Cancer Philosophy ~Thinking “Cancer Cells” Deeply

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In a world complex with many incomprehensible factors, confused by issues, my wish is that this teaching—the Philosophy of Cancer—sheds light on the path to the future.

Key words: Cancer Philosophy, Yoshida Tomizou, Inazo Nitobe, Kanzo Uchimura, Shigeru Nambara

Forward

In 2003, I was immersed in the 100th anniversary event of the worldly renowned cancer pathologist Tomizo Yoshida, who paved the way in unveiling the mechanism of cancer.

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This book, *Cancer Philosophy* (2004), considers cancer as a science along with the political philosophy which was suggested by Shigeru Nambara (the first president of the University of Tokyo after World War II) at the start of my adolescence. In 1968, Shigeru Nambara said that today we do not hesitate to depend on what the nation addresses—whether it is for mankind or the masses—without pursuing the validity of it ourselves. In a public society with an advanced

civilization, it is easy to fathom what effect we have on fellow citizens and the society. These words call to me as if they were spoken today (The year 2004 was 30 years after Shigeru Nambara's death).

In the 1860s, the Japanese delegation, which included Kaishu Katsu and Yukichi Fukuzawa, marched on Broadway in New York City. The poet Walt Whitman who saw this described the participants of the march to have a “deeply meditative demeanor and eyes that shined with earnestness”. Indeed, this is the persona which is expected from a true scholar today.

Our publishing company, to be publishing, gets its name from the words of Shigeru Nambara, who said in accordance with Inazo Nitobe that it is more important “to be” than “to do”.

The Spirit of the Philosophy of Cancer ~Thinking Macro, Seeing Micro~

The 20th century can truthfully be named the time of scientific advancement. Space stations were built and man was able to see the blue earth from outer space. However, even though man set foot in outer space for the first time, or the ride between

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Tokyo and Osaka shortened to an unprecedented length of 2.5 hours, history reveals that the essence of human beings has not changed a single bit. Similarly, we have yet to unravel the mystery behind how normal cells become cancer cells and how they grow.

Both the exploration of the far-reaching universe and that of the origin of the miniscule cancer cell bring on great sense of inspiration and emotional stirring. The themes to these quests hint of how human societies should be. I say this out of experience of teaching elementary students in the Tokyo area for the past three years. Indeed, when I mention this thought, children's eyes were twinkling with curiosity.

Think of our world—the human world—as you look into the world of cancer cells under a microscope. This is perhaps the vision behind “The Philosophy of Cancer”.

Flower in the Crannied Wall
by Alfred, Lord Tennyson
Flower in the crannied wall,
I pluck you out of the crannies; —
Hold you here, root and all, in my hand,
Little flower—but if I could understand
What you are, root and all, and all in all,
I should know what God and man is.

Tennyson had it right when he meant that if you can see and understand a single flower, you can come to an understanding of all things in the world.

All things in this universe are related to every other thing in the universe; they are all “parts of one stupendous whole”.

When one's perception of cancer affects his or her views of the world or life itself, it determines his or her daily activities and decisions. When we hear of cases where cancer patients commit suicide after being informed of their disease, we must reinvestigate how physicians are communicating to these patients. It is imperative that the doctor and researcher have a sound understanding of cancer, and that they must thoroughly explain this to the patients.

To know an illness is not to turn away from it, but it is rather to learn how to properly deal with it. I believe that that knowing an illness deeply and accurately and conveying it to the world directly

contributes to reforming and improving society—a sarcastic blow to the media, who recently caused discrimination because of their ignorance on illnesses they claimed to report on.

A cell's oncogenic transformation is a timeless topic that questions the fundamentals of human existence. I see cancer cells with eyes wide open, and I am mesmerized by its wisdom and brilliant individuality. I would like to cover in this book what we can learn from this robust nature of cancer cells about the ailments of our own society.

Looking Towards an Age of Lifetime Cancer ~Focusing More on Adjectives than Nouns~

It would be nice if a patient had a kind of cancer where doctors discovered it after the patient died. The type of cancer where a patient happened to have it, but died of natural causes—a “lifetime cancer” —is a coexisting one.

Unfortunately, it is impossible to wipe out cancer from the face of this earth. As long as humans live with a normal temperature of 37°C, there is a set probability that DNA will be damaged. Therefore, to live is like walking along a path towards cancer.

