

IN CONTEXT

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Dynamic Healing

**Healing follows a parallel course
in our bodies, psyches, and cultures**

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Healing can take a similar form at various systems levels from the cellular to the planetary. The health care system itself may need to go through these stages, which begin with pain and end- in some cases - with transformation.

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INTRODUCTION

Through the normal strains of living, breaks and restorations of a system's integrity are occurring all the time on a minor scale. When we move, muscle contractions may cause small ruptures of blood capillaries, which are stopped by thrombocyte aggregation, after which the lining of the vessel is repaired. Vulnerability is the price we pay for being highly evolved.

Healing is the process of recovery of the integrity of an injured system. There is only a thin line separating healing, as defined here, and the continuous turn-over and replacement of worn-out elements of the system, such as the cells of the skin or intestinal lining. Healing and these other processes are a dynamic part of the living system's mechanisms of homeostasis, self-organization and self-renewal. If the old state of a system cannot be restored, we often see that the system

creates new forms and functions in the processes of compensation and transformation. Healing, as an adaptation to a challenging environment, is in line with evolution.

This model of healing is intended to be practical, holistic, and applicable to system levels of very different characters, such as cells, organs, individuals, groups, species, cultures, ecosystems, or even our planet.

THE STAGES OF HEALING

The process of healing passes through a number of stages, each of these being indispensable. Arrest of the process in one of its stages, or skipping a stage, usually results in permanent disability or chronic progressive disease. The stages are described below as discrete steps. However, in practice, stages may overlap and they often may be passed through repeatedly.

Pain: Pain is not usually thought of as a stage of healing. That it is, is illustrated by the serious consequences of the absence of pain in certain neurological disorders. One example is tabes, a complication of syphilis, in which certain tracts in the spinal cord, carrying pain stimuli to the brain, are affected. In patients with this disorder, minor injuries of the joints of the leg, such as all of us experience daily, are not repaired. This may lead to complete disorganization and destruction of the joints of the hip, the knee, or the ankle, in the course of only a few weeks.

Here we have a first instance of 'homology,' for on the psychological level too it is common that a disruption of the personality can only be healed when pain is experienced or allowed to surface.

Pain may be defined as a universal sign indicating disruption, or the impending disruption, of the integrity of a system on any level. It moves the organism to mobilize all its resources for repair, transformation, and healing. Our definition of pain applies to physical, emotional, mental, existential and relational pain, all indicating a break of integrity, in a person, between persons or between a person and his environment.

Provisional recovery of integrity: The hallmark of this vital phase is the temporary bridging of the break. In skin wounds the hemostasis mechanism forms a blood clot, which later transforms into a crust, thus covering the wound. After severe loss of blood or body fluids, a series of complicated mechanisms temporarily restore blood pressure and volume, providing time for the much slower process of renewal of the various blood elements.

On a higher system level, that of the organism as a whole, a very interesting phenomenon, seen after battlefield and traffic injuries, belongs to this stage. Even after very severe injuries, such as multiple bone fractures, people are able to bring themselves into safety by

running away from danger; pain only manifests itself after they are safe. This "analgesia" is probably the effect of endorphine production on the brain's pain centers. In these cases the integrity of the person as a whole is endangered and one's life is temporarily saved, even at the risk of extending or complicating existing injuries.

Denial, the first stage of dying as described by Elisabeth Kubler-Ross, may also be seen as the first stage of healing. After the diagnosis of a serious illness, the fear of annihilation may be so great, that it threatens the integrity of the whole personality. The, usually temporary, denial provides the time and space necessary to mobilize all one's resources for reorganizing life and personal transformation.

Healing

The word "healing" has common origins with the Greek word *holos*, which has the meaning of "whole", "wholeness", "total", or "complete." Wholeness is not the same as being happy or living without pain, frustrations or handicaps; wholeness may be achieved in the presence of disease or infirmity.

Destruction and removal: In the course of a healing process, the breaking up and the elimination of dead, non-viable, or non-functional structures are essential. If not removed, they will delay or even prevent healing. One of the important tasks of a surgeon is to remove dead and suppurating tissue. As with pain, medicine and pathology teach us that something often experienced as negative and to be avoided, in this case destruction, may actually be indispensable for healing.

