Prof. Enderlein's Research in Today's View

Can his research results be confirmed with modern techniques?

by Dr. Peter Schneider, Germany

„The best physician in us is love"
Paracelsus

The Modern View of Evolution

Questions regarding the origin of life are as old as humankind and each era tried to find an answer to this questions with the tools and means available at the time. Thus, evolution theory is also a central topic in modern science, uniting all areas of biology. The modern concept of evolution is basically not hard to understand; but many scientists still have great difficulties in integrating this concept into their work.

One major mistake, according to Colby, is the continuing assumption that the various species developed upwardly in the form of an "evolutionary ladder", from bacteria through lower and higher animals to, finally, man. Thus, man is the crown of evolution. This evolutionary theory basically goes back to the British student of natural sciences, Charles Robert Darwin *(1809 - 1882)*. He developed the concept of natural selection which, in a long lasting process, leads to changes through adaptation *(evolution)* and to the formation of all forms of life. His works greatly influenced biology and geology and even put their mark on the history of human thought.

However, according to modern thinking, evolution rather constitutes the changes in a gene pool over time. A gene is the unit of a genetic information which can be passed on unchanged over many generations. A gene pool is the sum of all genes in a species or a generation. At the present time the human genome is close to being fully decoded. This was driven by the expectation that it should finally be possible to detect diseases in a population in an early stage and to cure them by appropriate genetic corrections. Newest results in microbiology and laser microscopy, however, show that the DNA and RNA molecules, the chemical carriers of the genetic information, are not rigid biochemical structures that can be manipulated easily, but rather laser-active media *(Hartmut Müller, Raum & Zeit, 109, 2001, page 55)*. They generate optical holograms which are in resonance with electromagnetic fields of the earth, moon and galaxy and control both protein synthesis and embryogenesis.

This really means that the evolution of bacteria, plants, animals and humans always proceeds in a relationship with the earth and the overall universe. It shouldn't therefore come as a surprise that a renowned scientist such as Carlos Bustamente from Berkeley University is searching for "the work of God as an intelligent designer" in Coli bacteria.

Darwin's concept of evolution from two centuries ago is, of course, totally inadequate as a model for explaining these relationships. In the cultural-anthropological view society at that time was in the machine era *(1st and 2nd Kondratieff cycle, see figure 1)* which quite naturally led to a mechanistic explanation of evolution.

As the figure shows our society right now is in the transition from the information age into the 6th Kondratieff cycle. The foundation for this event which

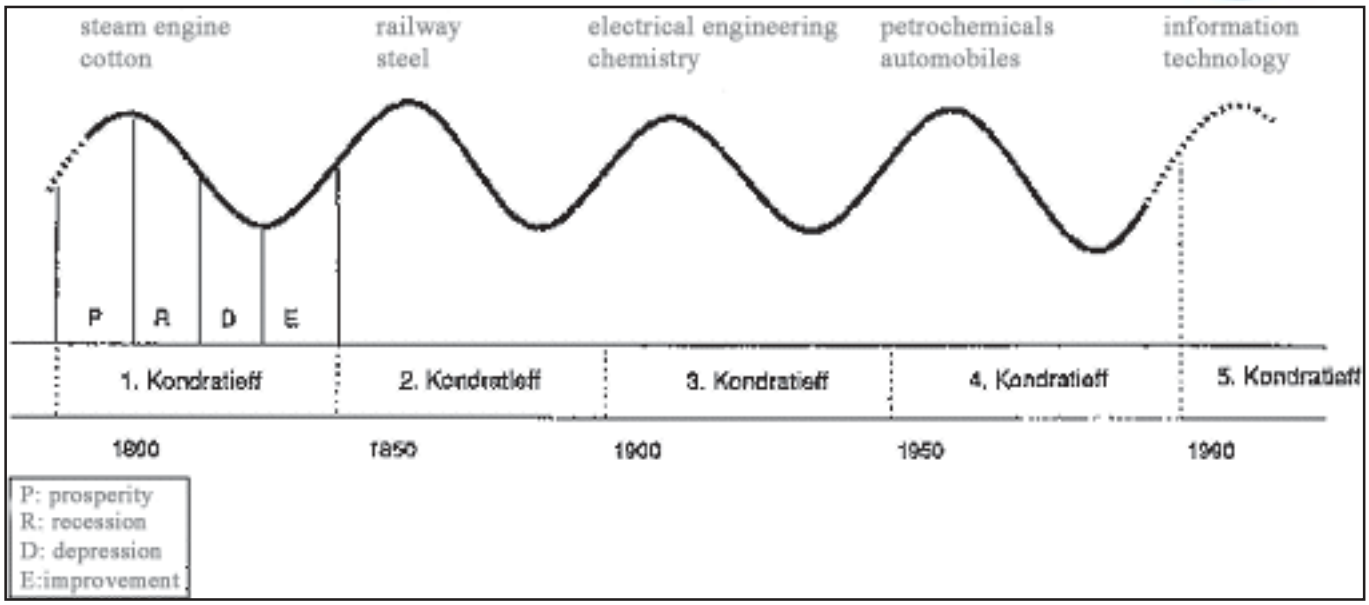

Fig. 1: The long waves of economic activity and its base innovations. (source: L.A. Nefiodow, The fifth Kondratieff: Strategies for the structural change in the economy and society. Frankfurt am Main and Wiesbaden, 1991)

enhances symbiosis and includes all of society, according to Nefiodow, will be the development of psycho-social and mental potentials - something immaterial in an increasingly material economy. The development of mental-energetic potentials in the new Kondratieff will decrease destructive behaviors and, at the same time, increase productivity in information management and improve cooperation, health and well-being. The modern theory of evolution therefore agrees exactly with this transition.

