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THE SCIENCE AND CORRESPONDENCE OF DISEASE

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New Church men are familiar with the correspondence of the human body to the Grand Man of Heaven. (HH 59 & 63) We know the correspondences of various organs, *e.g.*, the lungs, heart, eyes, spleen, *etc.*, as well as their functions in the natural world. We also know of certain animals and plants that have correspondences. However, since the time of Swedenborg the biological sciences have made many discoveries. Many biochemical pathways have been elucidated to explain the chemical processes of not only organs, but cells, cellular particles, and even molecules within cellular particles.

It is merely conjecture to guess the correspondence of spiritual things from natural, particularly from scientific data, but perhaps there are some hints in the Writings which we can use to piece together an hypothesis. My general premise is this: If there is a spiritual correspondence to the anatomy and physiology of the human body known at the time of Swedenborg, why should not there be a correspondence to the cellular physiology and chemistry known to scientists today? The major problem is how to discover the correspondence of things Swedenborg did not know about.

Infectious diseases have affected all of us at one time or another, and to a greater or lesser extent. They are caused by microorganisms which have been isolated and classified as systematically as species of birds, flowers, *etc.* For reasons of time and space let us limit the particulars to an illustration of a disease caused by a bacterium.

Bacteria for very logical reasons are classified in the plant kingdom as fungi. They occur as single cells, *i.e.*, all functions necessary for life are contained within one cell. They are everywhere,

in the air, soil and water. Only a small minority of species can live within a human being, but these few are notorious. When one of them gains access to the human body, symptoms appear which have been known to doctors for centuries. For generations every adult has recognized each name and its danger—tuberculosis, diphtheria, lockjaw, pneumonia, tularemia, typhoid, trench mouth, dysentery, scarlet fever, cholera, undulant fever, the black plague, anthrax, leprosy, *etc.* These are the names of diseases caused by the more illustrious members of the rogues' gallery of micro-organisms known as bacteria.

To produce the disease the organism must either release a diffusible toxin which is absorbed into the body, or it must enter the body and multiply. The "weapons" of the invading organism are one or more of the following:

- a. hyaluronidase, an enzyme which dissolves the "cement" that holds the cells together into tissues so that it may enter;
- b. a capsule that surrounds itself which prevents the white blood corpuscles from engulfing it;
- c. streptokinase, an enzyme which destroys blood clots that normally confine organisms;
- d. deoxyribonuclease, an enzyme which can kill the white blood corpuscles once the bacterium is engulfed and be released again.

There are other mechanisms as well.

The defenses of the host are numerous too, for example:

- a. an inflammatory response localizes an infection by a fibrin barrier;
- b. anaerobic conditions are produced at the lesion or inflamed area which limit the normal metabolism of the organism if it needs oxygen for respiration;
- c. white blood corpuscles and antibodies (proteins formed in the blood by a prior similar disease or by injection of vaccines) to sequester and pacify the invader;
- d. a rise in body temperature which slows down the multiplication of certain bacteria.

These are only some of the normal defense mechanisms.

One example of a disease caused by bacteria multiplying in the body is pneumonia. The organisms which produce this disease

are not toxic *per se*, nor do they form any toxic materials. That is, when the organism is grown *in vitro* (not in a living animal or human) no substance is formed which when injected causes the symptoms of the disease. The symptoms are caused by the host (the human body) in response to the living bacteria. Again, neither the bacterial cells nor any by-product of them is toxic to the body.