On the physical level, the breaking up and removal of dead tissue is the function of the inflammatory reaction aided by various types of scavenger cells. Inflammation is not only a response to infection, but occurs after any tissue damage, whatever its origin.

This stage of healing can be of importance in serious life crises, such as after the loss of a spouse or a job, when facing a serious disease or physical handicap. It is often essential for healing one's personal integrity to dissolve and eliminate old thought forms, expectations, and value patterns that are no longer meaningful or functional. This process of re-evaluation and letting go usually involves pain, confusion, fear, and disorientation.

A very similar phenomenon can be observed in the history of the sciences during a paradigm shift. As we may experience in our time, the dissolution of no longer viable theories, models, and views may take

much struggle, time, and patience. As Max Planck, the physicist who originated quantum theory, ironically remarked: "Science proceeds funeral by funeral."

Regeneration, reparation and compensation: *Regeneration* is the replacement of lost elements of a system by elements of the same type. On the physical level, cells, tissues, organs and, in plants and the lower animal species, even complicated structures such as stems and limbs, are regenerated. Replication of stem cells and their differentiation into specialized cells, such as muscle, bone and vascular tissue, is the basic mechanism in this process.

Although humans have little capacity to regenerate brain tissues, we excel in nature by the regenerative powers of mind and spirit. One of the many testimonies to this in history and literature is Victor Frankl's book, *Man's Search for Meaning*, in which he describes his survival from the utterly adverse conditions of a German concentration camp. Similar accounts have recently been published by patients with serious or crippling diseases.

Reparation is the replacement of the lost elements by more primitive elements. After a heart attack, lost muscle tissue is replaced by connective tissue which later turns into a scar. Although the scar tissue cannot restore the contractile function of heart muscle, it does provide the support and union needed to repair the defect. Scars, then, pose certain limitations of function on the organizational level involved.

Compensation is the taking over of the function of lost and irreplaceable elements by other elements of the same type. In the case of a heart attack, remaining muscle fibers may enlarge and thus increase their contractile power.

A related mechanism is *reallocation* of lost function to other parts of the system involved. A striking example of the powers of reallocation is provided by some of the hydrocephalic children described by John Lorber. In one boy, vision, normally mediated by the back parts of the cerebral hemispheres - in this case absent - appeared to have been taken over by a parietal remnant of the brain.

As we have seen, regeneration may be limited and thus functional limitations may be permanent. However, this only applies to the level of the system involved. *The integrity of a system level or the system as a whole cannot be judged from the changes on lower levels of organization. Healing may take place in the presence of limitations or permanent loss.*

From the microscopic observation of scar tissue at the site of a previous heart attack, one cannot evaluate the function of the heart as a whole. This function may be quite adequate. Patients whose locomotor system has been seriously crippled by rheumatoid arthritis or infantile paralysis, have been able to live meaningful lives and fully express their

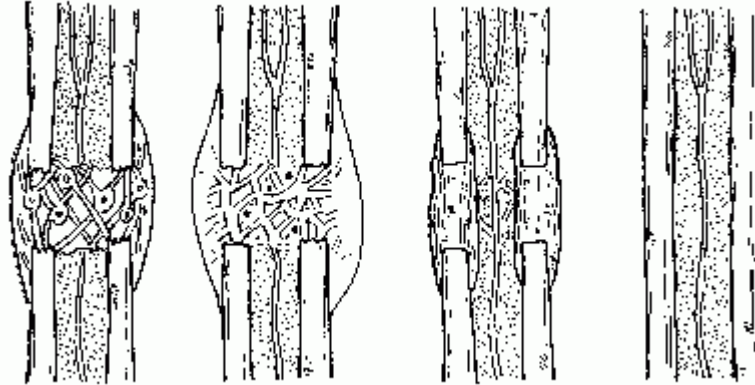
life's purposes. Similarly, persisting neurotic patterns on certain levels of the personality do not preclude profound personal and spiritual transformation.

Just as with the loss of the regenerative capacity of body parts, it appears that the evolutionary force in nature is more interested in promoting the evolution of the systems as a whole than that of their parts.

