points of relations in a room** for **visual cognition** of spatial information and controlling of subsequent **actions** (14, p 137).

Information about positions (perceptual, cognitive, sensorial) and action related information (motorical, an „access“ preparing) are equivalent.

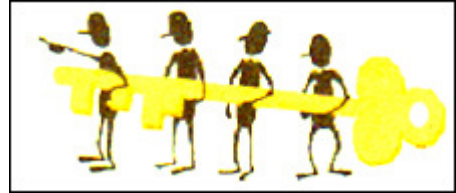
For design of optical systems it's therefore useful to prepare points of relation and to make possible a quick motorical access into them.

A „**book-reading-proceed**“ includes movements of the eyes and the head, movements of arms for turning over and feeling of next book pages. That's more motoric than the button pressing at a computer-screen.

For computer-screen-users a clear difficult situation is evident. The motoric movement is during the work at a screen very small. It's reduced to **movement of eyes, head, finger pressing, and small hand and arm movement**. Here a lot could be improved. What is necessary is a new thinking about using the whole body. This is till now not usual.

Thesis:

A **cognitive coding of a stimulus** is necessary, if stimulation and reaction differ in their form of execution (representation). This delays a reaction, but can be minimised by an **ability to learn**.



The cognitive coding is always involved in the actual form of work at a computer. It's even very complex but also learnable. It's the kernel of every human computer work. A point of relation is given by an electronically moved pointer (cursor) in a physically stable screen. From this pointer depends the further controlling which is depending on the action with the text. The content of the text can be multifaceted and depending on much knowledge.

8.2. The cognition of movements

This cognition is acting **in an own region of our human brain**, in a separated „perceptual dimension“.

The characteristics of the human reactions at all are similar to the reaction of a stationary stimulus. (14). **Movement and frame of relations** are similar to a single spot of a stimulus and fix relation points.

The pure movements at a screen of a computer happens at showing a video or film.

At normal work at a computer we have typical **changes of a screen-content in single stationary pictures (screens, sites)**. These changes are controlled by humans depending on status step by step and can so be recognised and worked through.

9. Abilities of the human brain

9.1. Ability to learn

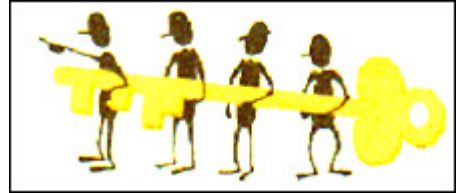
An ability to learn is in all living organisms. Depending on the reached level in evolution it can be lower or higher. Humans have the highest level in the ability to learn.

Humans have therefore a responsibility for all other living creatures. The human being is an „alpha“-species in comparison of all living creatures.

Humans are not allowed to bring consciously pain to other living creatures. If it happens the human justice can be involved. This knowledge is sourced in a **higher social and cultural responsibility**, shown later on.

In some cases the ability of cognition is better for animals then that of humans (for example seeing for an eagle, sniffing for a dog or bear and hearing for a bat). Humans recognised these abilities and tried to use these animals for their purposes.

On the other side some animals accept the „alpha“-role of humans to get advantages by living in the surrounding of humans. A dog, a cat or a horse, used as pets, like to obey humans because they get so a biological advantage that means shelter and food.



9.2 .Knowledge

We understand in knowledge the information which we learned in a conscious way. This knowledge is stored mainly in the human brain and CNS (= central nerves system).

Knowledge is a „living“ information, which can be refreshed and used again and again. It's not only biologically existent, it can be reached and used consciously and with own free will. If learned informations are unused for longer time, it takes a longer time to find them again. Stored knowledge can be found by associative connections to related themes.

Because our knowledge is alive humans stored it very early in a physical way too, in form of stone tables, handwritten texts on papers or books. These „created data“ is available for long time. In actual time we can store data very quick and in big amounts.

Exactly we have „**stored knowledge**“ or on step more precise: written down (stored) data.

The **electronic storage** in present time (2009) is very quick but thought in long time intervals very much changing and therefore instable again. In this variability of our electronically stored knowledge is - against up to date techniques- **a long termed danger for these data** (6). Only unchanged stored data in time dimensions as stone tables will bring a usable storage possibility. Till now we don't have it.

Stored knowledge has to be relearned and reread by humans. Our brain needs refreshment. A profound knowledge is complex and reachable only by permanent maintenance.

Human knowledge is **mortal** as the biological carrier of it.

9.3. Memory

Is a common term **for the fact and the place of living knowledge** in our head-brain (80 %) and about 20 % in the rest of our body (nerves network, local controlling of digestion in our venter - the „ventral brain“).

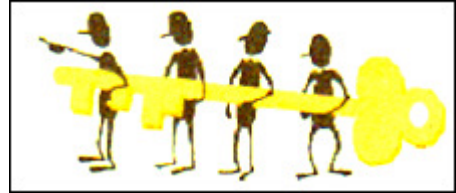
It's an actual scientific meaning that memory isn't yet local definable. What we can say is that it is in a network structure of neurons, synapses and nerve-dendrites. In permanent working together of this nerves system we can store our knowledge.

The nature-scientific research of it is a kernel theme of neurosciences and actually (2008, 2009) very high mentioned.

9.4. The intelligence of humans

A cousin of Charles Darwin, **Francis GALTON** founded at the end of the 19th century the new branch of science **eugenics**. He developed proceedings to measure the human intelligence. He tried to find methods to improve the human intelligence. Today eugenics is unimportant because it don't take care on human dignity.

His pupil **Karl PEARSON** is known as the founder of statistics, because he developed mathematical proceedings for this measuring of intelligence. An other statistics expert of this



time was **Charles SPEARMAN**, who found in his factor analyses more basics of psychometrics (new science name).

In (5, p45ff) is to find that **Charles MURRAY** and **Richard HERRNSTEIN** suggested in their book „The Bell Curve“ in 1994, that **intelligence is for 60 till 70 % hereditary**. The rest is founded in environmental factors like food, education and family structures. They relate to the statistical data of „National Longitudinal Survey of Youth“ (NSLY), a great long-time study about American youth. This publication was very controversial because of other „racist“ suggestions between black and white people.

In my own genealogical tree and in many personally known examples in my surrounding I can find many affirmations of the theory of MURRAY and HERRNSTEIN. I personally trust to the meaning that intelligence comes with birth by 60 to 70%. A very important factor in a human life is the **amplification** of inherited talents in family, school or business. **Pedagogic** will be very important in our information century too. It will stay a biological and sociological fact that young people have to learn from older one.

Statistically is the participation of people with a native high intelligence (IQ \geq 120) assessed at about 10 % in our Industrial Countries (15, p 16, Prof. Dr. Hans MOHR, 2002). If this is valid worldwide can't be responded but is probably true.

Besides of **talent** also **effort and study** is important. The **economic and political ability** to realize own ideas and interests will be also very important in our future society.

9.5. The human consciousness

About 5 % (not jet definitive) of all biological activities of our brain get conscious to our personality. The biggest part 95 % (about) of our biological brainwork is permanent and unconscious (subconsciousness).

So only a small procentual part of our permanent brainwork is used to make our proceedings **consciously**. We take care of these proceedings and come to a status of decision for new actions.