Prof. Günther Enderlein conducted his morphological studies approximately 100 years ago, in the transition phase to the 3rd Kondratieff. This was the era of chemistry and electrical engineering. Beyond microscopic methods and laboratory procedures for cultivating microorganisms there were hardly any other instruments available that would have made it possible to do research as we understand it today. However, already at that time, a darkfield microscope was standard equipment in any larger microbiological laboratory. Even now, we are still surprised about the relatively simple means with which researchers at the time obtained many pioneering results which only today, with our modern laboratory methods, can be scientifically investigated and understood in detail. From the surviving research protocols of the time we can only imagine the great intuition and the hard work of these researchers.

Only after the fundamental research performed by the British biophysicists Francis Crick, Maurice Wilkins and Rosalind Franklin as well as the American biochemist James Watson which, in the early 50's of the last century, led to the discovery of the general DNA structure, became an analysis of the genetic correlations on the molecular level possible.

Theory of Endobionts

A significant result of Enderlein's research was the finding that there is a symbiosis of micro-organisms in the human and animal body which he termed "endobionts". Enderlein was very well aware of the fact that this designation could be no more than a summary term for a variety of very different microorganisms. Without mentioning Enderlein as originator the endobiont theory has been increasingly confirmed over the last 20 years, among

others by means of modern molecular biology methods, and already forms a constant part of the content in many English textbooks. The modern term coined by Prof. Max Taylor of the University of British Columbia, Vancouver, Canada, is "serial endosymbiont theory" *(SET)*. The genesis of this term and the correlations are described in the recommendable and descriptive book "Symbiotic Planet - A New Look at Evolution" by Prof. Lynn Margulis (Perseus Books, 2000).

The serial endosymbiont theory says that unicellular organisms, plants, fungi, animals and humans are the product of a symbiogenesis - this is formation of new organs and organisms by symbiotic fusion - of at least two to four life forms. This minimum number could be confirmed by extensive genetic investigations. The nucleocytoplasm, the base substance of cells, originates from archebacteria, and most of the protein-synthesizing metabolism is derived from thermoacidophilic bacteria. The aerobic mitochondria formed from bacterial symbionts which we call "purple bacteria" or "proteobacteria" today. And finally, chloroplasts and other plastids from algae and plants were once free-living cyanobacteria. Back at around 1950 Hugo Schanderl already succeeded in retroculturing the original symbiontic bacteria from mitochondria in the laboratory.
With modern laboratory methods it is possible to show the existence of a large number of vastly different endobiontic guests in the cells of the human body, in addition to the bacterial forms already mentioned. These organisms are mostly present as "cell wall deficient forms" *(CWD)* and are not detected by routine microbiological methods. Thus, about 30% of healthy people were found to be carriers of endobiontic types of bacilli in the erythrocytes; a recently published study in Canada also found evidence of genetic material from bacteria of the pseudomonad type in erythrocytes of healthy donors *(Richard McLaughlin "Naturally-occurring Pleomorphic Micro-organisms in Human Blood", published in "Pleomorphic Microbes in Health and Disease", Holger N.I.S., Inc., 1999).*

Already one hundred years ago Enderlein directly observed CWDs in the darkfield microscopy images of blood. According to findings of newer microbiological research the still common teaching that human blood and tissue are sterile must be regarded as being outdated.
Symbiogenesis cannot be looked upon as a static, closed event but it still proceeds today in a very dynamic way by continuously channeling the DNA and RNA of microorganisms in and out of body cells. Especially in today's age of globalization more and more people are in continuous contact with new microorganisms with which a busy exchange of genetic material occurs. Whether and to which extent this material is integrated into the human genome always depends on the milieu situation of the human host, on the infective pressure of the microbes and, in particular, on the resonance with the above-mentioned electromagnetic fields.

In this context the genetic modification of microorganisms, a widespread practice today, must be viewed very critically. It is performed on an industrial scale, e.g. in the food or pharmaceutical industry, to imprint new properties onto bacteria. It cannot be excluded with certainty that the modified genes will be permanently integrated into the genome of mammalian cells, with unpredictable results.