Restitution, remodelling, and transformation: The final stage of the healing process is probably the most fascinating and at the same time the least understood. Without restitution, remodelling, or transformation, healing will not only remain incomplete, but may eventually lead to serious complications and secondary malfunction. During this stage, the new elements formed in the previous stage are integrated into the organization of the system as a whole. *This means that either the original architecture is restored in accordance with the system's blueprint and program, or that the system is reorganized as a whole.* The latter event, which I call *transformation*, may involve a change of blueprint and program.

This process closely resembles morphogenesis as occurring in embryonic development. It involves the *alignment* of like elements (as with the newly regenerated epithelial cells at the surface of a wound), the *ordering* of groups of unlike elements (surface epithelium, glands and connective tissue of a wound) and the *junction and interconnection* of the various elements (for examples, the connections between a newly formed vascular bed and the surrounding blood vessels, so that blood circulation in a wound is restored). Just as in morphogenesis, one of the greatest mysteries of this process is the source of information for the program being expressed in the restoration of function and architecture. It is here that the concept of morphogenetic fields is very helpful in increasing our understanding of the healing process. Even after extensive destruction of forms and structures, the morphogenetic field for the lost parts seems to be somehow preserved and, on the condition that the previous stages are completed, insures completion of healing.

One of the clearest illustrations of remodelling on the physical level, is the undisturbed healing of a bone fracture.



In its first stages the integrity of the broken bone is provisionally restored by a blood clot, into which connective tissue grows. After removal of dead bone fragments, regeneration sets in with the formation of primitive bone tissue, growing out into an irregular mass, called the callus. In the last stage, a process of transformation of the newly formed bone takes place. Scavenger cells eat away superfluous bone. (But how do they know where to stop eating?) Then the bone is ordered into parallel, or concentric layers and these are joined and aligned in precisely the right way to ensure optimal mechanical stability under the forces to which it is, or will be, subjected.

Homologies of this stage can be found on higher system levels. For example, there is evidence that reorganization of one's life plan, lifestyle and patterns of interpersonal relationships, may improve the chances of healing in cases of ischaemic heart disease and cancer. In children or elderly people who have suffered brain damage, the re-integration into the family structure may be vital to the recovery of the mind-brain interface and physical rehabilitation.

On the other hand, failure of this stage of healing after disease, or personal or interpersonal life crises may be reflected in poor physical health. It may be a factor in the manifestation of such common Western illnesses as high blood pressure, cardiac infarction and cancer.

When reorganization, remodelling, and transformation are interfered with, the previous stage, regeneration, may then carry on unchecked, leading to overgrowth of cells and tissues, and ultimately, total disorganization.

A classic example is cirrhosis of the liver, which in the majority of cases is caused by alcohol abuse. Stages 2 to 4 of the healing process are all active in an attempt to repair the chronically recurring damage to which the liver is subjected. However, especially in long-standing cases, signs of stage 5 are noticeably absent in microscopical sections. Overgrowth of liver cells (regeneration) and connective tissue (reparation) lead to increasing and ultimately irreversible disruption of

the liver architecture. In the absence of remodelling, newly formed blood vessels remain unconnected to the blood circulation or form abnormal connections, leading to the circulatory complications of cirrhosis: fatal hemorrhage and ascites. Finally, in about 15 percent of cases, carcinoma of the liver develops.

Cancer itself is disorganized growth, rather than excessive growth (many cancers have a relatively slow growth rate). We may tentatively conclude that cancer is the result of disturbed (re)organization and transformation. In other words, a failure of the expression of the architectural plan of a tissue.

Using cancer as a metaphor, and looking at our planet as a living organism of which we are an integral part, we might say with some justification that Gaia is suffering from cancer. In order for the last stage of healing of our planet to take place, humanity may have to become responsive to the "morphogenetic" field which has the potential for initiating our transformation.

FACILITATING HEALING

Rest, protection, and support: On many levels of organization, a healing system in its first stages has a high degree of *vulnerability*. Many medical measures with a long historical tradition are based on this insight, such as bed rest, bandages, splints, arm slings, and ice bags.