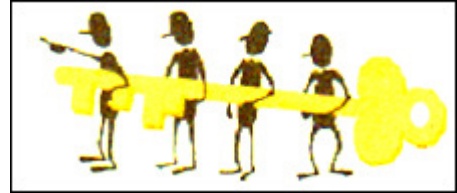
In this conscious part are all proceedings which make us to real **feeling, thinking and conscious acting humans**.

A child realises and learns with about 3 years of life for first time his own „ego“.

„**Primary“ I-Consciousness** was named by **Bernhard RENSCH**, evolution biologist, in 1973 this first conscious splitting of the own person in subject and object (9, p95).

„**Secondary“ I-Consciousness** contents the experience of himself. A „**Tertiary“ I-Consciousness** is the cognition of a hierarchy in our human society.

According to the biologist and brain researcher **Humberto MATURANA** (* 1928 in **Santiago de Chile**) the **(I) consciousness** is combined to a (subjective) „observer“. He calls it genuine biologically an „**epiphenomenon**“ (by-product) of the whole human nerves system and not a representation of single nerve fibres = sensual cognition. The ego (consciousness) by MATURANA consists of the **ability of a (living) observer to create a consensual area with himself** and to describe this with own words. (12)



9.6. The feeling

Is described by brain researchers as: the whole status of our conscious and unconscious cognition and feelings, the involvement of all conscious and unconscious biological proceedings of our Central Nerves System. (7)

It's an important fundament for our acting.

9.7. Free will

We understand in it the ability for conscious and free actions. As we know today nearly all of our decisions are influenced or prepared by sensual cognitions and in memory stored experiences. Therefore a **spontaneous decision** – without thinking consciously – is more founded biologically and is more efficient than we know.

The border between spontaneous and free decision has been moved by newest results of neuro-biologists. It's possible today to show certain proceedings, which are already existing and working, before a test person gets the feeling of a conscious free decision. That shows earlier activities, as we knew till now. Existing biological data are controlling our brain (repetitions, memory activities) **in a preparing phase**. In a special moment the conscious decision is made by our personal brain. Before we make a conscious decision, about 3 till 10 seconds, our brain works unconsciously.

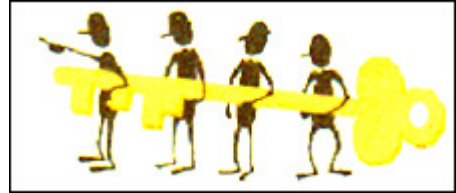
Psychologists point out **the intention or aim**. Also **whish and goal** are defined termini in modern psychology.

How humans use living data or not is still not definable. Definitely important is the valuing of all these single informations.

The word **information** is used by me only in connection with conscious human cognitions and actions. This can have the direction into or out of our brain.

Our **brain activities** are proceedings in our brain. It is the permanent living transport of electrochemical signal patterns. The carriers of this information are molecules and jons. The distribution of charge and the polarisation of electrons bring the energy for movement.

From the point of view of theoretical informatics we can say: that are **movements of living data**, which carry the living (conscious) information. These data bring new electrochemical status in certain cells and can walk through the borders of these cells. So we can research our nerves reductionistically. Here physics (electro techniques), chemistry and biology come together very tight.



10. Capacity overload of the human being and possible biologic subsequences

It's the goal of this chapter to write down some leading ideas about positive **medical prevention and prohibition** of diseases. Medical healing of already existing physical sicknesses can't be the theme of this script, it's kernel for genuine medical researchers.

10.1. Sources of capacity overload

Till the beginning of the Industrial Age **wars, nature catastrophes or epidemic plagues** sourced human overloads. By **inventing of machines** we have made by our own **new sources of overload**. We created machines for other reasons but got this bad side besides of all advantages.

Seen out of a sociologic point of view we created **new parting lines**: they separate now

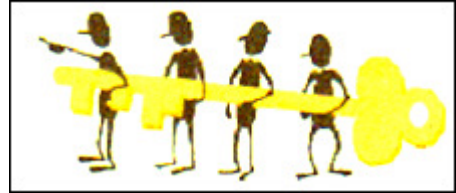
the group, which **constructs machines** and live from this (scientists, engineers),
the group, which takes a social and materialistic advantage out of better knowledge (**industrials, in possess interested persons, entrepreneurs**)
the group, which uses the machines and earn their incomings from it (**employed persons, user**) and
the group, **which never comes in contact** to high developed machines and modern techniques (f.ex. primitive people in Developing Countries).

Who passes over these borders without visiting a school or without education in preparing courses is generally an example for endangered persons by overloading.

In the last centuries legacy social structures were changed by our working world. Before industrializing a great social change was only possible by leaving his surroundings and conquering of new areas (colonies), and one step before by travelling of whole peoples. At the end of 18th century in Europe was a „**revolution of the human mind**“ (French Revolution, German „Aufklärung“). These were happening at that time only in Europe and were unique in the whole world. The rational change didn't happen in America, Asia or Africa. These continents imported these new ideas. The youngest example is China, which first took over the Marxism and today the free market economy. Both are latest examples of European mental leadership.

These new social structures all over the world came after the leadership of established nobility over centuries. Republics created **communities of citizens with equal rights**. The personal abilities of single persons got weight and the legacy private ancestry got not so much important. In the working world - the **Industrial Age** (about 18th, 19th century) was born.

Today we like to say, that we live at the beginning of a next new age, the **Age of Information and Mobility**. The legacy nobility has changed mainly to a „club with



exclusive private family traditions“. His influence is participated by common citizenship. Inner this citizenship a new group was born: the group of **good educated persons**, sometimes we say „intelligence“ per se. This people were living in all generations before, but now they got an own self-consciousness.

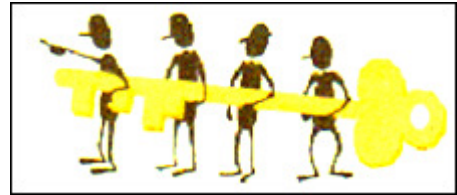
The **single ability to learn, an individual property of humans** is now an important criterium. **Intelligence** and the **will for education** have important values. The **right for education** is not so much combined with ancestry. Mainly important are **the talent and the abilities** of young persons. The state has mainly taken the role of churches in cases of education. The laws say that the financial situation of one single talented person has not so much weight as before. **Every talented person** in a free industrial state should have the possibility to get higher education, regardless of the incoming of his parents, because such a person is a high value for the whole community of a state. That's a big success of our leading nations and states, of our human society in the 21th century.

The century of information and mobility brings new criteria's and new social separating lines too. Out of the high educated citizenships new dangerous groups are growing. These „**elite-groups**“ try to get more and more rights and try to promote themselves only. They use their advantage by knowledge to get systematic richer and richer, they get egoistic. The loss of confidence and the sinking will for work together set these „new egoistic elites“ borders. Slowly the whole human society takes notice of this graspingness and creates rules for actions against them.