In the absence of modern antibiotics this type of disease is characterized by a crisis. If the individual survives the crisis the symptoms disappear a few hours later. This coincides with the appearance of a large excess of antibodies* in the bloodstream and the ingestion of the bacteria by the phagocytes. The symptoms of the disease are caused by changes in the amino acid metabolism of the host cells due to an antimetabolite from the bacteria. An antimetabolite is not a toxin in the strict sense of the word, but a chemical that forces the human cell to produce a lot of something it does not need. In this case it is a road block to normal routes of protein manufacture, leaving an accumulation of a product it cannot use. The administration of penicillin in an acute case of pneumonia interrupts microbial reproduction. The drug has no antitoxic properties. The pneumonic lesions retain their pathogenic characteristics and can be traced to the metabolic activities of the bacteria during the spreading of the disease. That is, the normal metabolic products of the organism affect the host cell metabolism as well as there being a vigorous competition for the same nutrients which are used by the host and bacterial cells alike. The biochemical changes which occur in the tissues during infection are relevant to the understanding of the problem of pathogenesis, prophylaxis and therapy. Phagocytes, antibodies or antimicrobial drugs cannot exert their protective effect unless they come into contact with the micro-organism under the proper physiochemical conditions.

Virulence is that ability of the micro-organism to invade the host, resist the body's strong defenses and produce the disease. Resistance can *not* be determined quantitatively. Death cannot be equated to that percentage of damage done by an invading organism

*Antibodies are gamma globulin proteins in the blood which sequester or inactivate a specific organism. This process aids the phagocytes which engulf and kill the organisms.

and the damage caused by an exaggerated host response. Tuberculosis, rheumatic fever and paratyphoid fall into this category particularly.

Pathogenic micro-organisms depend on minor peculiarities which permit them to survive and multiply. Catabolism (the breakdown of food) by the human cells and bacteria are very similar, but the anabolism (construction of new proteins and cell particles) of the host and pathogen are different. Here lies the secret of success of drugs—particularly antibiotics—which selectively prevent the growth of the organism. (Since viruses do not reproduce themselves like bacteria, antibiotics have no effect on them.)

We carry a variety of organisms with us at all times. When the normal chemical equilibrium of the cells and organs is upset an indigenous organism can develop a manifest disease. We frequently acquire immunity to an organism even though we never had a manifestation of the illness—*e.g.*, tuberculosis and polio. So the bacterium and its virulence are not the whole story; the resistance of the host is equally important. In certain cases we may say the living agent of a disease is present in the host at all times and is intrinsic, whereas the pathological process may originate from some physiological disturbance, or extrinsic factor, of the physiochemical environment. It is the interplay of these factors which decides whether infection can progress far enough to express itself in overt disease.

The following is an example of low resistance and a poor physiochemical condition. During World War II prisoners-of-war in Germany were undernourished and in a state of malnutrition. They became susceptible to infections. Upon release, many overcame their diseases without therapy when they had a balanced diet.

Not all diseases affect the body in the manner described for pneumonia. Certain diseases are caused by organisms growing within human cells. Other organisms produce diseases by a toxin, or poison, which is extremely lethal. There are also diseases which are caused not by micro-organisms, but by biochemical malfunctions of specific organs in the body. However, before we go further let us see what the Writings say about diseases and whether any analogies can be derived.

“To be sick . . . denotes what is progressive toward regeneration.” (AC 6221) This suggests that the overcoming of diseases and building resistance to diseases of the body could correspond to a

struggle of overcoming a specific evil, or the general regenerative process. I do not want to suggest that every illness a person has corresponds to some evil he has, or temptation he is fighting, but rather that as the will and understanding are illustrated by the function and interplay of the heart and lungs, so too can temptation and repentance be *illustrated* by the interreaction of the infectious organism and the infected tissue, or disease. One must remember the analogy is for the interiors, because many evil men may be very healthy and good men very sickly, due to malnutrition for example. Disease is not generated spontaneously or by evil thoughts. "The external man must be reformed by means of the internal, and not the reverse." (DP 150) It is difficult to remember to separate a spiritual conception from natural facts. For example, the judgment of the Roman Catholic Church was against the dogma or doctrines. Its death was a spiritual death while the natural church is still growing. Similarly, what is said in the Writings about disease is a correspondence of evils, and the fact that a man has yellow fever does not mean he has that particular evil to which yellow fever corresponds. If the opposite were true then all diseases would be contractable in all parts of the world, which is not true. Also, we could judge a person spiritually by observing his diseases, particularly the one causing death. The fact is that aside from accidents and murder, all deaths are due to some form of disease, whether it be microbial or biochemical. Further references from the Writings are the following :

All diseases in man have correspondence with the spiritual world. (AC 5711)

This correspondence is not with heaven, but with those in the hells. (AC 5712)

The signification of disease is evil. . . . Every disease corresponds to its own evil. (AC 8364)

"Sick" means one who acknowledges that he is in evil. (AC 4958)

Thus we can have no doubts as to the correspondence of disease. However, we must try to keep separate the idea of correspondence and the natural phenomenon.