In addition to the apathogenic, endobiontic bacterial forms which peacefully coexist with the host to both partner's advantage there is a variety of pathogenic microbes that can also be present as cell wall deficient forms. The reason for the formation of such forms is always found in blood and tissue milieu shifts. Relevant background information and therapies are described in detail in the article "Die tuberkulinische Konstitution als gemeinsame Ursache chronischer Erkrankungen und ihre naturheilkundliche Regulationstherapie" *("The tuberculinic constitution as common cause of chronic diseases and their naturopathic*

regulation therapy") published in *SANUM-Post No. 51, pp. 4-18.*

A comprehensive review of apathogenic and pathogenic CWDs and their significance is found in the textbook "Cell wall Deficient Forms -Stealth Pathogens" by Lida Holmes Mattman *(CRC Press, 3rd edition, 2001).*

Pleomorphisms of Bacteria

Without doubt Enderlein's discovery of the "pleomorphism" *(polymorphism)* of microorganisms was his most controversial for many decades. Enderlein coined this term based on his then observation that bacteria and fungi presented in the darkfield microscope in a variety of different forms. Even today conventional teaching often holds the view of two centuries ago that microorganisms can only exist in unchangeable forms.

However, conventional clinical-microbiological research, in particular over the last 10 years, realized more and more that the pleomorphism of microorganisms holds some very important aspects with regard to diagnosis and therapy of many chronic diseases. These studies also revealed that pleomorphism follows certain patterns. Such regularities, e.g. the development cycle of bacteria, have already been described in detail by Enderlein in his major works "Bakterienzyklogenie" *("bacterial cyclogeny")* and "Akmon". However, even today, it is still very difficult to reproduce them on the molecular level in the laboratory outside the living host organism.

Starting point for Enderlein's research was the observation of the French chemist and pharmacist Antoine Béchamp in the 19th century that, under well defined conditions, certain microorganisms can be present in different forms and development stages, from lowest grades up to the large, highly developed stages of bacteria and fungi. He found that all animal and plant cells contained tiny protein grains *("microcymas")* which did not perish after the death of the organism itself and were the reason for the fermentation, and also that other microorganisms could develop from them. These microcymas were thought to be in each living being, in humans, animals and plants, to be eternal and indestructible and to constitute the transition between non-living and living matter. Given some specific or pathogenic influence these microcymas could develop into bacteria with putrefacient and fermenting properties. Thus, the origin of diseases would lie primarily inside the body.

Enderlein later called these protein grains "protits". Starting from such a protit, microbes go, according to Enderlein, through a species-specific cycle. He coined the term "cyclogeny" to describe the changes and migration of pathogenic and apathogenic microorganisms through all phases *("valencies")*, starting below the limit of microscopic visibility, the realm of viruses, through the higher-valency phases of cocci and rods, up to the "culminant" phases of the fungi. The bacterial nucleus *("mych")* is of particular significance. Even though it was known already before Enderlein's time its function was not properly interpreted. According to the "anatartic fundamental law" formulated by Enderlein the increase in the microorganisms' valency depends on the prevailing milieu in blood and tissue which is primarily determined by the pH value. Bacteria can multiply either asexually by division or budding *("auxanogeny")* or sexually after a preceding nuclear fusion *("probaenogeny")*. According to Enderlein sexual propagation is always the prerequisite for phasal upward or downward development.

More recently Christopher Gerner, assistant at the Tumor Research Center Vienna, has tried to biochemically characterize this protit. The results of this research were published in "Curriculum oncologicum" 01 and 03, year 7, 1997. As starting material for his studies Gerner used 10 ml of blood from the vein of a fasting patient. To destroy the erythrocytes 2 ml of blood were mixed with 4 ml of distilled

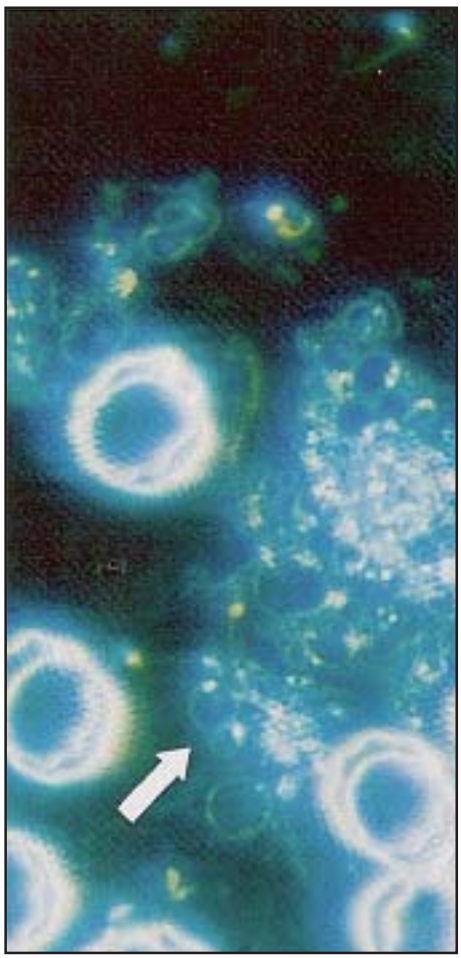

Fig. 2: "Mychits" in the darkfield microscopy image (from Bleker, M.-M.: Blutuntersuchung im Dunkelfeld nach Prof. Dr. Günther Enderlein (Blood examination in the darkfield according to Prof. Dr. Günther Enderlein), 2nd edition, Semmelweis, 1997)

water and thoroughly shaken. The hemolysate was then incubated for 3 days at 37ºC. The residual 8 ml of blood were left at room temperature. Then the samples were centrifuged and 1 ml each of hemolysate and blood serum were mixed. This mixture was filtered sterile and again incubated at 37ºC. Darkfield microscopy then showed small grains which the author classified as being identical with the protit observed by Enderlein. Then the alleged protits present in this material were purified and subjected to a thorough biochemical analysis. Gerner determined globin, a degradation product of the erythrocytes, as being the main constituent of the alleged protits. This result is not surprising, however, since such degradation products of erythrocytes have been known for a long time as so-called "Heinz bodies". They probably formed in the incubation of the hemolysate and therefore have nothing to do with the protits according to Enderlein, as the lowest development phase of microbes. At least the author did not present proof of a development of microbes from the observed "darkfield bodies".