These principles also hold for healing on higher system levels. After recent life crises, confrontation with death, interpersonal crises - and even in the case of disruptions on the level of organizations, cultures, nations, and political systems - a skilled healer will provide rest, protection and support.

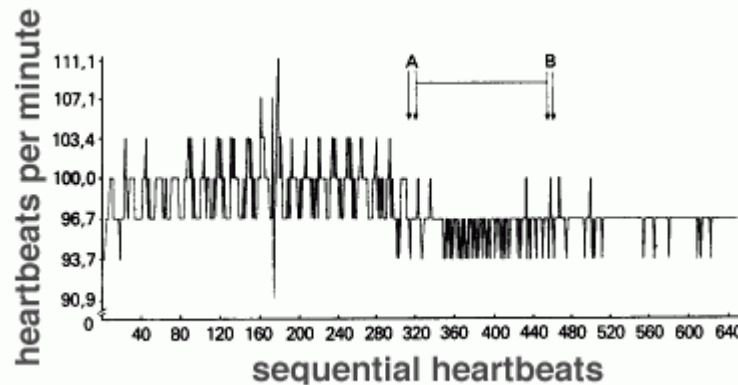
At this time, a call for activity on the patient's part, or an appeal to his will power or responsibility would be premature. This is the time for the qualities of the heart, not so much those of the sword.

Nutrition and nourishment: In times of acute crisis, endocrine activity increases, greatly increasing the body's consumption of stores of carbohydrates, fats, and proteins. It has recently become clear that patients with serious injuries or shock have a greatly increased calorie requirement.

The same applies to aspects of nourishment other than dietary. Much more attention should be given to the nourishing aspects of verbal and nonverbal communication, sound and music, light and colors, literature, and many other needs of the human mind and soul, which might directly facilitate healing. One only has to visit a modern hospital, to fully appreciate the lack of such nourishment.

Touch: It has recently been found that human touch has profound

effects on various physiological functions such as cardiac rate, heart rhythm, blood pressure, and respiration. These effects were recorded even in deeply comatose patients. Measures such as massage increase the local blood flow and stimulate nervous activity, both known to be essential ingredients for healing. In addition, touch can alleviate pain.



The effect of human contact on the heart rate of a comatose and paralyzed man. At "A" a nurse arrived, held his hand, and spoke to him reassuringly. "B" is the time of withdrawal. Notice the decrease in heart rate and the stabilization of heart rhythm during and after contact between the nurse and the patient.

(From J.J. Lynch, see references.)

Activity, movement, and use: In contrast to the early stages, in the later stages of healing patients' activity is necessary and decisive. Bone fractures are again a good example. Movement, use, and putting weight on the bone stimulate the reconstruction of bone and the realignment of bone layers parallel to the lines of force, ensuring optimal adaptation to the mechanical loads to which it is normally exposed.

Where permanent limitations are unavoidable, activity will initiate reorganization and transformation, and thus healing on a higher level of the system. This is true for all levels. People with serious limitations of their locomotor system can sometimes demonstrate astonishing powers of transformation by changing their body scheme and patterns of movement in such a way that their limitations are only apparent to an experienced observer.

Will and responsibility: Very little is understood about the biological mechanisms by which the will affects physiological functions and healing. It has long been known that those who "fight for their lives" heal faster and live longer. This is true for minor disorders, such as influenza and skin wounds, as well as for major diseases such as cancer and heart attack. On the other hand, one may expect a worse prognosis

in patients who have given up or who have lost all meaning in life. In extreme cases, loss of will can cause those without any previous illness to die, for example shortly after the loss of a spouse.

The most elementary level of taking responsibility is the *patient's choice* about the treatment proposed by his physician. At a higher level of self-responsibility is the difficult task of marshalling the *will to change one's life-style, habits and patterns of behavior*. For example, to stop smoking or drinking alcohol, to change dietary habits or the way one responds to life situations and other people.

The drive to give meaning and a sense of purpose to life, even against a background of radical changes of life situation, is the highest level of taking responsibility. The power people develop in doing so allows them to transcend their personal situation, including serious illness, physical limitations, pain, sorrow, and impending death. Paradoxically, on this level one can heal oneself without being cured on the physical level. In a special sense this is also true of the choice to die, the final stage of healing.

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