Diseases correspond to the cupidities and passions of the lower mind. (AC 5712)

All the infernals induce diseases but with a difference . . . they are not permitted to flow into man's viscera or organs but merely into his cupidities and falsities. It is only when man falls into disease that [the infernals] flow into such unclean things as belong to the disease. (AC 5713)

Disease is falsified truth and adulterated good. These are the diseases of the spiritual life; for the spiritual life comes forth and subsists through truths which are of faith and goods which are of love. When these are falsified and perverted the man sickens, but when they are denied at heart he spiritually dies. (AC 9324)

Notice that these are diseases of the internal man. Like the Catholic Church, which is spiritually dead but lives naturally for a use, so man may be spiritually dead but be alive in this world and healthy.

Disease and sickness signify the infirmity of the internal man . . . when he is sick in respect to his spiritual life. This happens when he turns aside from truth to falsity and from good to evil. Thus the spiritual life sickens and when he wholly turns himself away from truth and good [the spiritual life] dies. This is called spiritual death which is damnation. (AC 9031)

Leprosy = profanation of truth. (AC 6959 and elsewhere)

Various kinds of diseases, as leprosy, fever, carbuncle, piles, and many others, all correspond to the cupidities which originate from evil loves. (AE 962)

With a few exceptions such as these, the Writings do not mention the exact correspondences of specific diseases. In fact, they do not distinguish infectious diseases from other diseases like diabetes, arthritis, heart trouble, *etc.* Defects of the body are called diseases in CL 470. It is recognized today that death is caused by some infectious disease, accident, the malfunction of some organ or a combination of these. Death certificates must specify the disease or accident. Therefore, barring accidents, diseases are the means of entering the spiritual world.

To be sick . . . denotes what is progressive toward regeneration, thus what is successive of regeneration. . . . The angels have no idea of [sickness and death], but in their place . . . the idea of the continuation of life and of resurrection; . . . the spiritual idea of the death of the body is that of newness of life. (AC 6221; also AC 6036, 3326, 3498, 3505, 4618, 4621, 6008)

In addition to the confirmation of the significance of death, the passage cited implies that diseases correspond to individual temptations because what is progressive toward regeneration is a series of temptations of evils and victories, especially since disease corresponds to evil.

What is the meaning of all the factors influencing the disease when man recovers from a disease?

Medicines denote the truths of faith which are for the refreshment and restoration of the spiritual life. (AC 9031)

Man can be cured of the evils of his life's love by spiritual means as diseases are by natural means. (DP 281)

To be healed spiritually the will must be healed by means of instruction and exhortation by the understanding. (DP 282)

These passages suggest that as a good diet is prerequisite for good health, so a good spiritual diet and life are for resisting evils. The last passage should make clear that natural disease contracted by an individual does not correspond to an evil within him because a man can recover from a natural disease and be just as evil as before he fell sick. In addition, he may acquire immunity having had the disease so that he will not catch it again. Whereas if there were a direct correspondence then a cure of the disease should mean a cure of the evil from the spiritual man. But DP 282 explains how spiritual healing occurs.

