Bion-Biogenesis Research and Seminars at OBRL: Progress Report

by James DeMeo, Ph.D.*

Bions and the Reich Blood Test Seminars

Starting in Summer of 1996, and for each Summer thereafter, the Orgone Biophysical Research Lab (OBRL) has offered a weekend laboratory seminar on *Bions and the Reich Blood Test*. The basic discoveries of Wilhelm Reich on bions and biogenesis[1] were covered, as well as his findings on the cancer biopathy, and the specific protocols of the Reich blood test[2]. Instructors for the seminar have included Dr. Bernard Grad, Dr. Richard Blasband, Dr. Stephen Nagy and Dr. James DeMeo, who covered a far-ranging subject material: the basics of light-microscopy of living preparations, various experiments and preparations for the creation and observation of Reich's *bions* (orgone energy vesicles), the technique and interpretation of the Reich blood test, reviews of Reich's findings on the *cancer biopathy*, and the relationship of these findings to modern discoveries in biology and medicine. On this last point, for example, Reich's bions appear quite similar to the *extremophiles* and *nanobacteria* of modern biology. In medicine, *mycoplasma* and *cell-wall deficient forms* are suggestive of bionous origins, while the widely-used term "apoptosis" describes a process of cellular disintegration and breakdown into micro-vesicles appearing functionally identical to Reich's discovery of the *bionous disintegration* of cells. For these and other reasons, Reich's findings from the 1930s still attract scientific interest.

Seminar participants came from all over the world, and included physicians and other health care practitioners, university professors, laboratory technicians, and university and high school students. The quality and scope of the seminar was progressively improved with each passing year. Several excellent light microscopes were available during the seminars, plus all basic equipment necessary for making sterile preparations, including autoclave, high-temperature drying oven, and fritted-glass vacuum filtering system using nylon filter disks with 0.2 micron pore size — this is much smaller than the average bacterium or bion, which are around 1 micron in diameter.

All of the photographs presented here were made by myself with a Leitz Ortholux microscope, obtained in good used condition and fitted with top-quality planapo-

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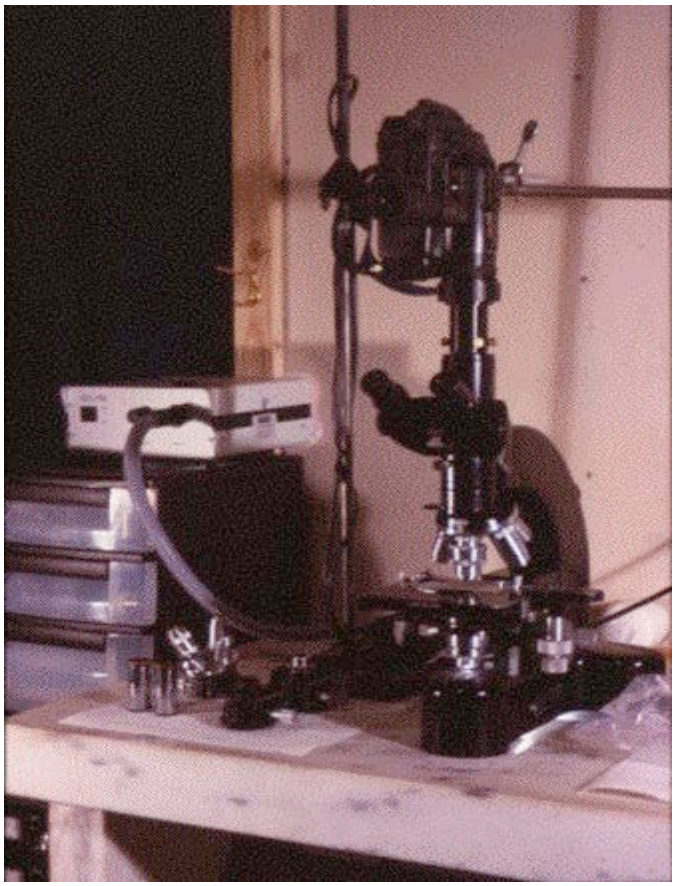
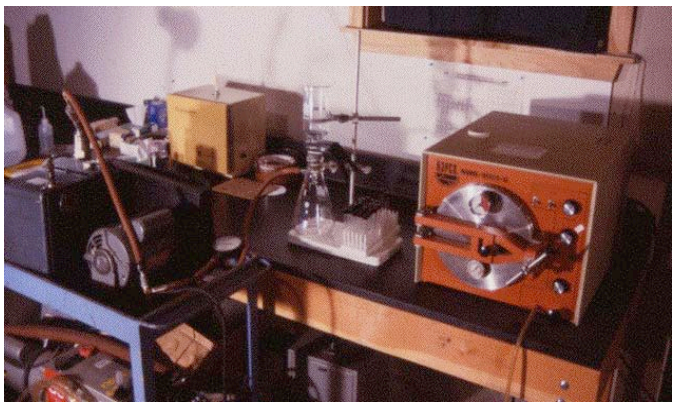


Leitz Ortholux Microscope, with planapochromatic objectives, compensating Periplan eyepieces, apochromatic condenser and halogen fibre-optic light source. Positioned on heavy marble table, with Hi-8 video and 35mm camera recording systems.



Sterilization and Filtration Equipment used for the bion experiments at OBRL.

From: *Heretic's Notebook: Emotions, Protocells, Ether-Drift and Cosmic Life Energy, with New Research Supporting Wilhelm Reich* (*Pulse of the Planet* #5), Ashland, Oregon 2002.

chromatic objectives and compensating eyepieces. These were needed to satisfy the high-magnification, true-color demands noted by Reich in his various publications on the subject.[3] The Leitz scope is capable of magnifications up to 5,000 power using a special 160x planapochromatic objective with 25x Periplan compensating eyepieces, and a 1.25 magnification lens in the central light path. A 3000˚ halogen fibre-optic light source is used with high-aperture brightfield or darkfield condensers, allowing the microscope to produce spectacular images in true color. A Hi-8 videocamera or 35mm still camera was used for documentation. All the photographs presented here were made with the 35mm camera using tungsten-adjusted film, at exposures between 1/4 to 1/30 second. Regrettably we cannot present the original color images in this publication, but they will be posted to internet.[4]

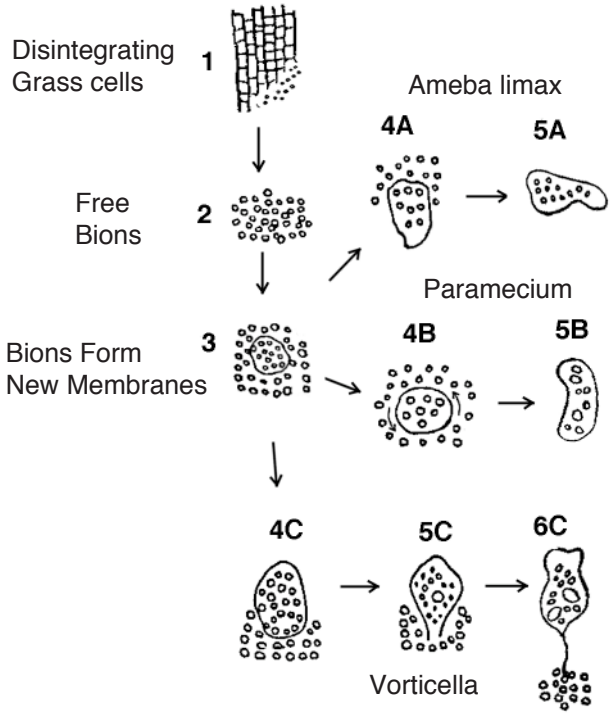
The Natural Organization of Protozoa

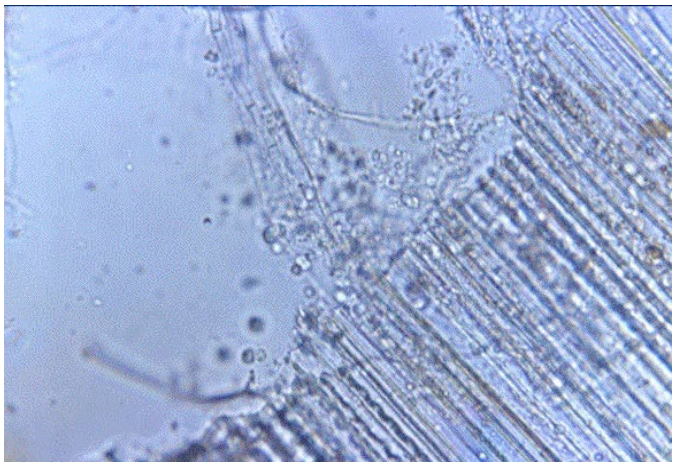
Reich's observations on the *natural organization of protozoa* (protists) have been reproduced by many different scientists and students following up on his work.[5] To refresh the reader, Reich prepared water infusions of dead moss and grass, and observed them microscopically over extended periods of hours and days, noting how the plant tissues would slowly disintegrate into tiny oval vesicles of around 1 micron diameter, which he later called *bions*. The bions would form at the edges of the dead grass; the formerly living material slowly disintegrated into bionous vesicles which would fill the water infusion, and the inner cellular materials would spill their bionous contents out into the water. The bions would show subtle movements, and had a bluish glow. Over time, the bions would form into clusters or heaps, which progressively developed new membrane structures and increasingly life-like movements. New microorganisms emerged from this process, indistinguishable from similar microorganisms in soils or pond water.