The present goal of cancer research is to deliberately slow the growth process of cancer. If a patient's life expectancy is 40 years, it is the researcher's goal to prolong that expectancy, by slowing the onset and growth of cancer, to 80 years old. Preferably, one should live through to their maximum lifespan, and then die of cancer. In other words, one should not die of cancer unless they have reached their maximum lifespan. At autopsy, physicians should find out for the first time that their patient had cancer. “Lifetime cancer” can really be true only if we can realize a life where people do not die of cancer—the ultimate goal of cancer research. In fact, we are seeing some light. More than 20% of thyroid and/or prostate cancer patients die with no showing symptoms. They die of another natural cause; this is particularly true in prostate cancer patients.

In order to coexist with cancer and live out until you die of natural causes, you must be able to suppress even the most progressive of cancers. You must restrain them so that they do not grow further. And with metastasis, it is important for you to receive an unerring treatment.

The nature of cancer varies depending on the person and the case, which is also true in changes in the genes. Cancer is individual, and cancer is discrete. There is good cancer, and there is bad cancer. Good cancers respond well to treatment whereas bad cancers do not. Therefore, it is better to focus on, rather than the noun “cancer”, the adjectives “good” or “bad” that come before it. Only then can we see cancer with a broader view.

Now is a time where we can change the nature of cancer according to its surroundings (in various ways through accurate and timely intervention). It takes a few years to perhaps 10 years for one cell to become a 1 cm cancer. For it to become a full-blown clinical cancer, it is said to take up to 20 years. This is evidence that there is room for prevention and intervention in between. It is like in life, when a small incident that happened in your younger years turns out to be something big later on.

The Wisdom of the Micro ~Advocating the Philosophy of Cancer~

It seems at first that the world under the microscope has nothing in common with the events of human society. But researchers marvel each day, with careful observation, at how convergent the events inside a cell are to those in our world. This is the incentive of this book. There is a reservoir of wisdom in the cellular world that can teach us how to survive. I cannot but believe that there is something to learn from the micro world that we could apply to the macro human society, and I wish to touch upon that in this book.

Pathologists turn their thoughts of the cells to those of the pathologies of human societies and refine their expertise in the process. This is exactly when the pathologist becomes the philosopher—the ultimate reason why a pathologist, who deals with cancer research, advocates “The Philosophy of Cancer”.

It often takes courage to speak of subjects beyond your expertise. If you were to talk only of your field, you will not be unexpectedly or shamefully interrogated by anyone; you feel a sense of security and comfort. However, once you start to speak of something on which you are not familiar, it creates room for someone to question you.

Inazo Nitobe once made the analogy that when an insect who lives in its original habitat—the mud—discusses its ecology, it is called scholarly. However, when a curious insect who sees things from the clouds discusses an insect's ecology, it is not regarded as scholarly. This is the same now and then. In any generation, there are very few courageous people who have the guts to speak out like the curious insect—a phenomenon that shows the “scaredy cat” epidemic.

It is often said that when you see things in the macro point of view, a lot of details are most likely to be missed. On the other hand, when you see things specifically with a micro point of view, it is difficult to see the overall picture. Therefore, it is important to have both perspectives. However, very rare is the discerning man who sees both the entire forest as well as the bark on the trees.

Intrinsically, pathologists are professionally in a position where seeing things both macro and micro is required. By touching cancer cells and investigating them, keeping in mind the DNA composition of these cells, the pathologist is able to envision a distant image of human society. The one who can achieve this is the true cancer philosopher.

The Coming of the Age of the Genome ~Humans Encompass the Universe~

It is widely known, thanks to the media, that this is the age of the genome. A press conference regarding the summary of human genome analyst was held in June, 2000 at the United States White House. It is said that the 21st century is the advent of genetic medicine. Similarly, progress made by the human genome project allowed the fusion of life science and IT—an undoubtedly exciting kind of medicine, certainly the blossoming of a new industry through science.

However, just because the human genome is deciphered does not mean that everything related to genes is now fully understood. We now know in what order the four bases—A, T, G, C, (elements which make up an amino acid)—are lined up. Every living organism has these four bases, and the number that we have (which is said to be about 30,000) is the same in humans, fish, or rats. Then why are we human, and why are fish fish? What makes us humans and not chimpanzees? This is a

natural question.