Modern microbiological thinking classifies the structures termed protits by Enderlein as probably being "nanobacteria". Nanobacteria were discovered by the Fin Olavi Kajander, University of Kuopio, only about 10 years ago. These organisms which can grow both inside and outside of mammalian cells show a diameter of 0.2 to 0.3 ìm and are thus as small as viruses; being able to withstand temperatures of 90ºC for 1 hour, they exhibit a remarkable thermostability. They produce biogenic apatite, a major constituent of our bones. Analysis of their genetic structure points to them being proteobacteria. As already mentioned above these endobiontic bacteria gave rise to the mitochondria of cells a long time ago. Therefore the protits observed in the darkfield image which, by the way, are present in blood in huge quantities after eating larger amounts of meat, probably represent agglomerations of nanobacteria from the mitochondria.

The primeval cell was called "mychit" by Enderlein, and it contains one nucleus *("mych")*. The mychit is of spherical form with the nucleus being positioned completely or nearly completely against the wall. The following darkfield microscopy image *(figure 2)* shows an agglomeration of such mychits in

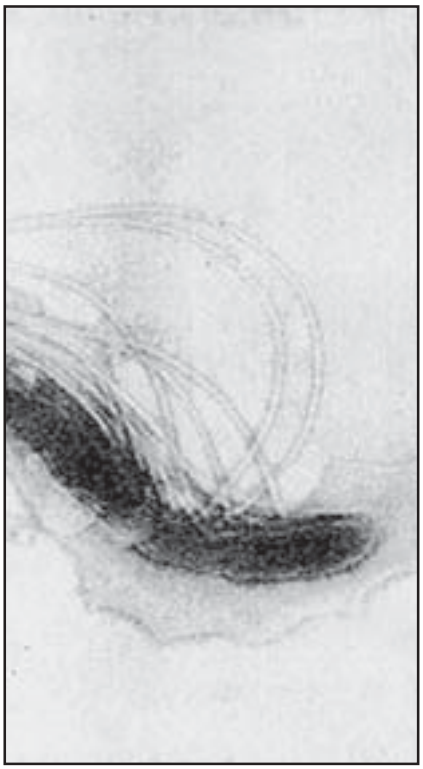

Fig. 3: Blebs from Borrelia burgdorferi (from the internet site: www.lymenet.org)

In 1996 Preac-Mursic et al. published, in the journal Infection, a corresponding scanning electron microscope image (figure 4) which W. Burgdorfer presented as figure 14 in "The Complexity of Vector-borne Spirochetes (Borrelia spp)" at the "12th International Conference on Lyme Disease and Other Spirochetal and Tick-Born Disorders", NewYork City, April 9-10, 1999.

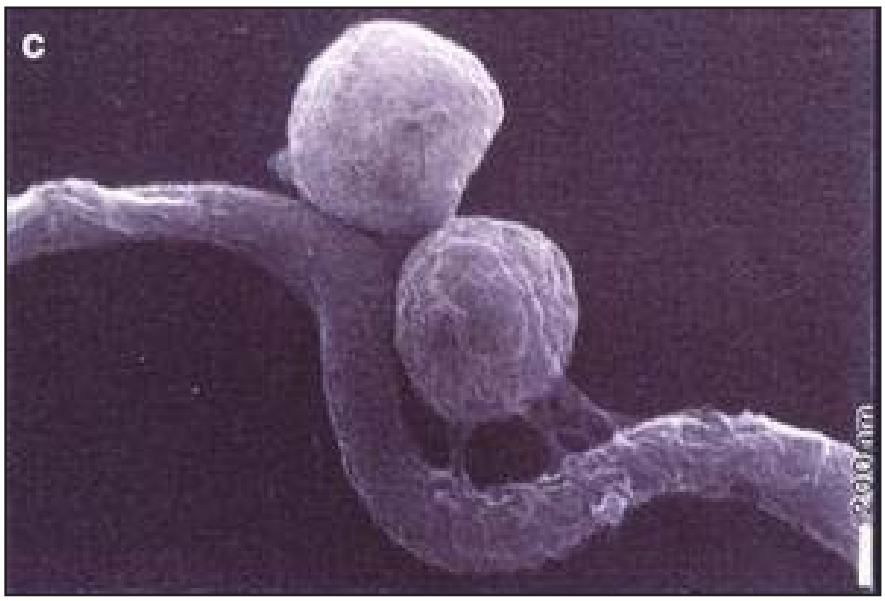

Fig. 4: Mychits from Borrelia burgdorferi in the scanning electron microscope image

blood serum.