Reich's critics claimed he was only observing "air germs" and other contaminating common bacteria, cysts and spores. He countered with various control experiments which heated various preparations to very high temperatures, and which even more quickly produced bions (see the Incandescence Experiments, below). He also made time-lapse photographs of the process, demonstrating the bionous disintegration of plant tissues, with the subsequent reorganization of bions into more complex life forms.[6] Reich also noted his critics rarely looked at living organisms under the microscope, but rather dried and stained everything, killing the life process. Reich was emphatic, *one could not follow the process of bionous disintegration and re-organization by looking at only dried, fixed and stained preparations.*

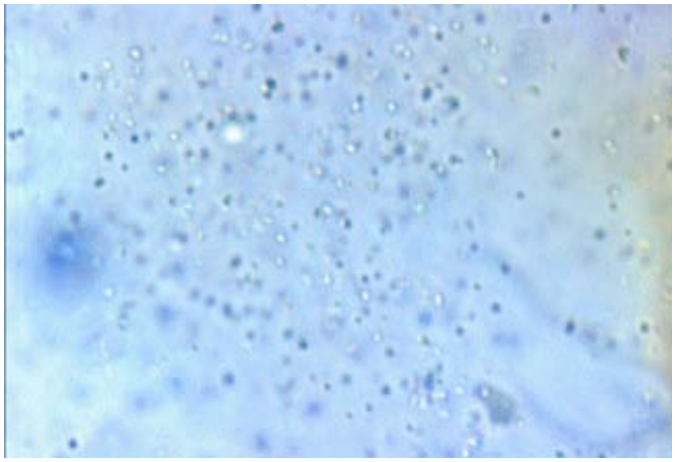
These basic observations have been made repeatedly by many individuals, though to my knowledge,

Bionous Disintegration of Grass (1 & 2) with subsequent bionous re-organization of various Protozoa (3 through 5 & 6). (after Reich[7]) Other forms are also possible.

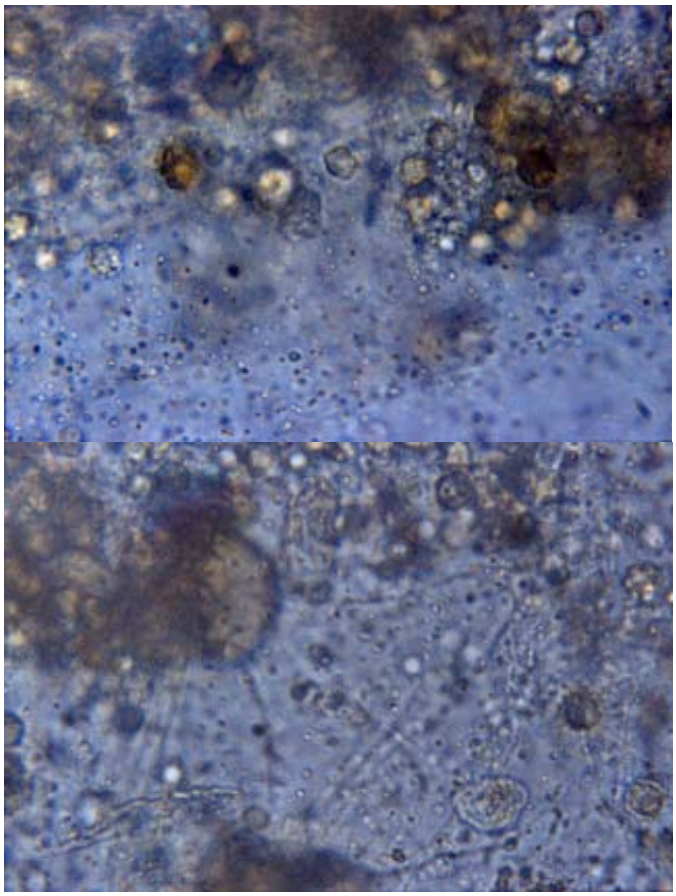




Bionous disintegration of dead grass after 3 days in water (not autoclaved). Vesicles form at the edges of the broken grass blades, and spill out from dead interiors of cells. 500x



After autoclavation, massive numbers of free blue-glowing bions can be seen in the grass infusion. 2000x



After several weeks, the autoclaved grass-water infusion develops numerous highly-organized forms, which appear to emerge from the background sea of bionous aggregations. Classical biology says these are the products of "cysts" and "spore", or "air germs" — *but, is this uniformly true, even in preparations subjected to high temperature and pressure sterilization?* Or do some of them derive from *bionous disintegration and re-organization?* (above two photos 1250x).

neither Reich nor other bion experimenters have observed the development of protozoa within autoclaved preparations as described here — and for this reason I wish to emphasize the *preliminary nature* of the results of the autoclaved grass infusion experiments presented here. It may be that the exceptionally high quality mountain well water used, the favorable environmental conditions at the OBRL Greensprings Center facility, or some other factor was involved.

At OBRL, we routinely autoclave grass infusions and other preparations in either screw-top test tubes or glass petri dishes at 26 psi, 130˚C for 1 hour — well above what is necessary for killing most common microbes. If the preparations are observed shortly after autoclavation, it is clear this procedure does, in fact, kill virtually all higher living forms — but it also *increases* the production of vast numbers of bions. In fact, for most preparations, there are *more bions after autoclavation* than in similar preparations not autoclaved. For the grass infusions, within a short period of days to a few weeks after being prepared, the experiments conducted at OBRL demonstrated the progressive development of more complex life forms. This was true whether the preparations were autoclaved or not, though the autoclaved preparations took longer for organization to develop. Massive numbers of bions appeared as disintegration progressed, and round membranous forms appeared within the "bion soup", which themselves were filled with bions. Some of these bion-filled membranes began to rotate — firstly slowly back and forth, but then later tumbling with a faster speed — and eventually even to pulsate (expanding, contracting). From such bionous aggregations eventually emerged fully-organized paramecium-like ciliates. Other microbes such as ameba also appeared and proliferated, though following different developmental pathways.

In many respects, the arguments raised by Reich's bion experiments are similar to those which raged in the 1800s between the figures such as Pasteur and Bechamp, or Huxley and Bastian.[8] Reich's methodology brings a fresh empirical perspective to the question, however, and shows the correctness of many of those early biologists who independently observed bion-like, self-organizing microforms.

From the above, we can report the observation that autoclaved grass infusions kept in a closed glass petri dish eventually develop a similar spectra of microbes as seen in those grass preparations not autoclaved. By contrast, control dishes of water open to the air, or even those containing some small amounts of nutrient, fail to show complex microbes such as paramecium and ameba — they only show dust particles and a small number of rod-shaped bacteria and occasional fungal forms. This supports Reich's argument, that the protozoa seen in grass infusions developed through the process of bionous disintegration and re-organization. A time-lapse filming of this entire process is planned for the future.