The **Free Market-Economy** came 2008/09 to her first crisis, as 20 years ago the materialistic and communistic system. The human **will and urge for personal ownership** is still a known human property. The new problem is now, **how we can motivate those humans, who came to very rich ownership by their own effort, to give other people under same conditions the same chances without losing self-confidence and social prestige. Every human has the right for a better life and own development. A balancing-power is necessary, which looks on that human property without wars, deletions or illegalities. So more joy in new creative and private economy can be promoted.**

In higher pedagogy this new problem can be solved by promoting the new science **sociology**, in broad primary and secondary schools we have to create an effective practical version of this new science. We have to make the youth creative in social and economic fields. They should come away from making the whole community responsible for single problems and get depressive by bad numbers of useless common workless-helpings. The whole community can help by organising more communication and change of ideas of involved persons, if they can't find work.

In the **active working world** a very **new parting line** is drawn. In leading technologies of informatics **the biological life-age** is coming to a very important criterion for decision:

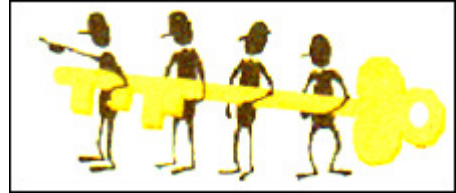


Full ability for bringing power till about the **40th year of life and a little bit more**: This separating line is a personal experience of mine too. It exists since the academic graduation of information-sciences (in the 70th of 20th century) to a new faculty at scientific universities. Exactly at that time this - in my opinion - inhuman, too rational and egoistic line was drawn. The goal was to get a definitive border between academic information-engineers and others. It's remarkable, that this impulse comes from the young academic generation in informatics by their own. That's a genuine novelty in education sciences. This „**age-limit**“ is a new existing fact till now, her realistic justification seems to be the latest technical knowing, an educational advantage. Young graduated academic persons get today the latest standard in informatics. The already working academics live and work in their living software-systems, which are sometimes not of the latest standard. No re-educational upgrading of established academics is usual. This way of thinking brought the possible loss of work for older academics and upgrading of knowledge by employing of young graduated academics. USA has brought back a bad point in sociology, her way of „**hire and fire**“, to Europe. **The big suffer for this “age-rule” is the loss of continuity in persons and data.** This creeping failure is a permanent and kernel theme of my latest scientific works. In some kind it has already economic dimensions for whole states. So this bad status is signed out, I don't know, how we can delete this error at least in Europe.

Since the **50th life-year till beginning of retirement** mainly roles of ownership and awareness are considered by younger colleagues. These young academics after some time are missing experiences, which reach over special knowledge. Most of the colleagues in this age have no confidence per se in younger persons. I mean that this fact is short viewing and poisoning the modern working world. It's simple a loss of a human value: **respect of way of thinking and acting for older people.** Older humans in the working world (from 50 till 65) think and react in a different way. Compared with younger colleagues they act slower but also more looking around and more enduring. We have to take care on the fact that younger academics are more hungry in personal success and short-viewed personal economic interests.

A permanent exception of this rule was and is the small group of **exceptional rich, famous or common-well-known persons.**

An overpowering of the world of work and consumption leads to a more rough human culture and society. Old persons – in numbers in the Industrialised States increasing - loose human respect and values. If only young ability to bring power and egoistic lucre are respectable, we loose a main part of our traditional peace and stability bringing values. The human society started to think about human roles first time in the 50th of last century by **K. KUPFMÜLLER (1897-1977) (15).**



Today we have

- **on one side fast development and evolution of our human knowledge**, creation of „help“-machines for human necessities (industrial production, computing, writing, communicating). We have data-computing machines in industry and biology. Humans take in parts the roles of members of a sub-class, of objects, passengers - of computable and calculate-able „things“ and
- **on the other side the biological evolution of the “species human being” is still taking effect** in much more slower development times. Humans as organisms realize their borders against realistic nature science (= techniques). Humans have created by themselves machines that over strengthen themselves. Humans grow even to a „**risk-factor**“; they get first time in their **working world to a lower valued “human” part in production.**

Information sciences have the duty to separate **the biological species human being and genuine pure materialistic technical machines and evolutions.** Both sides are useful but the border between them has to be made more and more carefully. Informatics can react in systematic new software and hardware and call this new necessary style a new way of thinking, a new **paradigma, the paradigma of HO (Human-Orientation).**

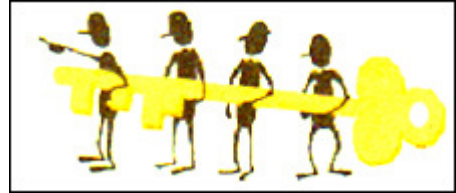
In last times humans started to materialize their own body like a machine. The equivalent way of thinking comes from informatics. The **scientific results in biology** – very useful for healing medicine - mislead to forget legacy empiric found laws of our human society in **ethic, moral or religion.** That way can't succeed as we know, it's out of legacy humanistic education.

Mind, ratio, the intellect are parts of humans, but only emotions and feelings lead to a “whole humanistic” way of thinking. The single biological **individuum** is much more important. All biological functions in our brain are enwrapped in our feeling - psychologies call it **the emotion.** This fact can't be “rationalised away”. **Self-confidence, good feeling, mental healthiness and satisfaction** are much more important than obsessive technical-rational progress or materialistic profit.

If legacy humanistic values are suppressed or forgotten for a long time it comes to psychological and physical sickness. **These are laws of nature** and no selfish or quixotic statements of psychologies or theologians.

The overvalued Enlightenment, the rationalism, the experience and conscious pointing out of the human intellect lead us today to a too narrow and specialized way of thinking. It is necessary to overlay all scientific parts by the human feelings, the human way of thinking and legacy experiences. A human being is more than a biological object - it's a biological and emotional individuum and single subject. Our own species is in danger, if we don't protect us as highest **developed living subject.**

Humanism, ethic, moral, religion are today for our whole mankind much more important and have more values than any uncoordinated specialized science. Only they can bring true



happiness and feeling well to all people. It's clear that this is not in the actual trend of our modern life (2009), but it is valid timeless.

Theoretical Informatics - as methodological and structuring science - get in future an important pre-caring and serving role: it has to control, structure and organise the progress of the living human mind and intellect. It has to do so, because **(living) information and conscious, subjective humanity can't be separated.**

10.2. Signs and remarks of human overstraining

In the following lines the fact is attested that soul and body can't be separated in reality. A lot of physical diseases have their sources in a long-time-overstrained psyche.

A healthy soul, an equalized status of all feelings are the most desirable and saveable goals of every human being. Out of this status comes direct mental and physical healthiness.

If a modern human can't reach this status of feeling he/she comes to

10.2.1. Stress

As father of stress-research is known **Hans SELYE (*1907 in Wien, +1982 in Montreal)**. He was finding and researching this theme since his 2. year of studying medical doctor. He made it to a new scientific branch, the **researching of stress**. Besides of medicine also biology, psychology and psychoanalysis are involved.

Out of my point of view of informatics I want point out only the most important scientific facts for orientation. My data- source is (16).

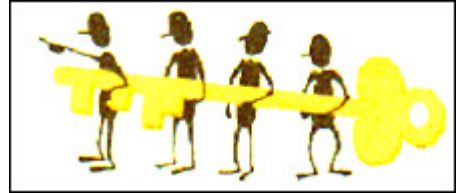
10.2.1.1. The word „stress“ and rough structuring of the terminus

Hans SELYE has fixed his results in 1936 in his first scientific publication. The word comes from English material science of physics. „Stress“ means there traction or pressure on a material. The Latin source is „stringere“ what means tense or even stress.