According to the new microbiology nomenclature these structures belong to the "cell wall deficient bacterial forms" *(CWD)*. They have been very extensively investigated by conventional microbiology in the last few years, in particular in the context of chronic borreliosis (Lyme disease). They can detach from the *Borrelia* and are then called "bleb" *(figure 3)*. Blebs can be of highly variable size and were detected for other pathogenic bacterial forms as well.

Borrelia burgdorferi (Bb) was cultured at 33ºC in the modified Kelly-Pettenkofer culture medium *(MKP medium)*. The image was taken 48 hours after addition of penicillin: two sphere-like bodies are attached through a weak connection to the spiral of a *Borrelia* organism. *Figure 5* gives arepresentation of such a structure.

The very thin wall *(relative to gram-positive bacteria)* of the CWDs is no barrier for the passage of small molecules such as antibiotics whereas the outer and the cytoplasmic membranes very actively determine the permeability.

- The outer membrane forms a barrier for â-lactam antibiotics.
- â-lactam antibiotics bind to penicillin-binding proteins (PBP) and the â-lactamases of the outer membrane.
- The targets of all other antibiotics are inside the cyctoplasmic membrane. Bacteria can develop resistance against these agents by preventing an agglomeration of the substances inside of the cytoplasmic membrane.

Chronically ill patients, especially those with neuroborreliosis showing the clinical symptoms without an increased antibody titer in the blood serum, are a big problem in borreliosis therapy. Unfortunately these patients are often accused of simulating the disease. Conventional wisdom says that an antibiotic therapy makes little sense in these cases.

By incubating *Borrelia* in the laboratory with spinal fluid the bacteria mutate within 1-24 hours to cell wall deficient mychits. By further cultivating the mychits in normal medium they revert within 9 -17 days back to "normal" *Borrelia* forms *(Brorson and Brorson, 1998)*. Cell wall deficient *Borrelia* forms can persist in the organism for long periods of time. The cell wall dependant antibody titers disappear with the formation of mychits, e.g. after antibiotic therapy. After having reverted back to the normal bacterial forms the corresponding titers reappear *(Mursic et al., Infection 24,*

1996, pp. 218-226).

SANUM Therapy of Borreliosis

An important goal of the SANUM therapy of borreliosis is the regulation of the cell wall deficient *Borrelia* forms with the haptene preparation SANUKEHL Brucel. The mode of action of the SANUKEHL preparations is described in SANUM-Post No. *54, pp. 2-6.*

At the same time a naturopathic therapy of borreliosis must also regulate the energies of the congested meridians. Very often a meridian congestion can be recognized by the localization of the tick bite and the usually visible erythema migrans that follows.