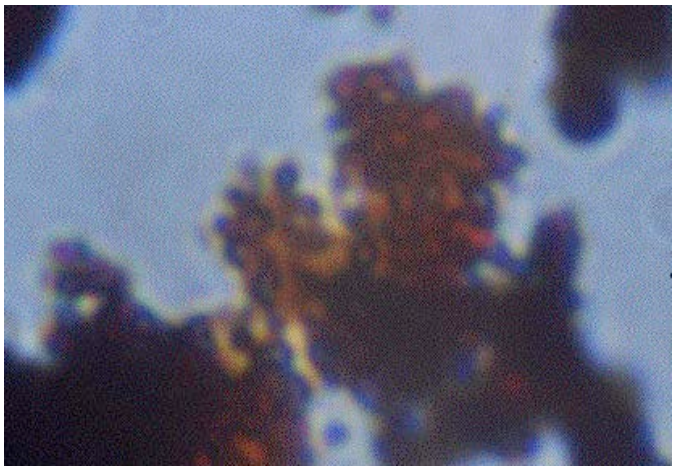
Incandescence Experiments:
Bions from Iron Dust and Beach Sand

Reich's claim on the natural organization of protozoa from bionously disintegrated moss and grass generated skepticism from his contemporaries, and he countered his critics with increasingly rigorous control procedures. He argued that the bion was a transitory form, existing between the worlds of living and non-living and from which life could emerge under the proper conditions. He argued that the tiny vesicles were not "air germs" nor contaminants. High temperatures, he argued, could speed the process of bion formation. His critics argued he wasn't heating his preparations to a high enough temperature to kill everything in them.

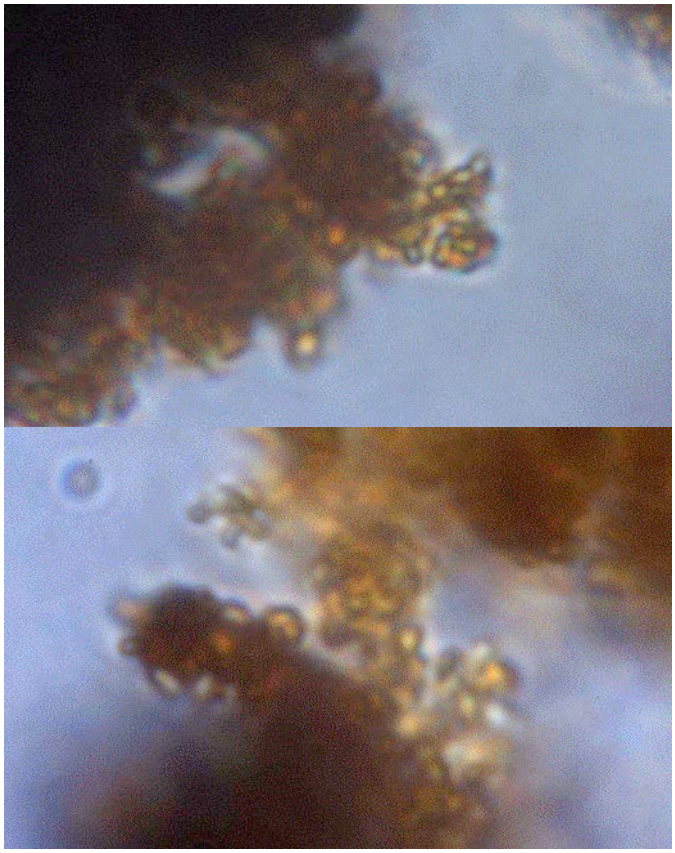
One procedure Reich developed involved heating of inorganic materials such as coal, earth, sand and iron dusts to a white-hot temperature, which was too extreme a temperature for any living thing to survive. While the material was still glowing, Reich would plunge it into a test tube filled with a pre-sterilized potassium chloride solution (0.1 N KCl). These experiments have been performed many times by scientists seeking to replicate these findings, and show an almost immediate development of numerous well-formed bions.[9]

The incandescence experiments undertaken at OBRL focused primarily upon heated iron powder and sand. A 0.1 N solution of KCl was prepared from reagent-grade KCl crystals in distilled water. The solution was firstly boiled and then filtered through a 0.2 micron vacuum filtering apparatus, portioned into 13x100mm screw-top test tubes (~5 ml per tube), which were then autoclaved at 26psi, 130˚C for 1 hour. Several tubes were observed microscopically before the experiments for signs of any particulate material or life — nothing was observed. (Unused tubes from the same batches were also kept sealed for several months after these experiments, and observed again, with similar negative observations.)

With the KCl solutions prepared, a small amount of dry, unoxidized powdered iron was scooped onto a groved stainless steel spatula of about 3mm width. The spatula with iron particles was then heated over a propane torch



Iron bions created by heating iron dust to a white-hot incandescence over a burner flame, and then quickly immersing the glowing dust into a pre-sterilized 01.N. solution of KCl. Observed microscopically, within a minute after the immersion, one can see bionous aggregations still adhering to the iron particles from which they emerged, looking much like bunches of reddish grapes. 5000x

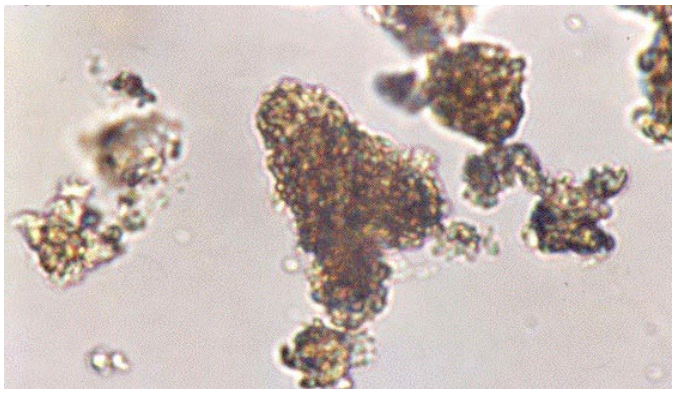


More iron bions, in the above two photos, from a solution prepared as described above, but then autoclaved and kept unopened and sterile for three months. 5000x

for about one minute, until both spatula and iron were glowing orange-white hot. Using sterile technique, the tube containing the KCl solution was opened, and the incandescent iron allowed to gravity-drop into the tube and solution, where the hot material gave a characteristic hiss as the hot metal hit the liquid. The tubes were immediately capped and gently swirled. After about one minute, allowing heavier particles to settle, the suspended fraction of material was taken into a sterile pipette, transferred to a sterile slide with coverslip and observed microscopically. Routinely, from this procedure one immediately sees the edges of the iron particles having broken down into tiny vesicles, of both bluish and reddish color. In some cases, the vesicles appear like "bunches of grapes", with a few identically-appearing bion vesicles floating free in the solution.

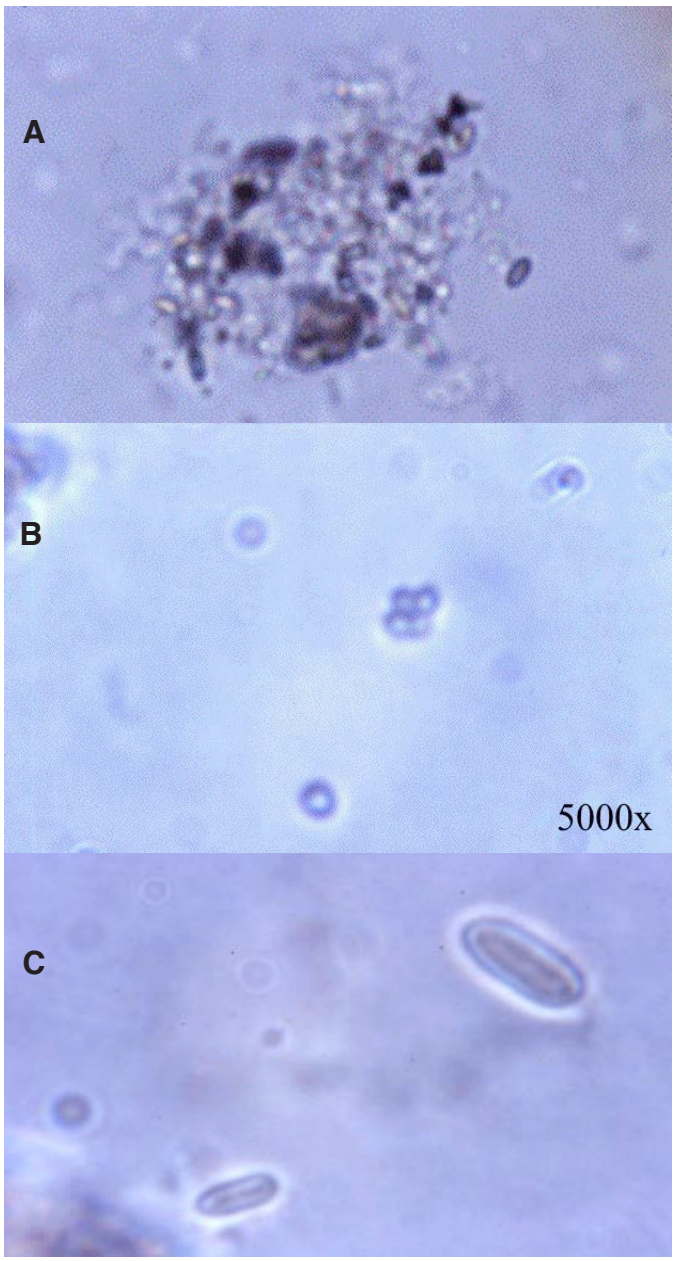
It is clear, the iron bions — which except for the reddish colors appear similar to the bions from disintegrated grass in water — are the product of the intensive swelling and cooling process brought about by the high temperatures and quick immersion into the KCl solution. This fact is determined by looking firstly at control tubes of KCl solution, by itself, and secondly by looking at the *unheated* iron powder in a similar KCl solution. In the latter case, one may see an occasional individual vesicle at the edge of an iron particle, but not the large numbers and clusters of numerous bions.