Hans SELYE defined stress at all as the unspecific reaction of a body to every strain.

All his termini can be seen till now (80 years later) as a very useful paradigma.

In animals in case of an acute situation of danger - f. in. seeing of a natural enemy or fire - a higher ability to act is generated. The adrenalhormon adrenalin generates a vegetative chain of efforts, which enforces the supply of energy in the muscles. The control is given to the cerebrum. **Schematic patterns of decisions of the brain stem** appear. That brings a very much faster reaction. This appears in cases of emergency also in connection with humans (acc. to **Walter CANNON**, 1932: „fight-or-flight“).



In humans stress at all is a subjective situation. All experiences, accidents and the whole psyche act together in the handling of stress.

All activators of stress are named and collected in the word **stressors**.

The biologic room for stress is divided **in four great areas**:

- cellular / molecular systems,
- somatic (body-) systems (organs),
- neuronal and neuroendocrin systems (physical nerves) and
- psychic systems (emotions, feelings).

All four areas act into each other, in both directions. The psychological system creates a subjective experience (consciousness). The individual soul takes part in **handling of stress (Coping)**.

The biological goal of every stress is the completion or coping of the appearing disturbing factors (stressors) and the recreation of an equalized status of feeling. In case of completions or coping humans experience a success with positive psychological and physical follow-ups („**eustress**“).

In case of disappointment stress stays on till it is completed. Long-timed uncompleted stressors create helplessness, frustration, depression and in enduring defeats even physical sicknesses („**distress**“).

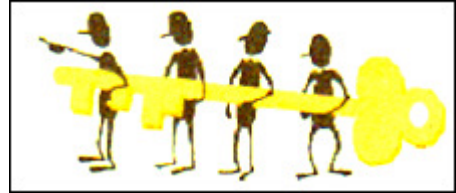
There remains a rule:

A healthy human has to **complete every stress** in his sources and that as long till the stress is **disappearing - is completed positive**. Otherwise stress-sourced psychological and physical diseases follow.

That's a fundamental rule for modern health care. Sadly in most cases we don't recognise new acting stressors. We are too much caring about working goals or about too much pleasure and consume. We think consume brings happiness of our soul, joy and equalizing quietness. But that's not possible for pure business- and profit-orientated actions. Actual medicine has treated the terminus stress very exactly and is still talking about this theme. The researching of stress is full integrated in surroundings of nature sciences.

Stress has mainly 3 phases:

- activation by a stressor
- permanent effect of stress and
- reactions on stress.



If all reactions on stress can't change the permanent status SELYE calls the situation **phase of exhaustion**. This is the long-termed activator of helplessness and depression and subsequent psychical and physical diseases.

10.2.1.2. Rough classification of stressors

3 great groups can be pointed out:

- **psychical stressors**, divided in intra-psychical and psycho-social ones,
- **physical pressure and diseases** (corporal overloading, deficit of food, water or oxygen, disturbance of developments) and
- **physical, chemical and biological disturb-factors**.

Psychical stressors are deep accidents in life (death of a near person, hard diseases, wars or catastrophes), permanent conflict, fear, disappointment or physical violence and aggression in family, school or publicity.

In the **Industrial Countries** belong deadline pressure, treatment at work and in family, fears of loosing work and more and more bad social and economical status to these sorts of stressors.

In the **Development Countries** are violence, missing food, not existing clear water and diseases like AIDS or malaria the main psychical stressors.

Physical stressors are UV-radiation, heat, frostiness, mechanical strain or noise.

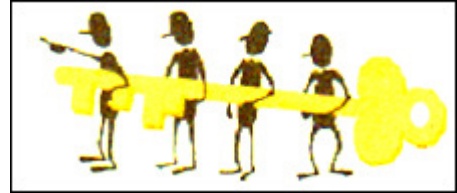
Chemical stressors are

- reactive oxygen species (ROS) as product besides the metabolism in the cells or out of signal-cascades
- defect of oxygen, heavy metals, toxins, smoke of cigarettes or particulate matter.

Biological stressors are bacteria and virus, as source of infected diseases.

Stressors can be also **not-infecting diseases** like cardiovascular diseases, neurodegenerative diseases or cancer.

So we have a rough overview of our modern „enemies“ or - spoken psychically - “the evil spirit”. Against these we have to fight.



10.2.1.3. Possible follows of stress

In the paradigm of stress after stress always follows:

- **completion (coping)** in the reaction on stress, this leads to a feeling of success and joy (eustress)
- **remaining stress**, because the sources are not found or can't be removed: humans try to complete stress consciously and unconsciously
- **trauma** is a very intensive stress: the person suffering on this should talk about his experiences as long as every minimal fact can be understood and is replicable in mind with low emotion. Only so a trauma can be healed. If in circles of friends, in families or in genuine therapeutically dialogs with a psychotherapist a healthy status can't be found bad follows increase. Posttraumatic stress syndromes bring psychical and physical diseases, which only can be reduced, in rare cases healed with chemical and corporal methods.
- **permanent stress**, a stress that can't be completed or coped (distress). It causes psychical or even physical disturbances and diseases. In such cases only a medical therapy can help.

10.2.1.4. Research of stress

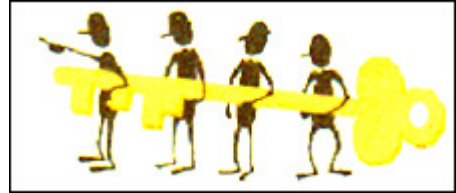
With scientific research of stress humans react to new increasing sources of stress (stressors) in our more and more technical world. This scientific branch is still necessary and very important.

In scientific completion it' to say that in presence main parts of this science come from tests with animals. The stuff is so great and detailed that an own study can be necessary.

Here only the top paradigmatic structures are written down. But these are all empirically, biologically and scientific proofed.

The stress-paradigm can be seen so as an abstraction of a big amount of biologic, medical, psychological and psychoanalytic data.

Who wants to go deeper in this science may look at (16).



11. Synenergetic self-regulation acc. to Prof. GROSSARTH-MATICEK

Prof. GROSSARTH-MATICEK has written down in his book „**Selbstregulation, Autonomie und Gesundheit** (17, p 12, 13, 14)“ some ontogenetic facts, which can appear in every individual and social environment of humans. They are really very interesting. He interviewed in the years 1973-1978 about 1600 test persons. 15 years later he researched the medical status of health at all his test persons. All was made with scientific correctness.

11.1. Aspects of observation of his terminus „self-regulation“

The communicative relevance of behaviour: How does a person communicate with an emotional important fellow? Is he/she expecting an attention, which he/she doesn't get? Has he/she a necessity of distance, which is not realized? And so on...

The level of emotional-cognitive control: Which experiences, conditions, factors and so on lead his/her behaviour in a certain direction? For example, can dolorous experiences of restriction out of childhood create a behaviour that intends closeness to idealized persons?

Qualities in the emotional-cognitive summary of education: Which tendencies of behaviour happen in the subjective experiences, for ex. the panic fear of being left alone?

Communicative relevance in the function of the central and peripheral systems of nerves: Is a person dominant controlled by feelings or intellect? Exists a remaining conflict between emotional or rational stimulation, which can proceed into ambivalence for instance?