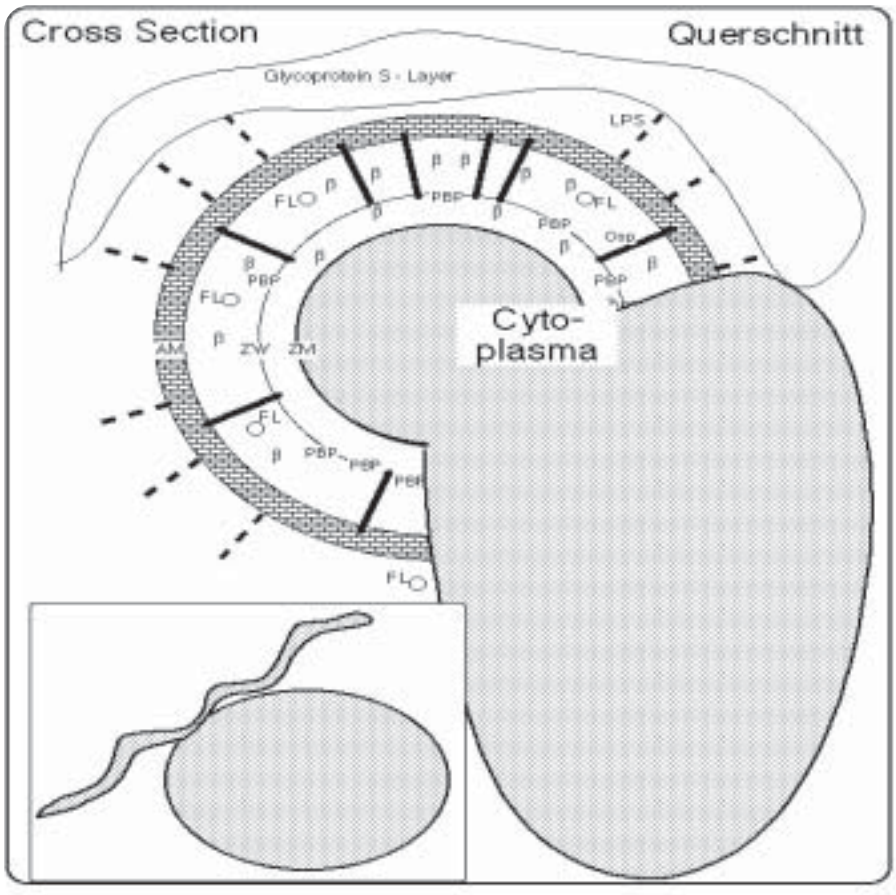

Fig. 5: Representation of a spirochete with bleb (= mychit); top view (bottom left) and cross section (according to Preas Mursic et al., 1996, ("Two spherical bodies adhering to the middle of a Borrelia organism") and Brorson and Brorson, 1998). The surfaces outside the cytoplasmic membrane, that is the cell wall (ZW = cell wall), and the outer membrane (AM = outer membrane) are dissolved by endogenic bacterial lysozymes (dissolving enzymes) during growth. If, through the use of penicillins or the action of the immune system, theequilibrium between bacterial dissolution and reconstruction is disturbed, cell wall deficient forms develop where the cyctoplasmic membrane (ZM = cytoplasm membrane) and the flagella become visible from the outside (from the internet site:www.lymenet.org).

Ticks and blood-sucking insects are known to be very eager for the vital energy found in a congested meridian.

- for alkalization ALKALA N Powder daily
- 2 x weekly one injection of NOTAKEHL 5X i.v.
- daily in the evening 8 drops of SANUKEHL Brucel 6X (take 4 drops and rub in 4 drops simultaneously)
- in addition once weekly 1 capsule of LATENSIN alternating with RECARCIN and UTILIN "S" (start each with the 6X and move up after some weeks as required to the higher strength 4X)

(modified treatment according to HP Günther Witt)

Enderlein's view of this relationship

Apart from the now established pleomorphism of bacteria another feature of Enderlein's theory is the relationship of bacteria to fungi.

According to Enderlein colloids of the fungi strains *Mucor racemosus* Fresen and *Aspergillus niger van Tieghem*, which represent transitions to higher forms, have been living in humans and in all mammals for millions of years. They are present in healthy organisms in primitive forms which have an important regulatory function in the metabolism.

For various reasons - infection, wrong nutrition, unnatural living environment, mental depression, age effects etc. - these primitive forms can change into higher stages according to Enderlein, making them parasitic. An infestation by the parasitary phase can be detected in blood by dark-field microscopy. Then the valency of the parasites can be determined.

In over 40 years of intense research Enderlein has observed the changes and development of the parasites in their various forms, as well as their cycle. Only after he was in the position to present the biological and biogenetic basis of these parasites, therapeutic countermeasures could be developed. This led to the "isopathy" concept which said: The various higher forms observed are reduced to lower forms by appropriate medication and leave the body through the excretory organs.

Enderlein's original microorganism strains and the original formulas for his medications were acquired exclusively by SANUM-Kehlbeck company 25 years ago.

This microorganism which everywhere penetrated into the mammalian cycle millions of years ago was called "endobiont" by Enderlein. The presence of *Aspergillus niger van Tieghem* and *Mucor racemosus Fresen* in the body can be regarded as cause for a number of disorders. Whereas the

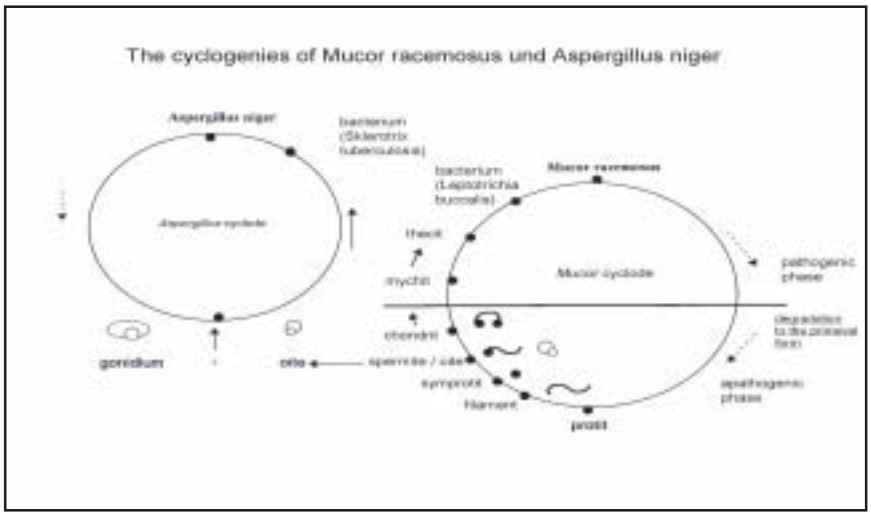

Fig. 6: Hypothetical separation of the cyclode of Aspergillus niger from the cyclode of Mucor racemosus (Arnoul, 1998; Rau, 1998)

Aspergillus phases are relatively rarely seen in a pathogenic stage - only in the tuberculous and paratuberculous diseases - the *Mucor symbiosis* as the proper "endobiosis", in its pathogenic stages, is much more often involved in the development of pathologic functions or changes. There is no warm-blooded organism which has not acquired this "endobiont" diaplacentally and harbors at least its primitive forms in its cells and body fluids for life.