Reich argued that potassium ions from KCl encouraged a general expansive quality within living organisms, being responsible for muscular relaxation. His later experiments on biogenesis, notably Experiment 6 to be discussed momentarily, included a richer variety of chemical nutrients, and hence, more life-like qualities. The iron bions appeared life-like in structure, but had only the most limited movements. We found that iron bions could be produced with more bluish coloration (less reds) and in much greater abundance, if the tube containing the incandesced iron powder was afterward autoclaved, and then allowed to sit undisturbed for several months. More life-like movements and structures could be seen the longer it was allowed to "incubate" after sterilization.



Maui Beach Sand, heated white hot to incandescence, then immersed into a KCl solution. Observed within a minute, the sand shows a highly vesicular structure. 490x

Reich prepared a similar experiment using incandescent beach sand, which is also heated white-hot and plunged into a 0.1 N KCl solution. In the photos shown here, we used sand from a clean beach on Maui, Hawaii, brought by one of our seminar students. The sand showed a strongly vesicular quality after the incandescence and swelling in solution. If subsequently autoclaved and kept sealed for several months, the sand bions showed organized or elongated structures which gave the appearance of life. Single sand bions would clump together and sometimes elongate a bit, though



Sand bions in the process of organization. **A** shows a cluster of autoclaved sand bions after 3 months (1250x); **B** and **C** show single and quadruplet sand bions, and elongated bionous forms, from the same preparation as **A,** photographed at the same time**.** (5000x)

never forming long rod-forms or chains typical of known bacterium. Individual bions would develop in large numbers, being freed from the sand crystals, and some of these would organize into quadruplets. Reich noted sand bions would characteristically group in clusters of four, and also be culturable, but this latter aspect has never been tested at OBRL where our incandescence experiments did not include nutritive chemistry, only KCl. By itself, KCl is not a particularly good nutrient medium for microbiological growth.

The next steps in our bion research program will include an attempt to culture the various microforms observed from the incandescence experiments.

Experiment 6: Vesicular Masses from Sterilized Nutritive Media

Here, I report a variation of one of Reich's bion experiments which utilized a mix of sterilized chemicals and nutritive substances which over time yielded life-like structures.[10] Early in his work, Reich noted that certain chemical groups had a general sympathetic (contractive) stimulus upon life and tissues, while others had a general parasympathetic (expansive-relaxing) stimulus.[11] Calcium ion groups were sympathetic in their action, while Potassium ions were parasympathetic. Cholesterin and Lecithin had similar antithetical properties, as did other ionic combinations. Reich combined various antithetical chemical groups together with the assumption that antithetical expansive-contractive pulsatory movements could be stimulated to occur within raw bionous materials, and from there, to life itself. Pulsation, he argued, was the key to how simple bions developed into more highly organized forms.

In the Experiment 6 replications undertaken at OBRL, we could not easily find many of the original materials designated by Reich in his 1938 protocols, where nutritive microbiological preparations were apparently made "fresh in the lab."[§] I also was concerned that commercially available microbiological preparations might carry contamination from biochemical pollutants not widely present in Reich's day. Animal or vegetable protein from the 1930s and 40s contained no growth hormones or antibiotics, and very little in the way of pesticide/herbicide contaminations, much less nuclear contamination as is the case today. Nor was the water supply so widely contaminated with industrial chemicals and chlorine disinfectants, and other contaminants. I therefore undertook Experiment 6 using the most clean and natural substitute products we could find. Well water was used from the OBRL remote mountain-top laboratory, which is clean of chemical contamination. Some ingredients used, such as beef and vegetable bouillons, corn starch, eggs and milk products were purchased from local health food stores and organic groceries which follow the strict California and Oregon organic standards — these are much stricter standards of purity than those set by the FDA or USDA.

From the gathered materials, I firstly prepared a *Special Broth* of nutritive ingredients, according to the following formula, which will produce 100 or more 13x100mm test tubes of the nutritive broth, at ~5 ml per tube (depending upon how much loss occurs during filtration). It is a modern-day replication, as close as I could come using natural ingredients, to Reich's original Experiment 6:

Special Broth Ingredients: Experiment 6
1 Liter excellent well or spring water, unchlorinated.
1/4 teaspoon organic beef bouillon soup stock
1/4 teaspoon organic chicken bouillon soup stock
1/4 teaspoon organic vegetable bouillon soup stock
1/4 teaspoon potato starch
20 drops organic cream/milk ("Half and Half")
1/4 teaspoon egg albumen
1 drop egg yolk
1/4 teaspoon granulated dry lecithin
1/4 teaspoon granulated cholesterin (reagent grade)

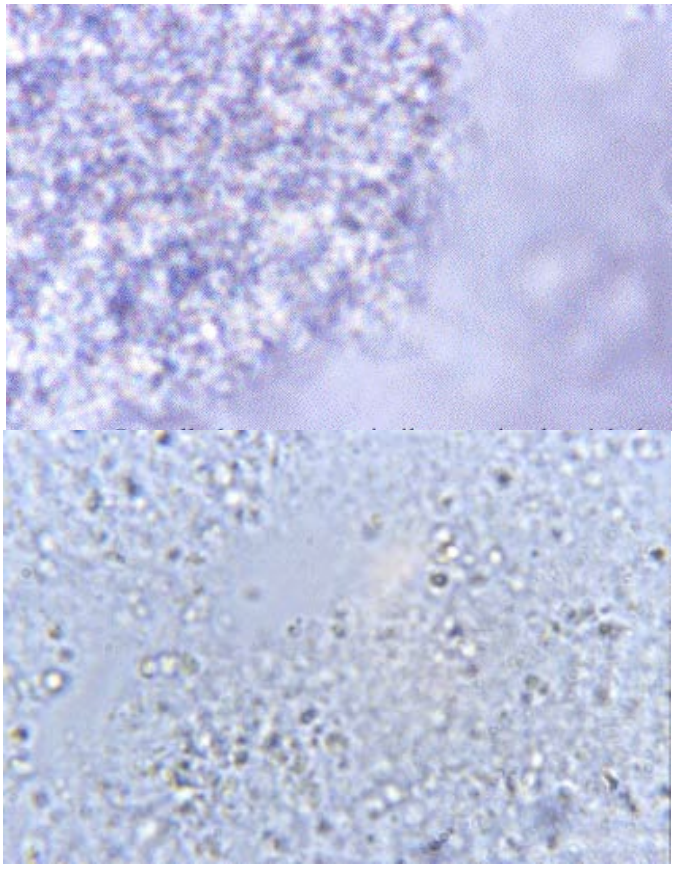
Procedures:
The water was heated in a clean glass pot with pouring lip, into which the above ingredients were added and stirred. The mixture was brought to a boil, then covered and simmered for one hour, then allowed to cool and settle. The liquid portion was decanted through a stainless-steel strainer and coarse filter paper, then diluted with an equal portion of 0.1N KCl solution previously prepared. The new filtered mixture was boiled again, to further precipitate any protein components, allowed to cool and settle, and then decanted again

Reich's Experiment 6: Growth (or precipitate?) at the bottom of test tubes containing previously boiled, filtered and autoclaved Special Broth. The preparations were sealed in the tubes during summer of 1998, but significant growth was not observed at the tube bottoms until a year later. The photos show two years of growth.