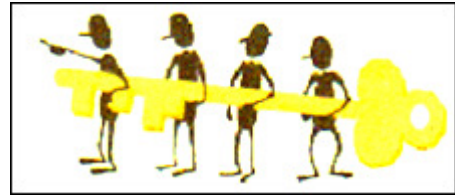
Subjective experienced and objective happened consequences of systems of behaviour and typical reactions on happened followings: Does a person repeat a behaviour that leads to negative followings without being able to react flexible?

R. GROSSARTH-MATICEK could show that physical and psychical **risk-factors** can enforce themselves very much at the beginning of diseases.

11.2. These risk-factors

At the beginning of multiple sclerosis and malignant brain-tumours following five factors play important roles in interaction:

- The stimulation and activation of emotional **proceedings that overrun persons**, which are not able to control their feelings.
- Apathical but **very strong rational attempts to control their emotions**. The threatening or not satisfiable emotional expectations should be suppresses by rational considerations.



- Out of rational-emotional conflict resulting **hopelessness** and the feeling of no chance.
- **Chronicle blocked self-regulation**, that means that a person is not able to develop fitting behaviours, which lead to satisfaction of needs or integration of rational or emotional functions.
- **Attention to apathical, more threatening experienced regressions** (for ex. to be spoiled and served by a not loved husband)

11.3. Results of the project

There were built two groups of test persons in nearly same amounts and average age. One group was involved in extreme risk-factors; the other one had no one. These persons had been interviewed in the years 1973-1978 and were researched in a medical scientific way 15 years later:

	N	brain-tumour	multiple sclerosis	cancer	cardio-vascular diseases	other sources of death	living long	living healthy
all five risk-factors	765	3,5 %	5,1 %	21,4 %	11,8 %	37,6 %	17,8 %	2,7 %
no risk-factors	875	0,1 %	0,1 %	7,9 %	10,1 %	12,9 %	21,3 %	47,7 %

This can be seen as clear proof for the not separateable relation between human soul and body. All readers should be motivated to keep their soul healthy, equalized and happy. Out of this comes a healthy body too.

12. The greatest values of humans

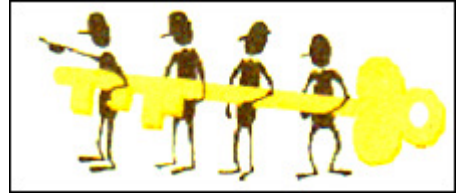
12.1. Human surroundings of life

The **legacy extended family** has got more seldom in the Industrial Countries. Unstable world of work, individual life-styles and higher mobility bring more distributed small families. Only some very clever and wise rich people try to keep all members of a family in local overseable areas.

In general today more than 3 generations of relatives (children-parents-grandparents) are seldom. Great-grandparents are very seldom.

In near future we can expect about 4 or 5 generations (great-great-grandparents).

New social proposals come in our life. Especially „**Healthy Aging**“ (from begin of retirement till begin of necessary permanent care) has to be prepared and planned carefully.



It is clever for every state, to prefer these very personal necessities as long as possible for members of own related families. Nothing is more inhuman in our modern industrial society than disturbing family-relations. Not related (only professional interested) persons can never give the same quality of care. Sometimes personal relates should get more professional knowing.

Perhaps a **public controlled and supporting model of extended families** is the best result from reflections about genuine human and wealthy values. It's interesting in a long time style to think about such future developments.

Humans who need permanent care are very much depending on fellow men. They get very easy in danger to be handled careless and inhuman. The creativity of these persons should be supported and their own ideas and desires for their own last chapter in their life should be researched and realized. Humans loose their affinity in many cases. Even these lonely persons have to have a human last chapter in their life. **Researching of Old Persons (Geriatrics)** has to be supported in a modern and new way. The actual model of old-age homes and foster homes is not very much loved by the people who live in these homes. The social mixture of all humans is very specialized to same-aged persons. New ideas to mix up more generations or bring little adventures and joys in these cases are very welcome.

12.1.1. Not healable age-generated and chronicle diseases

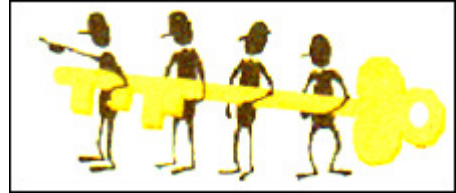
First of all **Alzheimer and Dementia** have to be pointed out. Medical sciences have made healable a lot of organic diseases and have found and deleted their sources. What is still open today? All diseases of human mind and neuronal structures of aged persons are in the scientific darkness. We have not many possibilities till now to prevent or heal diseases of our mind or nerves. What we can do is to calm down these persons, but we can't heal them. It's time to set these areas of science into the centre of health-interest.

A new danger is coming in psychopharmacas. These medical helps should not be used to influence all forms of feelings (f. ex. getting tired or happy). If we get used to these pills, we can loose our own free personality. They should be used only in real observation of medical doctors.

Here the **legacy pastoral care and spiritual guidance** have to be promoted also in present time. It's the best way to keep a healthy soul. The attractivity of religion is needed for the mass of people only in personal fateful situations. A permanent care of a healthy soul is actually not up to date. Only some social groups take care of this (intellectual groups or social groups with legacy traditions). Expensive psychologists and psychiatrists reach the same goal. But the suffering persons forget that these persons are medical helpers who heal real diseases.

Diseases of soul are coming slowly, people get „psychopaths“, exactly translated “suffering in their soul“, because they don't take care on their own soul, on religion or levels over all humans, for example eternity.

Short minded **revenue orientation and advertising slogans from consume** are used instead of soul care, because professional sell organisations use modern psychology for their advertising. It takes a lot of time till consumers realize this form of bad guidance. In present



times (2009) in broad groups of people a mental change is necessary. Let's hope that not wars, catastrophes or personal strikes of fate have to bring back mental healthiness and humanity.

12.2. Education

12.2.1. Person

Besides **evolutional** aspects of the human development (phylogenies, heritage, genetics) the human personality needs also an **ontogenetic** development (parents, surroundings of life, education, learning, individual knowledge, individual personal experiences).

Biologists defined an own terminus, the **individual distance** (9, p90). It's the free room, which every human needs around himself to be able to live his personality.

Psychologists speak about **individuum**, sociologists defined the word **identity**.

Ontogenetically both have the same sources, the birth, the youth, the growing up, the being a grown up human and the aging or growing old. In biology and in religion every human being is a „**single event**“, a **unique singularity**.

12.2.1.1. The development in early childhood

If a child is about 10 months old it realizes his own person in a mirror: if the child looks into a mirror it recognizes, that it's seeing a picture and that this picture a picture from himself.

3 year old a child gets an own self-consciousness (9,p 95): the child experiences his own will and that it can have own goals. It begins to realize his own free mind.

12.3. Culture

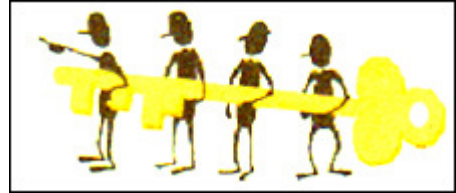
12.3.1. Tradition and ancient customs

The origin of each culture is „**cult**“, that means adoration of over-human entities in defined unchanging rituals. The purpose is to get shelter and protection from these entities.