According to Enderlein this fungal parasite mutates through all its development stages in the body and can infiltrate tissues and organs to various degrees. For instance, it can lead to stasis in the circulating body fluids which in turn leads to dysfunctions in various directions. The slightest impairment of a tissue or an organ leads to an increased valency of the endobiont and thereby further weakens the sick organism. This situation explains the various disease presentations seen in humans and animals. Figure 6 shows a hypothetical representation of the development cycles for these two fungi according to Enderlein.

The development process of the endobiont shows, in its primeval stage, initially the most primitive form: the colloid stage. Colloids are extremely tiny protein particles which grow and pass through several intermediate stages and then can enter into the bacterial stage. After several further stages within this development cycle, stages which can give rise to a wide variety of chronic diseases, the last stage of the cycle is the fungus and this is were the cycle starts anew. Thus, according to Enderlein, the endobiont goes through three fundamental development phases: colloid -

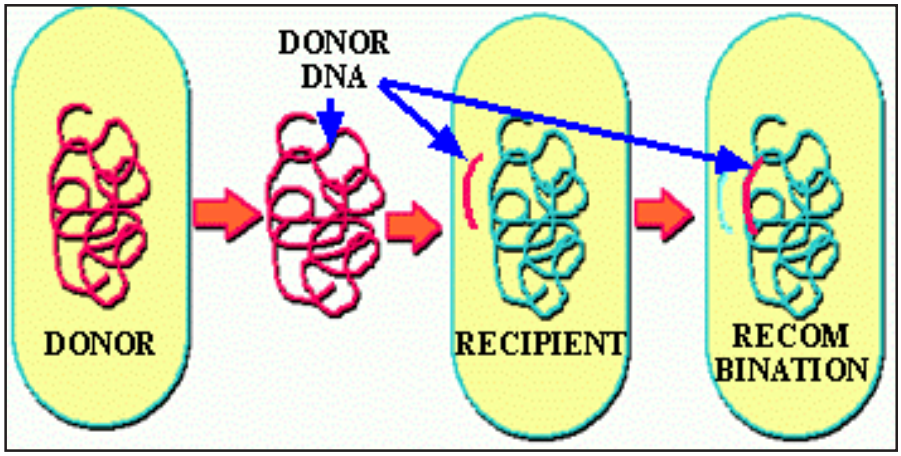

Fig. 7: Bacterial sex - bacterial exchange of DNA (from the Internet: http://www.slic2.wsu.edu:82/hurlbert/micro101/pages/Chap.9.html)

bacterium - fungus which, up to now, were regarded as independent, unchangeable organisms. Prof. Enderlein demonstrated this development process and said that all these stages together form a single common cycle which originates from the completely identical, unstructured, colloidal and motionless protein material contained in the respective cells. These protein particles of the primitive stages are in the size range of bacteriophages and viruses *(approx. 0.01 µm)*. Under certain conditions this mass can release forms that had developed in a disease-generating environment and continue circulating in the cycle. They replicate and form an endless number of different shapes and forms. They increase in size and finally develop into bacteria when the surrounding milieu changes *(in humans, for instance, by nutrition consisting mostly of animal proteins and fats).*

However, according to Enderlein, the higher forms can also regress to lower stages when the so-called chondritins *(lower, apathogenic development stages)* in the respective isopathic medications combine with the higher-valency forms. The degradation products formed in this process must be excreted by the body. If this excretion does not proceed quantitatively in case of disease an upward development can re-establish itself.

Enderlein's view of the special importance of the two fungi *Mucor racemosus* and *Aspergillus niger* has not yet been sufficiently confirmed by today's microbiological research. However, some researcher arrived at similar conclusion as Enderlein did, bases on their own research. And finally the very successful therapies with isopathic medications according to Enderlein strongly support the, at least partial, correctness of Enderlein's theory.

Pathogenic bacteria as regressed fungi

Fungi are plant-like entities without chlorophyll. They therefore cannot photosynthesize with the aid of sunlight and are dependant on foreign organic matter. In the human body, they are parasites rather than symbionts. Similar to bacteria, fungi can also be present as cell wall deficient forms. However, this is mostly an expression of a highly shifted milieu with a weakened immune defense, such as in Kaposi's sarcoma.

Some characteristics of fungi are (according to Tom Volks, University of Wisconsin-La Crosse, USA):

- They are eukaryots, i.e. they have cells with a nucleus and complicated organella such as mitochondria.
- Replication by means of spores.
- Sexual and asexual spores can be formed.
- Fungi show, similar to plants, heterogenesis.
- The vegetative body can be unicellular (yeasts) or be present as hyphen.
- The cell wall structure resembles that of plants, the composition, however, differs.
- The fine structure of the cytoplasm is similar to plants, the organellas, however, are

different.

- Fungi use exoenzymes to first digest their food extracellularly and then ingest it.
- New molecular research suggests that fungi are closer to animal than to plants.

The properties suggest that many fungi have originally been plants during the evolution. They lost their chlorophyll in the course of evolution and adapted to a parasitic life style.

The majority of pathogenic bacteria seem to belong to these parasitic fungi as well. Another important finding of Enderlein which supports this assumption was the fact that bacteria can replicate sexually. This mode of replication is, according to Enderlein, always a prerequisite for the upward or downward development of the phases.