§ Quote from Ilse Ollendorff, in a letter to Maxwell Snyder. In later years, Reich did use commercial preparations.

through coarse filter paper. The mix was then autoclaved in a glass beaker covered with inverted petri dish, at 25 psi, 120˚C for 30 minutes to precipitate remaining solids, then cooled and decanted through coarse filter paper, and then through medium-grade and fine-grade filter paper. Finally, the remaining solution was pulled through sterile 0.2 micron filter disks using appropriate sterile apparatus and vacuum pump. After filtering, the remaining fluid was pipetted into screw-top test tubes and capped without tightening fully. The racked test tubes were then autoclaved once more, this time at 130˚C, 26psi, for 1 hour. After cooling in the autoclave, the caps were twisted shut, and the racks set aside on lab tables.

When this *Special Broth* is prepared, it appears clear with a slight brownish hue. If the sterilization procedures are adequate, one will observe there is no particle debris apparent when the tubes are held up to sunlight, and none of the tubes will develop growth film typical of air deposition. You can open several of the tubes to the air, and observe typical contamination growth fairly quickly, within a day or two. However, none of the sealed tubes containing the sterilized and 0.2 micron filtered solutions will develop such growth, even after months. When observed microscopically, one can observe the immediate presence of occasional very small vesicles, some of which appear to have both inner and outer membranous structures (unfortunately we did not get photos of this early protocellular appearance). The speed of development of these tiny particles progresses over time, suggesting that the chemical mix in the Experiment 6 Special Broth is spontaneously creating small protocellular vesicles, all on its own.



Bionous-vesicular material in the sealed tubes after two years of growth, aggregated into congealed masses. (Top-1250x, Bottom-3000x, high-contrast image enhancement applied)

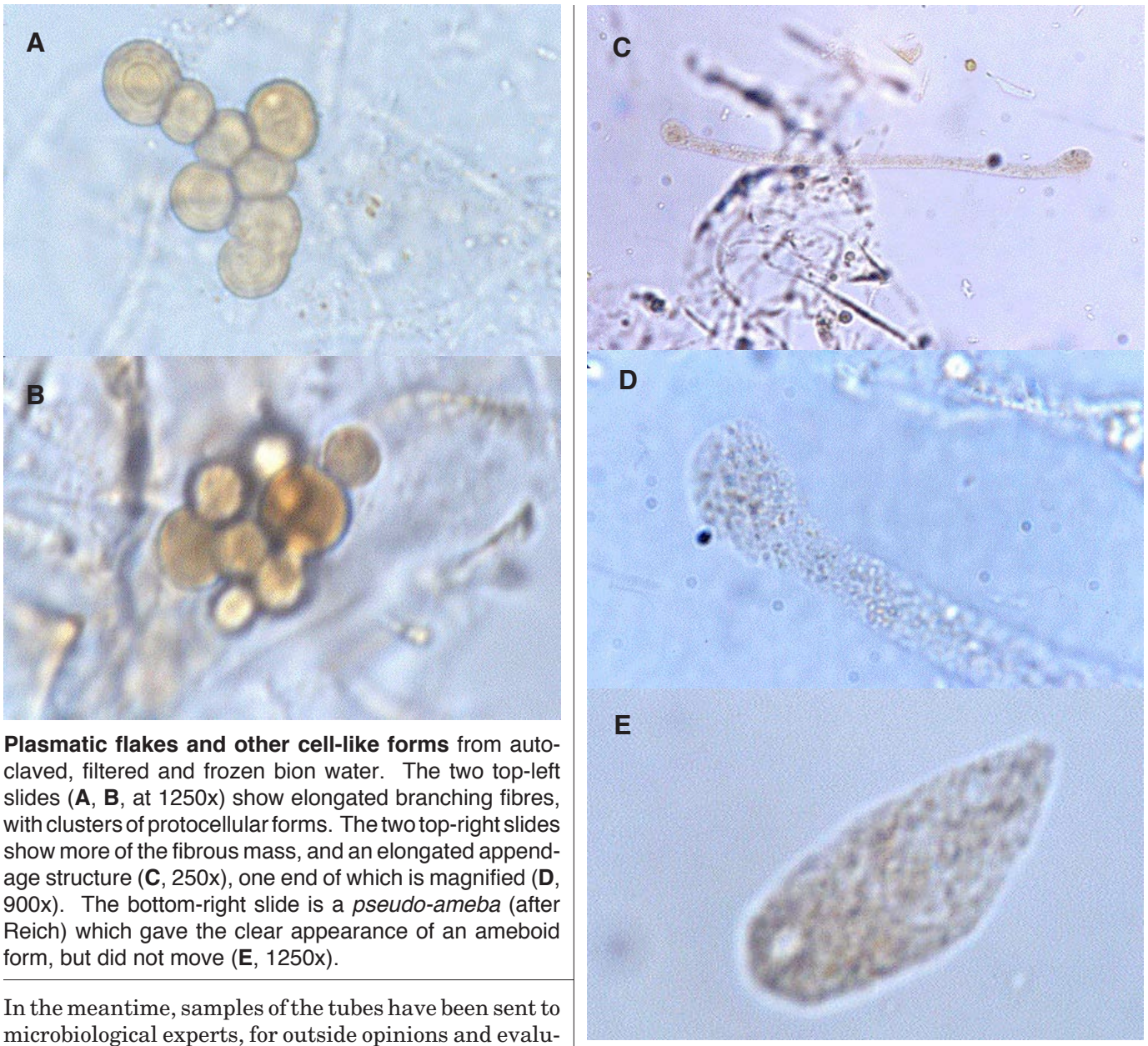
The OBRL reproduction of Experiment 6 was firstly undertaken in summer of 1998. Using a vacuum pump, Whatman 0.2 micron nylon filter disks and a fritted glass filtering system, we were able to undertake the procedures beyond merely autoclaving the solutions at high temperatures. A large quantity of tubes containing the Special Broth were prepared for the summer seminar, in excess of what was needed, and the extra tubes were kept sealed and sterile over the year.

During the preparations for the 1999 lab seminars, I noted the sealed Special Broth tubes from 1998 were showing a slight growth at the bottom of the tubes. This "contamination" was present at the bottom of every one of the approximately 50 sealed and unopened 1998 tubes. I immediately opened one of the tubes to the air, and observed it microscopically. An abundance of vesicles could be seen, but none were moving, and there were no motile forms in the middle or upper parts of the tube, as would be typical for rot bacteria. Within a day of being open to the air, however, the tube of Special Broth began to swarm with rod-shaped bacteria. Within a week, the surface of the opened tube was covered with both white and black colonies of bacterial-fungal growth. None of the sealed tubes showed this kind of surface growth, only a small quantity of whitish material at the bottom of the tubes. Given the pressures to prepare for the 1999 seminars, I simply put away the Special Broth tubes from 1998, with plans to look at them later on.

A year later, in summer of 2000, I finally got around to looking again at the sealed tubes remaining from the 1998 seminar preparation. By this time, two years later, all the tubes were showing a significant amount of whitish matter at the bottom of each tube, indicating a slow-going precipitation of material, or organismic growth, or both.

Once again, several of these tubes were opened and examined microscopically. None showed bacterial growth, but the precipitate at the bottom of the tubes showed dense aggregations of vesicular bionous forms. None were motile, and they tended to aggregate into masses or clumps of material with the appearance of vesicular protoplasm.

We have not yet attempted to culture these forms to evaluate their potentials for reproduction and growth, nor to undertake evaluation for the presence of DNA, but plans are underway to do so. New equipment will be required at OBRL in order for this to be accomplished.