Out of cult comes **culture**, beginning in these simple forms. It has much more goals, it can enliven every days life, bring creativity and little exiting adventures.

In rural surroundings with a small amount of humans but traditional structures of ownership over long times certain **traditions and ancient customs** have been created. They are not coming from one central brain, they where developed over centuries. But all their activities are done in personal and individual way with very much engagement. The members of such groups do their activities not only to get materialistic revenue. They do their activities in honour and voluntarily besides their normal professions. So they have a „higher“ and „more worthy“ value in their live, an own source of real joy .

Social structures in towns and cities want more **mass-activities**. These are organised and controlled by consciously „higher“ educated actors (comedians, singers, pop stars, and sport talents). They get **idols** by doing and saying that what the normal humans not can or would



do, because they lost their overview about their own life. By their commercial successes these stars or promises can get sometimes very rich and can reach an admired position in human societies.

In comparison of social structures in towns and outside the rural structures are more individual and human worthy. Only as a whole cities and towns are richer and more cultivated. Only some people understand to use both areas for life.

12.3.2. Art

In urban areas with many people and social difficult structures of ownership **art** is a conscious balance to profession and business. Fix institutions (theatres, opera-houses, museums) maintain remaining valuable human needs and cultivate them. Certain styles and contents define **fashion and spirit of time**. An own profession - the **artists** - builds her values and rules for a better life.

Rural areas are good living areas for these artists, but every evening they come into the towns to present their profession.

12.4. Human dignity

The dignity of humans is in danger by to fanatic and narrow points of view of some groups of nature scientists (for inst. some geneticists, biologists). In over-eagerness for their narrow nature scientific branch responsible scientists lose their humanity and responsibility for the whole society.

The traditional carer of human dignity is religion.

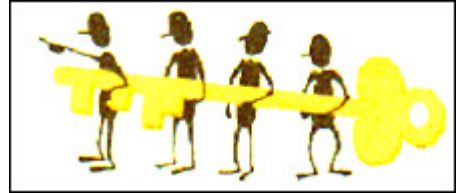
Since about 20 years public organisations and states have started to reduce their affinity to religions in order to prevent irrational differences between different religions. Modern mobility has brought this problem to nearly all countries in the world. It's very difficult to find a way for all religions in some decades. One usable criterion is the ability to keep peace and public order. In Europe we defined a new word for all these actions: **ethic**. This word should bring new abstract points of view, but the theme is very grate, it will take centuries to find a peaceful solution.

12.4.1. Artificial fertilisation and reproduction of humans (clones)

The progress of medicine and biology has reached a remarkable status since the first cloned sheep Dolly. **Ian WILMUT** generated in 1996 for first time in the Roslin-Institut near the Scotch Edinburgh out of one cell of a grown up sheep a second one with same biological properties.

Immediately science fiction authors created same theories for humans. Since that time cloning of humans is a remarkable theme for societies and communities of science all over the world.

Many states made laws against these possibilities, some say nothing about it.



Per definition medicine is judged to heal and to do this in an ethic responsible manner. Nobody can say how these themes develop in future. Jan WILMUT for himself is against cloning of humans. Dolly died in 2007 by infections. It was living not as long as his clone-original. So still animal-cloning made many new problems (2008).

12.5. Religion and Ethic

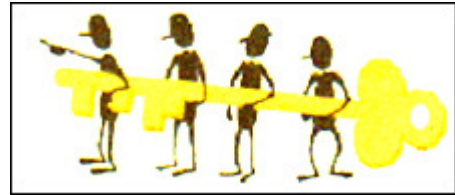
The influence of religion to the whole human society was reduced in reality since the age of Enlightening in Europe. Some scientists try to put even today religion in general into question. They forget the different goals of science and religion. Science uses and cultivates the human intelligence and ratio. That's only a part of a whole human personality.

Religion builds for the whole human personality, a mental belief into a higher loving and healing entity - t h e good. That's even in modern times in all ways of thinking not unrealistic.

In his value and followings for the society of all humans the believing into a divine entity has a higher level than the human ratio, which is always uncompleted and bordered in the actual cognitive status (8).

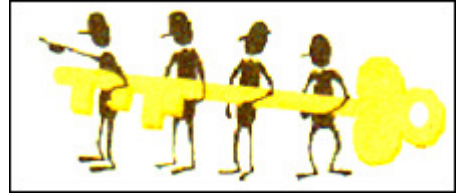
As an up to date proof the scientific statistic of Prof. R.GROSSARTH-MATICEK (17, p) can be seen. His results are sourced in interviews in the distance of about 20 years. In the chapter „Zur Psychodynamik der erlebten Gottesbeziehung“ on page 283. You can read his results.

I am sorry for the German language, but till now I couldn't find a translation or generate one for this table.



		spontan Religiöse mit ausgeprägtem Gefühl, Gott zu lieben und von Gott geliebt zu werden		materialistische Atheisten mit ausgeprägter Gottesverachtung	
		Jugoslawien N = 131	Deutschland N = 681	Jugoslawien N = 503	Deutschland N = 2794
gesund bis zum 75. Lebensjahr		80,9%	86,8%	2,2%	6,9%
Alle Ziele, die die Person wirklich anstrebte, wurden bis jetzt erreicht.	Selbstbeurteilung	89,3%	67,8%	6,8%	2,9%
	Befragung der Angehörigen*	90,8%	68,9%	7,8%	2,9%
Im Leben kam fast immer alles anders, als die Person es erwartet und geplant hatte und meistens in negativer, unerwartet ungünstiger Richtung.	Selbstbeurteilung	9,9%	10,6%	80,7%	70,2%
	Befragung der Angehörigen*	8,4%	3,8%	80,9%	82,9%
Alles Zufällige, Schicksalhafte, Spontane im Leben der Person ging in eine positive Richtung und entsprach ihrem Wesen und tiefsten Bedürfnissen.	Selbstbeurteilung	88,5%	87,2%	3,4%	7,7%
	Befragung der Angehörigen*	90,8%	85,7%	3,8%	9,4%
Die Person entwickelte innere Zufriedenheit, sowohl gefühls-, als auch erkenntnismäßig.	Selbstbeurteilung	95,4%	90,5%	3,6%	3,7%
	Befragung der Angehörigen*	87%	89,4%	3,2%	4,6%

*Befragt wurden Angehörige, die lange mit der Person zusammengelebt hatten.



The result was reached by interviews. It's clear that these may be subjective – communism is today a collapsed worldview – but it is at least very remarkable.

The **soul of humans** is in need of care and a worthy part of the whole personality. How every grown up human being manages his care for his soul is given in most cases in his education. Every human being is influenced very much by persons from whom he took his human values. Very important are also personal experiences with this “higher entity” (God). If a human being never gets positive experiences of believing in God, he never will believe in a God.

Scientific proofed is that a healthy funny soul is a good basis for a healthy body. A sick soul leads to a sick body, if the soul-problems are not solved. The results of stress-research give clear rules (look above).

12.6. The State

Already **Aristoteles** said that humans are political (5, p 230ff). We know today, that **first states began perhaps 10 000 years ago** in Mesopotamia (Babylonia) and in Egypt.

Before that time some groups of people with about 40 to 50 persons are known. They lived from agriculture and where related.