One might conclude that since men are more susceptible to heart diseases than women that evils peculiar to the interiors of men correspond to heart diseases. Similarly, scarlet fever and typhoid fever could correspond to the evils peculiar to the interiors of women since they are more susceptible to those diseases than men. Also, negroes' susceptibility to tuberculosis and Indians' to measles might relate to peculiar evils. But for the reason stated above I conclude this to be erroneous, especially when the French are more immune to syphilis than other nationalities. By rights they should be more susceptible. Here is a clear case of immunity by contact, not by good loves. Therefore, a disease has a precise evil correspondence but the man harboring the disease may not be in that evil. AC 5715 says that "when a man falls into a disease he has contracted from his life, immediately an unclean sphere corresponding to the disease attaches itself and is present as a fomenting cause." Notice it does *not* say a man acquires the unclean sphere first and then the disease.

Another point about disease is whether a man can regenerate while he is sick, and some New Church men may be confused about it. DP 138 discusses this very point. "To be reformed man must act from freedom in accordance with reason. No one is reformed in states that do not spring from liberty and rationality. These states are many, *e.g.*, fear . . . bodily disease . . . *etc.*" Does this mean that if a person has chronic athlete's foot all his life he is doomed because he cannot regenerate while he has a disease?

What about a boil, an ulcer, infectious dandruff or cancer? The point that is missed most frequently when DP 138 is paraphrased is concerning "act from freedom in accordance with reason." This is of course also means that "death bed" repentance is vain "for in such repentance there is nothing of action and in such faith nothing of charity; thus both belong wholly to the lips and not at all to the heart." (DP 142) But even though one is ill, if one has liberty and rationality he has the means to regenerate. (Bishop de Charms concurs in a doctrinal class. Listen to tape no. 21D 356-1,2 by the General Church Sound Recording Committee.)

Swedenborg does not distinguish infectious diseases from biochemical diseases because they were not known to him. Swedenborg lived from 1688 to 1772. The first achromatic lens for a microscope was not made until 1776. Dr. Edward Jenner, discoverer of vaccination, found the relationship of cowpox and smallpox in 1796. The first oil immersion lens, which is the easiest with which to observe micro-organisms, was invented in 1840, but was hardly usable until the invention of the Abbe condenser in 1872. And the germ theory of the cause of disease and fermentation was not discovered until 1870 by Pasteur (1822-1895). The discovery of viruses, chemical diseases (like diabetes mellitis), antibodies and antibiotics were made in the twentieth century. It is no wonder that a more exact understanding of microbiology cannot be found in the Writings. One can only believe that every atom and molecule in the body is a jot and tittle and has a correspondence or analogy. Evils and micro-organisms are ubiquitous on two different planes. They want to infect us, but we have certain bodily barriers. When our resistance is low they take over. They can kill us if we do not fight them and completely annihilate them. The longer we put it off the more they fester and grow, and the damage spreads. They interrupt the normal uses of the body. Much of the pain is self-inflicted. A crisis may occur. We may get some outside help, as drugs are a help. If we persist we can recover, and an immunity develops which protects us in the future. Notice also that the whole response—except for medication—is made by the body involuntarily just as we say we resist and fight evils, but it is the Lord alone who removes them.

The analogy as a whole seems plausible; but why should most of the infectious agents that infect man be of the plant kingdom and not from the animal kingdom?

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 FACT AND TRUTH

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In dealing with the problem of analyzing oral and written statements to determine their validity, my secondary school English classes seem to become unavoidably entangled in a discussion of the relation between "fact" and "truth." Students ask, "Aren't fact and truth the same thing?" Or "Isn't fact just a different name for truth?" Referring them to the dictionary does not settle the question completely, for there each of the terms is employed at some point in the definition of the other.

Under different circumstances the teacher might be wise to return immediately to the original subject in order to preclude being sidetracked onto something unrelated to the real work of the class. In this case, however, because of the nature of our educational philosophy, it seems important to take advantage of such a ready-made opportunity to present an idea which is vital to New Church thought on many subjects.

What, in terms of New Church thought, is the relation between fact and truth? Is there a distinction between the meanings of these two words? Should they be thought of as synonymous? These are questions which should be answered for the sake of clarity in our own thinking as well as in that of our students.

If we wish to emphasize the fundamental nature of the difference between fact and truth, we might begin by saying that fact is natural and truth is spiritual. Or we might say that fact is external, and truth is internal.