Plasmatic flakes and other cell-like forms from autoclaved, filtered and frozen bion water. The two top-left slides (**A**, **B**, at 1250x) show elongated branching fibres, with clusters of protocellular forms. The two top-right slides show more of the fibrous mass, and an elongated appendage structure (**C**, 250x), one end of which is magnified (**D**, 900x). The bottom-right slide is a *pseudo-ameba* (after Reich) which gave the clear appearance of an ameboid form, but did not move (**E**, 1250x).

In the meantime, samples of the tubes have been sent to microbiological experts, for outside opinions and evaluations. For the present, we simply report these very interesting observations as a basic confirmation of Reich's original observations from 1938.

Experiment 20: Frozen *Bion Water* Yields Life-Like Structures

Reich's Experiment 20 (or, *Experiment XX*)[12] involved boiling ordinary soil, then putting the liquid portion through a series of increasingly fine filters, and then autoclaving the final filtrate, and freezing it while still under sterile conditions. This particular experiment has been replicated many times, and routinely shows a variety of remarkable protocellular forms.

The Experiment 20 replications undertaken at OBRL have been restricted to microscopical observations, without as yet addressing the issues of culturability. A small handful of soil from the evergreen forest floor near the OBRL Greensprings Center (a very pristine environment characterized by old-growth pine and cedar trees) was boiled for approximately 30 minutes in a ceramic pot with about 500 ml of well water. After boiling and with lid in place, the soil solution was allowed to cool and settle for about 2 hours, after which the resulting soil extract was decanted away from the solid portion. First steps of filtration involved pouring the fluid through a fine kitchen-type stainless steel strainer and several selections of increasingly fine filter paper. A final filtration was undertaken using 0.2 micron filter disks through a vacuum apparatus. The resultant liquid was portioned into screw-top test tubes, and autoclaved for 1 hour at 130˚C, 26 psi. Tubes were allowed to cool inside the closed autoclave, after which caps were fully tightened. The sealed tubes containing the soil extract, called *bion water*, were then placed into a freezer.

Tubes of frozen bion water were allowed to sit from several days to several months before being allowed to thaw for microscopic examination. The tubes of frozen bion water contained fractured clear ice at the edges of the tube, but brown-colored ice crystals in the center, suggesting freezing which started at the edges of the tube, slowly sweeping various chemical constituents in the bion water towards the central parts of the tube where a final freezing-aggregation took place. When the tubes were allowed to thaw, this central aggregation of flaky material held together as a fibrous mass, which broke into smaller particles only upon shaking. However, it did not dissolve back into the water.

Examined microscopically, the bion water showed numerous varieties of *plasmatic flakes*, as Reich called them, things that looked very cellular or protocellular and life-like, but as yet showed no living motility. These included rounded singular and clustered forms, appearing very much like yeasts or fungal spores, long fibres similar to algae or fungi branches, strange plasmatic membranes, rounded and elongated, containing numerous individual bions inside, and even *pseudo-ameba* (as Reich called them) which looked like ameba, but were non-motile for the periods when they were observed.

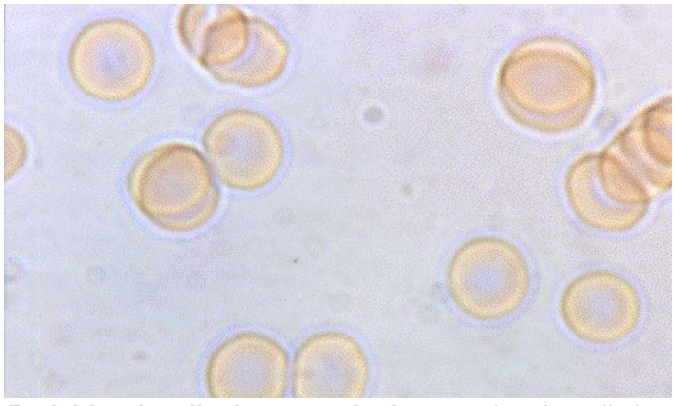
The forms were all much larger than the filtration limit of 0.2 micron which the entire solution was forced to pass. Whereas an ordinary bion as seen from iron-powder or grass disintegration would typically form at around 1 micron in diameter, the plasmatic flakes and other life-like forms seen in Experiment 20 appeared at sizes from 50 microns to several hundred microns in size. Given the intensive boiling, filtration and autoclavation procedures employed, and the fact that the preparations were observed microscopically within only a few minutes after they were removed from sterile conditions, these could not be the product of some hypothetical "contamination". Nor could they be the surviving remnants from killed soil microorganisms, as none would have passed through the filter.

A special distillation procedure was also employed by Reich in the Experiment 20 procedures. These were also attempted at OBRL, but did not yield results which could be reported at this time. In this procedure, the boiled and rough-filtered bion water is distilled through an apparatus which allows only the gaseous water vapor from the original bion water to pass through the apparatus, leaving behind all of the original solid portion, plus any chemical fractions which cannot be rendered into a gas at temperatures of only 100˚C. In the OBRL distillation experiments, where the final distillate was caught into test tubes and then frozen, the thawed solution appeared almost totally clear of any structures, save for a few exceedingly faint and transparent flakes for which we could not rule out the possibilities of dust contaminants from the slide and/or cover slips. This procedure will be attempted again in the near future.

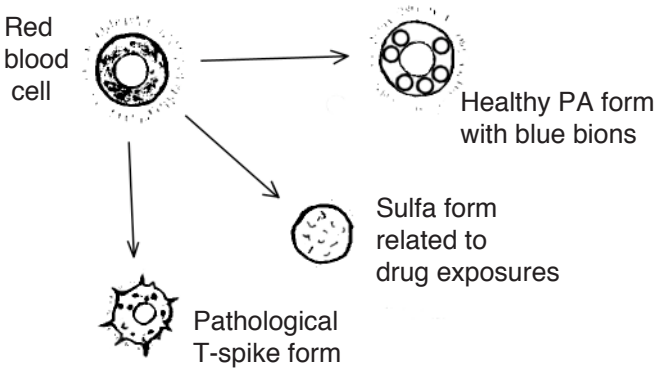
The Reich Blood Test

The procedures for making the Reich blood test[2] have been presented at the OBRL seminars each year since 1995. The test is demonstrated, and participants are then allowed to make it on themselves — only a small finger-prick is necessary. The test is generally performed using a 40x planapochromatic objective (with total magnification of around 400x - 600x) for better depth of field, and can be performed with or without cover slip. Higher magnifications are used to highlight specific features. The microscopes used during the seminar — the OBRL Leitz microscope previously described, a Nikon scope with planapochromats brought by Dr. Nagy, and a Reichert scope fitted with planapochromats provided by Dr. Blasband — allowed unparalleled viewing of the red blood cells *in their living state*, to include observation of their glowing blue energy fields. Depending upon the type of objective and condenser employed, one could make the blue energy fields around the red blood cells either diminish or intensify, but it could hardly be totally extinguished. With the Leitz microscope, at higher magnifications one could also see the micro-constituents of blood plasma even in brightfield. Normally these constituents are only observable in darkfield observation.

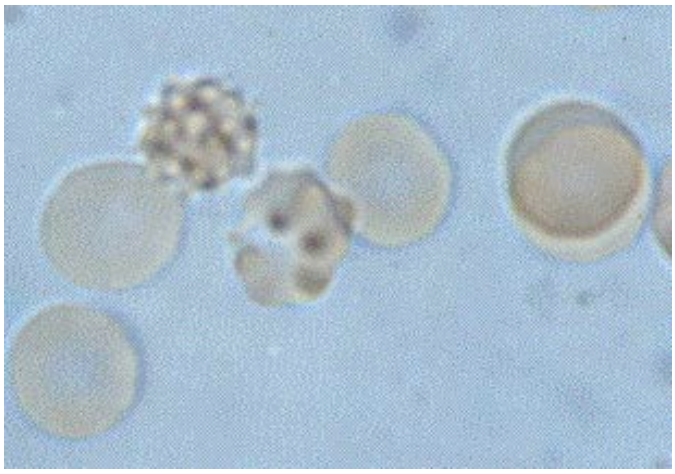
Blood cells could also be displayed on a television monitor through a videocamera hookup in the microscope camera tube, allowing a single red blood cell to appear the size of a grapefruit, with a 3-dimensional quality. While classical optical theory claims all powers above approximately 1500x are only "empty magnification" with no added resolution, we found this to be only partly true. The superior optics of the microscopes in use at OBRL did appear to bring out details not observable at lower magnifications — as with the smaller constituents in blood plasma. However, the main function of the higher magnifications was to observe the fine