The ability to create rules for behaviour or even real laws was developed more and more. Bigger communities made possible more economic trading and political activities, but led also to wars.

Only peaceful states can develop their best survival strategy. Peace is reachable by a lawful and permanent self reorganising state only.

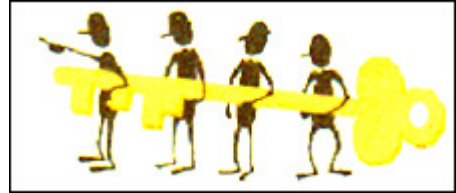
12.6.1. Actual duty of a state

Support and control of science.

Besides the legacy duty of a state today new areas in science and technology appeared. The state has to take care to prevent wrong developments. These are in present time's mainly **egoistic economic strategies**, which make only some people very rich but create much more poor and low paid humans.

The state has to set borders to protect the dignity of all humans. He has to allow only those activities, which bring advantages and healings to as most people as possible.

Gentechnology, as leading biological branch, is today very often on the edge of the human dignity. Here one example: the spending of male sperms of one single man: In 2008 in TV was shown a film about a German man, whose sperms fathered about 300 mothers by artificial fertilisation. 300 different mothers got babies from one and the same father. As the child's got grown up they heard about their special parentage. These children started to find out their real father, because they wanted to know him and tried to get in contact with him and to talk with him. Of course this father said the truth to “his” children, but he couldn't real be a good father, he said he is only the “biological father” and not more. Such situations where not known till now. The biological father and his entire child have got problems in a



pure human feeling, which was no problem before. This was a scientific medicinal success but a human and sociologic conflict. The child's have to manage an exception in their life. Nobody was thinking about this before.

12.7. Unions of States

Actual examples are the creation of the **EU (European Union)**, the braking down of the UdSSR and the creation of a new political block „**Russia**“.

The economic growing of „**Emerging Countries**“ (**China and India**) has to be mentioned in this connection too.

12.8. World community

Dividing in Developing, Emerging and Industrialized Countries

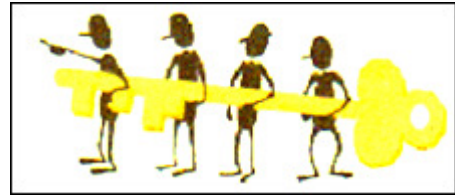
In the 18th and 19th century **colonialism** brought subjection of a lot of peoples in Africa and Asia. These peoples where economically exploited because European thought these peoples are primitive. That led to a **Self-Freeing** in the 20th century. All these countries got „free“ states in Africa, Asia and South America. But economic dependencies to the Industrialized Countries brought till now no real independent economy too. These countries have to learn to survive in the free world. The egoistic agitations of some political leaders bring till now no permanent peace and rich life to all of them, what would be possible by their natural own products. **New poorness and wars** are facts.

Charity organisations of churches and a lot of Non Profit Organisations worldwide have no political power to bring peace. They have only the possibility to bring help after finished wars and conflicts. They can only help after bad destroying and deletions of whole landscapes. They can only try to build up again on „naked, sere, burned and mine-dangered earth“ till next conflict comes.

Sadly **UNO (United Nations Organisation)** gets active too late. This organisation has the same problems as above. It starts proceeds in many cases after economic und human catastrophes. The created help is a help after happened destroying and **can't prevent conflicts** in most cases.

The Developing Countries are not able to get permanent political peace and lawful power. Nobody has a plan how to help. The peaceful and rich countries have to give autonomy and self responsibility, but these countries can't take care of these worthy values for long time.

A possible way for a solution is the animation to maintain and protect legacy traditions and values. These have to be mixed with peaceful and lawful democratic structures and lawful distribution of products, but only as the own habitants understand it and can maintain it. These countries have a lot of resources and foods, which can make them rich. It's missing an own organisation and management of politics economy and culture. The Industrialized Countries would be happy if Developing Countries wouldn't be sources of immigrants any more. A definition of geographic areas of survival and rational, free bordering of increasing amount of grows of populations can bring a peaceful coexistence. As positive example China is remarkable, which has started to regulate his explosion of population? They are in



European way of thinking too rough in connection with dignity of all humans, because they have too much of humans. But they realized that they have to do something in this direction. No continent wants to be over filled by other continents. So the continents by their own have to come to an intelligent growth of their population. Otherwise bad wars of deletion would follow.

World population in absolute numbers 1950, 2000 and 2050

	Amount of population, in Mio.		
	1950	2000	2050*
World	2.519	6.086	9.076
Asia	1.396	3.676	5.217
Africa	224	812	1.937
Europe	547	728	653
Latin America und Caribbean Counties	167	523	783
North America	172	315	438
Oceania	13	31	48
economic developed states	813	1.193	1.236
economic developing states	1.707	4.892	7.840
economic developing states without China	1.150	3.611	6.438
economic lowest developing states	201	674	1.735

2050 * are estimated values data source UNO/DESA 2003

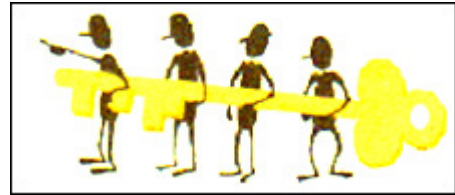
Some terms have to be added:

„economic developed states“ = Industrialized Countries = Europe, North America,

„economic developing states“ = Emerging Countries = Asia, South America and

„economic lowest developing states“ = Developing Countries = Africa.

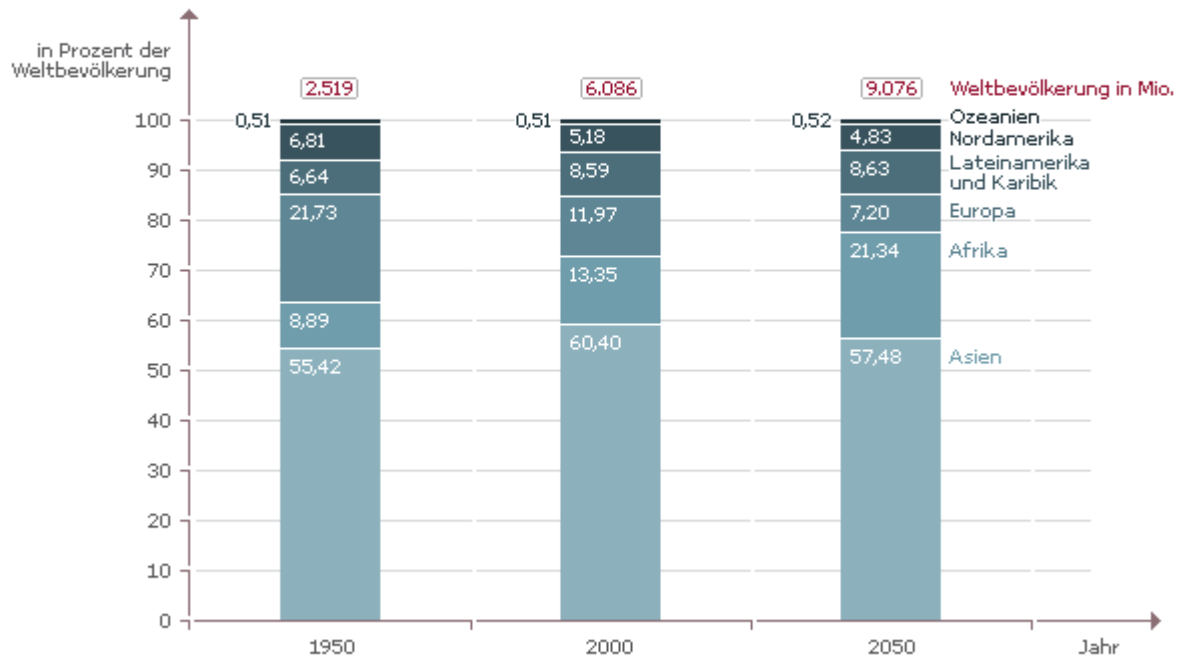
On all continents a growth of population can be seen. In Europe we suppose till 2050 an interesting intelligent reduction - the first rational reaction to the worldwide fast growth. We can say: Europe start with his role of legacy culture but this has a lot of existential dangers too. So we have to be careful in future.