The discovery of sexual replication of bacteria was taken up by the Americans Joshua Lederberg and Edward Lawrie Tatum, and published in 1946 in the USA. In 1958 Lederberg, together with Tatum and George Wells Beadle, was awarded the Nobel prize for medicine "for his discoveries concerning genetic recombination and the organisation of the genetic material of bacteria". During copulation certain bacteria, e.g. E. coli, transfer a small fragment of their DNA to a receiving bacterium *(figure 7)*. This recombination is the equivalent of the sexual replication in eukaryots.

Sexual replication is very unusual for bacteria since it occurs only with higher organisms. According to Enderlein it is the base for the therapeutic success with isopathic-homeopathic SANUM medications prepared from molds. As emphasized by Dr. Thomas Rau *(Das isopathische Prinzip – Medikamententestung mit Hilfe der Dunkelfeldmikroskopie (The isopathic principle - testing of drugs by means of the darkfield microscope), SANUM-Post 53, p. 9, 2000)* the degradation of the high-valency fungal forms in blood after addition of the appropriate isopathic SANUM medication can be directly observed by examining a freshly taken blood sample under the darkfield microscope.

The studies of Franz Gerlach and Hans Harmsen provide further confirmation for a core statement in Enderlein's theory that bacteria and fungi are only different representations of a specific species. *(Gerlach: "Krebs und obligater Pilzparasitismus" ("Cancer and obligatory fungal parasitism"), Urban & Schwarzenberg, 1948, reprints as 2nd edition published at Semmelweis-Verlag, 1998) (Harmsen: "Zur Morphologie der Erreger der Tuberkulose" ("About the morphology of the germs causing tuberculosis"), Klinische Wochenschrift 30, 817-819, 1952).*

Gerlach was able to show the regular presence of a microorganism in all spontaneously formed, malignant growths in humans and animals, both in the primary tumors as well as in the metastases and in recurrent growths.

This organism showed a remarkable pleomorphism: The major mass usually formed small granular forms, in the cytoplasms of cells as well. In addition there were larger spherical entities which we know call blebs and which sprouted from one or several locations along the periphery. This involved the formation of filaments of various lengths which each formed a small sphere at their free ends. In addition small granules with strand-like appendices, free filaments, ring shapes, irregular bloated forms and branched mycelia with attached granular forms were observed. According to Gerlach all these forms originated from one and the same parasitic fungus which was termed micromcyete.

When study animal were infected in various ways with pure cultures of this fungus, in most cases a general disease of the organism resulted similar to that found in the cadavers of carriers of spontaneous tumors. Clinically the disease was often not detectable and pathologically-anatomically only after thorough examination. Most prominent

were exudative processes in the large body cavities. Microscopic examination always showed tumor mycetes in pure state. The fungus spreads in the infected organism by septicemia. According to Gerlach it can give rise to a variety of diseases including bacterial infections in cattle and sheep, and it is an obligatory parasite in all malignant growths.

Harmsen also observed a prominent pleomorphism of the tubercle bacterium. The acid-fast rod form of this bacterium, nearly exclusively used for routine diagnostics even today, is just one state of many of this bacteria. These forms are highly variable and include small phases that can be filtered, vacuoles, granules, acid-labile and acid-stable rods, up to fungus-like structures with hyphen and mycelia. Dostal already noted in 1910 *(Wiener Medizinische Wochenschrift, p. 2100, 1910)*: "I now tend to think that the tubercle bacilli are the parasitic states of certain molds" *[citation from the publication of Harmsen]*.

The long persistence of the *Mycobacterium tuberculosis* DNA in normal lung tissue without histological detection was recently confirmed in a study by Norwegian researchers *(R. Hernández-Pando et al.: "Persistence of DNA from mycobacterium tuberculosis in superficially normal lung tissue during latent infection", The Lancet 356, 2133-2137, 2000)*. The tests were performed on patients who had died from tuberculosis as well as from other diseases. The bacterial DNA could be detected with genetic research methods, not only in macrophages but also in other cells. Interestingly, this DNA was not only found in all patients who had died from tuberculosis but also in approximately one third of those patients dead with other diseases. However, this included only patients from countries where tuberculosis is endemic, such as Ethiopia and Mexico. In patients from Norway which is considered as being free of tuberculosis, no bacterial DNA could be detected.

The treatment of tuberculosis and other so-called "tuberculinic diseases", such as degenerative diseases (*MS, Parkinson, diabetes etc.)* or cancers has for decades successfully included the isopathic-homeopathic SANUM preparation NIGERSAN, in addition to the indispensable milieu therapy, for instance by correcting the cell respiration, correcting the acid-base equilibrium, correcting the electrolyte balance, and immuno-modulation. This preparation was developed by Enderlein and contains colloids from the mold *Aspergillus niger*. Its activity is thought to involve degradation through copulation of the *Mycobacterium tuberculosis* which, according to Enderlein, is a highly developed phase of *Aspergillus*, by the lower development stages contained in the preparation. According to present knowledge the copulative inactivation of higher development phases by lower phases seems to be the only logical explanation for the fact that lower development forms can interact at all with higher forms.

First published in the German language in the SANUM-Post magazine (56/2001)