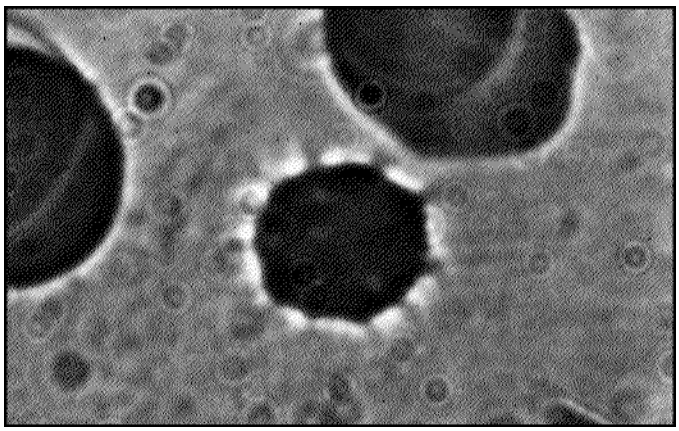
Red blood cells in normal plasma showing distinct energy-fields, appearing a distinct blue in the original photos. 40x Planapochromat oil-immersion objective with Berek Condenser. Total magnification around 1250x using 25x Periplan eyepiece in the camera tube. High contrast enhancement applied to make fields more apparent.



Red blood cells, once removed from the body and placed on a microscope slide, slowly break down into various forms, with a speed and percentage distribution that reflects the overall vitality of both the cell and the person. (after Reich[7])



Red cells in different states of disintegration in physiological saline solution. Two center cells show vesicular bionous breakdown, into bionous PA forms as described by Reich. 40x Planapochromatic objective with oil immersion, and oiled condenser. Total magnification around 1250x using 25x Periplan eyepiece.



T-spike red blood cell (in center). 90x Planapochromatic objective with oil immersion, and oiled condenser. Total magnification around 2000x.

pulsatory movements within individual microorganisms and blood cells. Red cells observed at such high magnifications would typically show wave-like undulations, pulsations and resonances sweeping across their surfaces, causing their outer membranes to visibly shimmer and vibrate. One could easily differentiate these kinds of cellular movements from mechanical shaking. The lab, in any case, has a concrete floor, and the heavy marble microscope table dampens all but the most intensive mechanical vibrations.

The Reich blood test typically involves mixing a tiny drop of blood (from a finger-prick) with several small drops of physiological saline solution. Both the solution, as well as the glass slide and any coverslip to be used must be pre-warmed to body temperature, as a means to move the blood cells from the body to the slide with a minimum of shock and disturbance. If the slide is cool or cold, the cells immediately contract (as would a person cast into a freezer), invalidating the test. There are other technical points involved besides temperature — pH of the saline solution and glassware surfactants, for example — and these are found in various publications on the subject.[2]

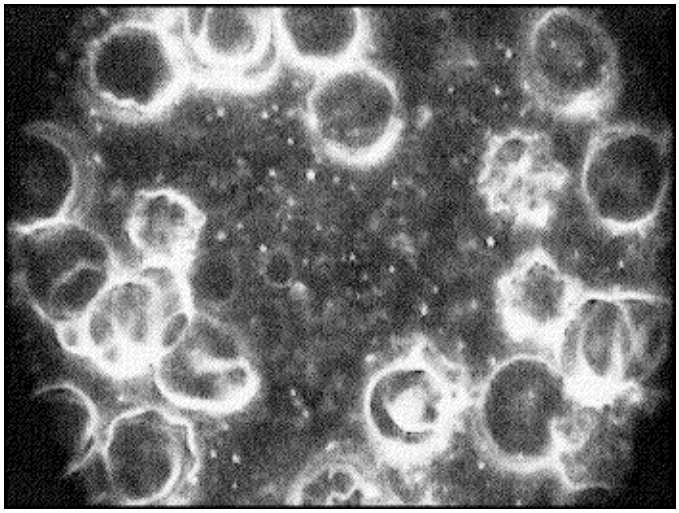
When performed correctly, the Reich blood test shows a patterned disintegration of red cells which reflects the overall vitality and energetic charge of the organism — the red blood cells of healthy organisms show a predominance of typical "donut" or "life preserver" shapes, with a taught exterior ring, depressed center, and bluish energy field. Undercharged organisms may show cells looking slightly-deflated with narrow energy fields. When blood cells are subjected to stress, as from physiological saline solution used in the test, the red cells deteriorate into different bionous forms, with a speed dependent upon the overall health and vitality. Healthy red cells with a strong blue field tend to resist the saline and remain in their original condition for a longer period, and even after an hour on the microscope slide may look relatively unchanged. By contrast, energetically-weakened cells deteriorate within minutes. The bluish orgone (life-energy) field of the red blood cell has a strong correlation with the tendency of the cell to remain in its original form. From this perspective, the orgone charge of the red blood cell is a directly-observable expression of what Reich called the *resistance to disease*. Today, this term has been supplanted by the *immune system*, and so it is reasonable to view the energy field of the red cell, and its tendency to deteriorate slowly or quickly on the microscope slide, as directly-observable expressions of a person's immunity.

During the process of deterioration and disintegration on the microscope slide, red blood cells form three basic morphological structures: *PA* or "*packet" forms*, *Sulfa-forms* and *T-spike* forms. PA forms develop from healthy cells with a strong energy charge, and the charge aggregates into larger bluish bions within the existing red cell membrane. PA-cells appear lumpy, like

a sack containing many large balls which appear bluish with the proper microscope optics. T-spike forms appear from energetically weakened and unhealthy red cells, appearing badly shrunken with sharply protruding points. The "T" comes from German "Tod", meaning death; the tips of T-cell spikes typically break off with time, forming what Reich called *T-bacilli,* which are themselves toxic and carcinogenic.[2] Sulfa forms appear as a consequence of the influence of certain pharmacological drugs. In general, the longer it takes for the red blood cells to deteriorate, and the higher the percentage of PA forms over t-spike forms, the better the overall prognosis of the individual. This assumes, of course, that one's technique is satisfactory and that artifacts are not created by faulty procedures.

Mainstream classical hematology and medicine generally interpret the PA form of red blood cell, and the T-spike cell, as the result of mechanical osmosis or "faulty drying-out" of the slide — and so they speak about "crenated" or "burr cells" — rarely attributing significance to these differences except as expressions of microscopical techniques. Consequently, they place little emphasis upon *living blood*, and have entirely missed the rapid deterioration of the blood of cancer patients, or cancer mice, as compared to healthier organisms. Some hematologists and physicians today will confess, privately at least, that with all the emphasis upon fixing and staining dead preparations, they have *never seen a living blood cell under the microscope*.

The Reich blood test also employs an autoclavation test, where several large drops of blood are captured in a test tube filled with a mixture of 0.1N KCl and nutrient broth. The tube is then autoclaved for around 30 minutes. When this is done, healthy blood amazingly tends to resist the autoclavation process. One can look at healthy blood under the microscope after its autoclavation, and see many whole red cells, with most others in the PA form, filled with large blue bions, and with many free blue bions in the solution. Blood from a biopathic individual, or from a cancer mouse, will show a much greater amount of deterioration after the autoclavation process, with a very high percentage of T-spike forms and T-bacilli. After autoclavation, healthy blood forms a tight clot at the center of the tube which resists easy breakup from minor mechanical shaking, and it smells fresh like a good soup. Biopathic blood, by contrast, forms a clot which crumbles easily with the slightest shaking, and smells rancid, like rotten eggs. These and other factors were worked through by Reich in his blood test, and are part of the reason why he called cancer the *premature putrefaction (rotting) of the organism*, while it was still alive.[2]



Living Human Blood viewed in darkfield, highlighting the smaller constituents of blood plasma. Red cells are about 8 microns in diameter, suggesting the smaller vesicles are less than one micron. They are called *somatids* by Naessens, and *protids* by Enderlein. Classical hematology calls them *chylomicrons,* and relates them to dietary factors. Hence, they might be defined as *food bions* from the perspective of Reich.