World population, diagrammed in percents (German only)

■ Bevölkerungswachstum nach Regionen

Anteile an der Weltbevölkerung in Prozent, weltweit 1950, 2000 und 2050



Quelle: UN/DESA: World Pop. Prospects: The 2004 Rev., World Urb. Prospects: The 2003 Rev. Stand: 06.2006  © 2006 Bundeszentrale für politische Bildung

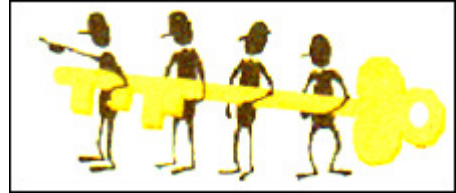
This **numeric statistic** is a genuine countage of all people of the world. No cultural, economic or historic facts are included. An inhabitant of the woods around Amazonas has in this statistic the same value as a general director of a North American or European firma in industry.

Thus a global status can be seen. It's interesting and creates in all peoples of the world different ways of thinking and orientations of their future activities.

The flexibility of **Asia** is an example for new own rational activities of their peoples. On this way new hope for a peaceful coexistence on the planet earth is coming up.

Interesting are the genuine numbers about **Africa**, a continent that seems to create his own actual rules. The worldwide humanship hopes that this community will find a rational solution for his own rapid growth of people. Now (2009) only natural generated diseases (f. ex. Aids) or inhuman wars between single clans can minder the amount of African people. Only some African states are able, to follow permanent and peaceful goals. The age of colonisation from other continents is over. So remains a very enthralling observation of all thinking people over the world about Africa.

A possible way in direction peace can be the ideas of Prof. MOOR (15, p48). He recommends the organisation of public structures like the **legacy human clan structures**. A conscious maintenance of clan forms till highest communities can be a chance. Of course



some generations of humans have to learn how to realize such a concept. But so the insensible fixing of borders of states - coming from time of colonisation - can be changed in peaceful natural regions of legacy clans.

Similar ideas could bring permanent peace also in the actual (2009) war areas Iraq, Afghanistan, Pakistan. There also a general solution for peace is missing.

Very remarkable is the genuine percentual loss of share of the inhabitants of the **Industrialized Countries**. In the years 1950 about 30 % of all humans where „industrial“. Now(2009) about 12% of the worldwide people come from Industrialized Countries. These naked numbers are very important for Europe und North America.

Two possible explanations can be given:

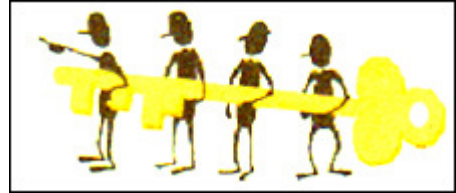
- a) The Industrialized Countries in the last years got unable to dominate their life, they got easy-going and consume- and pleasure orientated. They lost enduring values as frugality, community, love of the next humans, ethic, moral and religious care of soul.
- b) They are examples of intellect and bring their participation in a peaceful and successful future life on one planet.

Who can decide, what's the truth?

The genuine **chance for survival in the Industrialized Countries** is not only founded in the scientific and economic ledge in front of Developing and Emerging Countries, but also needs a conscious and careful handling of theses advantages. Europe and North America have to learn, how they can guide other continents in peace. Pure egoism, looking on own profit and intellectual arrogance can bring only genuine distrust and a big conflicts.

The numbers of population build a great disadvantage for the Industrialized Countries which can force us to give something from our treasures. Only by sociological reasons (will to survive, materialistic rescue, social and humanistic illegality) we would get in danger to be conquered or overflowed by the people of Developing and Emerging Countries. A warning signal was the 11th of September 2001. That date shows how damageable and dangerous a one-sided leading role is.

The timeless, on eternal values orientated religion gives us rules enough, but we don't take care of them and live further in our egoistic fight for work and shallow consume orientation. How we can make religion up to date again and put it there where it should be, on the top of all scales of values? In a strategic view of our future only this reflection can help us and make us remarkable. We have to learn to separate politics and private human dignity. We don't have to sell our souls to the public, we have to cultivate our souls very private.



13. Rounding

One name for the 21st century is found, it's called the **Age of Information**. Besides a second typical new property of time brings another name: the **Age of Globalisation**. The growth of **mobility** by modern means of travel like cars, railways and aeroplanes brings the fact that bigger and connected economy structures are created. In the age of colonialism new sources of basic materials and working power (slaves) were detected, today we recognize – a little bit more human, but not yet real humanistic - mainly **new cheap possibility for production**. The Developing Countries know about their treasures (basic materials and working power) but they can't build a functionally economy upon these basics, they need the Industrialized Countries to organize it.

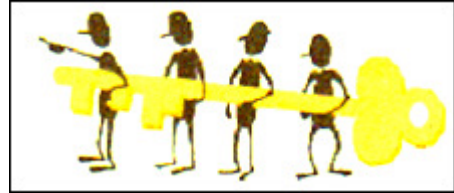
A next problem is coming on the other side. The legacy industry in Europe and North America loses its attractiveness because it **gets too expensive by their established social systems**. A new danger of poorness for the working people in Europe and North America is coming. So a new broad border between the poor and rich can come, as at the beginning of industrialisation in the Industrialized Countries. Only a consciously support of the middle-levelled social structures between the poor and rich by good and high qualified education is able to prevent these **new slums in the Industrialized Countries**.

This problem is now not solved any way. In 2008 in the Industrialized Countries was a crisis of economy, finance and industry. We have to think about a new science, sociology. The three parts of economy (capital, production, humans) (11) are disturbed. Capital has started own developments **and is suffering on a genuine human value - the not-confidence**. This morale ethic deficit has been signed out as the source of this latest crisis.

Finally all humans only can be led into peace by permanent thinking about **legathy ethic values**.

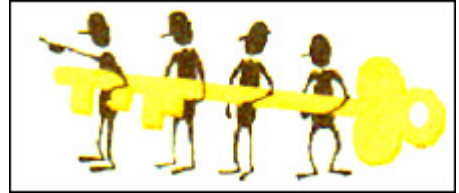
The numbers of population of the whole globus have reached an extreme status. The territories are not more expandable!

➤ **We can't make our Earth greater - only more ethical!**



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