One way to see this is that there is an intelligent gene that differentiates humans and monkeys. In fact, there are research projects in the world that continue to search for this intelligent gene.

It is said that the genetic composition between humans and chimpanzees are about 98.8% the same. Would we, then, if we fully analyze the remaining 1.2%, be able to figure out the difference between chimpanzees and humans? There is no answer to this yet, but it is questionable whether we can define differences simply by comparing genetic composition.

Humans first originate from one fertilized egg. Then, through repeated cell division, an adult human is said to have about 60 trillion cells, with each cell containing DNA. One cell is about 20 microns. Inside a cell is a nucleus, in which there are chromosomes, on which the DNA lies.

Think of a cell as the earth we live in. Chromosomes would be countries. DNA would be cities. And the bases would be individual people. Pick up a “strand” of DNA from a single cell, and you will find that the strand would be about 2 meters. So when strands from 60 trillion cells are connected together, it will be 120 trillion kilometers long. The diameter of the sun is about 10 billion kilometers; so actually, humans sort of already do encompass the universe.

Welcoming the Age of the Clones ~Not Everything Depends on Genes~

In 1997, the famous journal *Nature* reported of what is called the biggest discovery of the 20th century: the birth of the cloned sheep Dolly. To clone is to make an individual by using the exact same DNA as your own. When a child is normally conceived, the egg unites with the sperm, becoming one fertilized egg, which then goes through a series of cell divisions and travels through the Fallopian tube to reach the mother's uterus. In the uterus the fertilized egg is implanted and continues to grow until birth.

It is not so with clones. With clones, you simply take the nucleus of a cell—any cell of choice that has already differentiated (not just a fertilized egg)—and insert it into an unfertilized egg. With electric stimulus, you expedite cell division in a tube. After a few divisions, you remove it from the tube and

insert it into the surrogate mother's uterus. Like so, you can create an individual that has the exact same DNA as that of the person who provided it.

This technique was thought to be not feasible in higher animals because differentiated cells are irreversible (return to their undifferentiated state and redifferentiate). Amphibian cases were proven successful in frogs in the 1960s; the most important point was that the cells could be reset.

It has recently been reported that the DNA of a tortoise-shell cat had been cloned to create another cat whose fur was not tortoise-shell. What does this mean? It means that elements such as fur color can easily be changed depending on the environment in the womb, which also shows that differences in nurture bring about differences in character and appearances, even with the exact same DNA.

A research in 2001 reported of the incidence of cancer studied in maternal twins. According to the study, genetics is only 30% related in the incidence of cancer; the remaining 70% is caused from influences from the environment.

Therefore, it is incorrect to think that DNA determines everything. Sometimes it is said that by genetic testing, you can see what sort of illnesses await you in your future. However, besides single factors such as genetic disorders, how can someone predict what illness you will get at what age? If a combination of three DNA factors is essential for inducing an illness, it is requiring a certain sort of chaos. The mechanism proves that prediction is impossible.

Getting Used to New Ethics ~Acting First~

It is said that the creation of a cloned man is technically possible. It is actually said to be easier than cloning a mouse or a rat. However, because memory cannot be transferred, cloned humans are not the exact same as the original human, even though the physical appearance can be uncannily similar. But when neuroscience advances and we do figure out how to copy memory, maybe we will start creating carbon copies of human beings.

The cloning of humans: Is it a forbidden fruit or advancement? With the research of cloning come many ethical issues. Some countries strongly ban such research; other countries' policies are more

unclear. The obvious trend will then be that scientists move to countries where human cloning research is not clearly prohibited, and there they will continue to research.

In Japan, human cloning is prohibited for reasons to maintain the dignity of human beings. But what exactly is the dignity of humans? And how many people know it? The ambiguity of the true meaning of human dignity is a looming issue in the act to stop research. "Morals differ depending on the person" said a researcher who once tried to clone humans. Unless we have a definitive theory or principle that describes morals, there is no way to refute or stop the researcher from continuing his study.

In 1978, the world's first child conceived by in-vitro fertilization was born in England, attracting the attention of media from all corners of the world. The news was surely a global sensation. However, thousands of in-vitro fertilization has followed over the years, and now the procedure has become very common. People have become so accustomed to the technique that the media does not care to cover it anymore. This exemplifies that ethics can be changed with custom. If someone cloned a human being and made it public when the child was 2 or 3 years old, would it be wrong to wish the child a happy birthday? Surely, even a cloned child has a right to celebrate birthdays.