The International Symposia on Pleomorphism

All the above photomicrographs, and others, were presented by myself to the *Second International Symposium on Pleomorphic Microbes in Health and Disease*, held in Ashland, Oregon on 19-20 October 2000.[13] The Symposia was attended by health-care practitioners and biologists from North America and Europe; discussions were open and friendly, but pointed and challenging on research and technical issues. Reich's findings fall within the definition of pleomorphic changes in microbes (as with bions clustering to form protozoa, or whole cells disintegrating into individual bions) and showed many points of agreement with the observations of other presenters, but also posed some challenges to their theories.

For example, there were many presentations on the properties of blood as viewed under the microscope in the living condition, which agreed with Reich's findings. Advocates of the Enderlein method of live-cell blood diagnosis, for example, also advocated allowing the blood to slowly deteriorate on a microscope slide, with the complexity of blood forms subsequently developing used for interpretation of human health and sickness. However, their methodology employed use of whole blood without physiological saline, and this takes many hours to disintegrate significantly, as compared to 20-30 minutes for the typical Reich blood test. Also, because the Enderlein method does not incorporate the phenomenon of bionous disintegration and natural organization of protozoa within its theoretical structure, advocates of that theory interpreted the bionous PA and T-spike blood cells forms as evidence of "blood parasites". One researcher was able to show, that bionously-deteriorated red blood cells carried measurable quantities of DNA beyond what might be expected from bone-marrow

residues (they have no nucleus, and do not divide or replicate independently, being formed only in bone marrow). Within his own theoretical structure, this important observation supported the concept of "parasites", but viewed from the perspective of bionous disintegration, it suggested bions forming within red blood cells might be *creating their own DNA*. This clear difference in theoretical interpretation was openly discussed, and underscored just how much work remains to be done, to reconcile the competing theories.

It is important to note, there are today several schools of thought about the micro-constituents of blood plasma, developed by clinicians who made extensive observations of living blood. Reich noted red cells deteriorated into bions and T-bacilli, and these could break free of the cells to exist independently within blood plasma, where they might give the appearance of being new living forms. Elongated spicules extending outwards from T-cells can occasionally appear as new flagellated microorganisms, though they are in fact red blood cells with a significant bionous deterioration. Other theorists may observe bionous structures in blood plasma, but give them different names as if they were unique "parasitic" microorganisms, or blood forms such as mycoplasmas.

On the one hand, there is confirmation for Reich in the writings of Enderlein[14] on the *protid*, or from Naessens[15] on the *somatid*, and support for his findings also from the earlier work of Bechamp[16] on the *microzymas.* All of these researchers, like Reich, describe a similar indestructible particle in blood, which also exists elsewhere in nature.[§] On the other hand, none of the above theorists incorporates the finding of bionous disintegration as the source of the particles, nor do they resolve the issue of *biogenesis* with the same clarity and specificity that Reich provided. Only Reich informs us about how the natural organization of protozoa in nature (soils, ponds) parallels the process of cancer-cell formation within the body of humans and other mammals. So while I wish to celebrate the work of these other researchers, for their own empirical contributions to science and biology, I also must emphasize *it would be imprecise to simply claim all the terms and theories being discussed were equally accurate descriptors of what goes on in nature*. We may elaborate further on this consideration.

Raw blood plasma is filled with large quantities of tiny vesicles, of a size around 1/10th of a red cell, and numbering perhaps 20 to 50 for each red cell. They dance around in living blood with an intensity I have not seen with any other slide preparation, and appear immediately in the blood plasma as viewed at the microscope, suggesting they are *not* related to bionous disintegration of red blood cells as is typically observed in physiological saline solutions with the Reich blood test. Naessens and Enderlein both viewed these particles as having a central importance for human immune functions, but their abundance appears connected to dietary factors as well. One microscopist informed me, that after eating a big steak dinner with all the trimmings, his blood was swarming with these small particles. Another said that after going on a fast for several days, her blood plasma was relatively clear of them, to the point where followers of Naessens were worried this signaled a pathological condition (they interpret an abundance of somatids as a sign of good health). Classical hematology calls these small blood particles *chylomicrons,* or *chylous* material,[17] describing them as basically "particles of digested lipids" (fats) composed of triglycerides and phospholipids with a smaller fraction of cholesterol and protein, and which course through blood and lymph, transporting fatty acids and fat-soluble vitamins to the various tissues.[23] They are acknowledged to have an important role in human energy, but classical biology has basically failed to give them sufficient study, especially as seen in living blood. It is unquestionable, as viewed in living blood, these small particles have a dynamic of behavior and structure which challenges any simple definition of them as merely being "fat particles" — orthodox medicine and biology continue to make their definitions by looking only at dead specimens, and so have missed out on something quite important!

Reich, to my knowledge, said nothing specifically about these smaller blood particles that classical biology calls chylomicrons, as he focused upon the qualitative-energetic and bionous phenomenon in blood which could be clearly observed and documented, and for which a strong correlation to general immunity was noted. However, his views do appear compatible with some parts of both the Enderlein and Naessens theory, in that bions, like somatids and protids, are considered fundamental "particles of life". In this respect, Reich's overall theory is much broader than those of Naessens or Enderlein, in that it provides a bridge to similar discoveries of "life particles" from inorganic sources — such as the *jeewanu* discovered by Bahadur[18] — and additionally incorporates the full range of his prior findings on the unity of psyche and soma, the specific psychosomatic mechanism which encompasses emotion, respiration and sexual functioning, and the even wider realm of cosmic life-energy (orgone) functions.

Reich's ideas also fit with some aspects of the classical view; the idea that the abundance of chylomicrons is a consequence of diet indirectly confirms Reich's view that foods in the gut are themselves bionously disintegrating, with certain bionous forms passing from the gut directly into the blood, where energy transfer occurs. This is only a cursory discussion of a complex matter,

§ The preceding article in this issue of *Pulse* presents yet another independent, and quite remarkable set of observations of a similar biological particle, the *Sanal*, as discovered by Korean researcher Bong Han Kim.

however, and precise comparisons of findings from the various live-blood researchers and classical hematologists must wait for experimental and empirical proofs.

In any case, viewing these tiny blood particles, as well as the larger vesicular forms occurring within disintegrating red blood cells as the products of bionous decay was a brand-new idea for most of the Symposia participants. And it was a unique experience for me to interact with these other highly-skilled and experienced professionals, and to discuss these phenomenon without the usual derisive reaction which too often accompanies the mention of Reich's name at scientific meetings.

In closing, I came away from this Symposia with a greater appreciation of Reich's original findings on bions, and on the superiority of the Reich blood test over many other live cell tests in use today. Researchers following the approach of Naessens and Enderlein have much to learn from Reich, mainly on the issue of bionous disintegration as the source of many of the microforms observed in human blood.

On the other side, followers of Reich's method can learn a lot from the various biologists undertaking research on pleomorphic organisms, and other live-cell diagnostic methods. It is a fact that use of physiological saline mixed with blood speeds up the disintegration process on the microscope slide over other methods that use only whole blood by itself. However, for making observations of blood, and defining its properties, it must be acknowledged that the added saline is by itself an additional artifactual influence which confuses the determinations of the natural quantity of vesicular forms at or below 1 micron, and so caution is required before saying just what is, or is not, a "natural" or "unnatural" phenomenon within blood plasma. Also, if DNA can be demonstrated to exist inside bionously-disintegrating red blood cells, it raises an intriguing possibility, that DNA or its precursors might also be detected in the raw bionous material derived from the iron and sand incandescence experiments. If so, that would go a long way towards proving that bions are indeed the bridge between the living and non-living worlds. It would also help to build a bridge between Reich's original findings of the 1930s and 40s, to modern biological research where everything from deep-sea hydrothermal vents to boiling hot springs, to deep glacial ice and Martian meteorites, are found to contain bionous forms. Indeed, an entire new classification of life forms — the *Archaea* — has been proposed, and many Archaea appear quite similar to Reich's bions in their origins from incandescent and/or frozen sources.

Orthodox biology of the mid-20th Century has not anticipated any of these fantastic discoveries, but has in fact been seriously challenged by them. By contrast, Reich's original findings on the bions, from the early 20th Century, have anticipated these and similar discoveries of life forms where according to the classical dogma of his time, life "should not exist".

Acknowledgments

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