It is difficult to deter a researcher who strongly wishes to do a certain study. It is difficult to repress someone's desire to do anything. Like an original sin, a repressed researcher may end up wrongfully cloning humans. In order to prevent this, it is important for us, as a society, is to function just as a cancer suppressor gene does to work to stop the spread. In fact, this is actually a matter of urgency in Japan today.

Circumstances That Influence Cancer ~Environment Plays a Big Role~

Just as the tortoise-shell cat clone did not turn out tortoise-shell itself, the environment can change the expression of a gene (phenotype). Diseases, in this case carcinogenicity, can be altered where phenotype is what I like to call "drama type". And it is here where there are grounds for prevention and treatment.

Let's say you inherited a gene from your parents

that codes a hereditary form of cancer. This does not necessarily mean that you will get cancer because you will need additional multiple factors to initiate it. So, the environment surrounding the gene certainly plays a big role.

Elementary students today are familiar with the term "genes" and they make no hesitation using it to their advantage. One child came back home with test report of 20%. As he showed it to his mother he asked, "Mom, is it because of my genes or because of how you raised me that I get these bad test scores?" Truly, there is no sign of reflection or repentance in his comment.

When a child argues that something is genetic or because of the way he was raised, how is a parent to respond? These days, we are at a loss and do not know how to answer this. But when I was child and got 20% on my test, I promised my mother that I would get a perfect score on my next one.

Like so, when a child makes a mistake, the parent should tell him so. If parents do not know much about genes and genetics, they are dumbfounded when asked whether the 20% is because of genetics or the environment, or just a lack of studying. Not knowing is dangerous. Therefore it is imperative to know the basic facts of what genes are and what genetic means, and not to confuse the two.

A hundred years ago, Yukichi Fukuzawa said that a lineage-oriented society is a parent's nightmare. But if he were alive today, would he not say that genetics is just as much a headache?

Only One in a Thousand Cancer Bud Lives on ~Cancerous Surroundings~

Cancer in its early stages are approximately 1 cm. Actually, we can now detect cancers are as small as 0.5 cm, and it is safe to say that almost all cancers up to 1 cm can be completely and effectively treated. The weight of a 1-cm cancer is 1 gram. The size of a single cancer cell is about 20 microns. This means that it takes about 109 cancer cells to make up a 1 cm-cancer. In a time where a cancer with 109 cells can be treated 100%, you can imagine how silly it is for a scientist to be desperately looking for a single cell of cancer.

It is said to take about 20 years for a clinical cancer to develop. If someone discovers cancer at the age of 40, it means that cancer budded when the

patient was 20 years old. In fact, only one in thousands of cancer buds fully blossoms. Not very many do, and the same could be said about humans.

Cancer does not just appear in one day. Depending on how it is treated, it takes 20 to 30 years for it to become big. And in order for it to become big, it needs the right environment—the “cancerous environment”.

This means that an abnormal gene may develop differently with different environments. The same abnormal gene can grow to be a full blown cancer or to nothing at all. This is how environments differentiate the symptoms (phenotype) of a disease.

This is important to know. What this means is that an abnormal gene is not necessarily equivalent to the start of the disease. I wonder whether Japan will ever realize that genetic diseases are just another proof of individuality.

There is drama when lab rats with a certain type of stomach cancer—the type that inevitably becomes cancerous—are in different cancerous environments. Each scenario of cancer is rewritten, meaning that the disease can be controlled. Changing the surroundings of the cancer cell can also create drama. I refer to this as the drama type. And the unraveling of this mechanism is believed to lead to the development in the prevention and treatment of cancer.

Humans, like cancer cells, need time and a good environment to become something big. Protecting and nurturing: This is the secret to raising a human being.

Notification of Cancer ~The Physician's Character in Question~

In one newspaper survey that asked whether you would like to be notified if you were diagnosed with cancer, 76% of those who answered said yes. But when asked whether you would notify a family member who was diagnosed with cancer, only 37% said yes. This is the reality of communication in Japan. Why would you not want to tell a family member about his or her cancer, when if it was you, you would want to be told? The psychology behind this needs to be explored more.

In the United States, it is important that what and doctor knows matches exactly with what the

patient is informed. The United States is a lawsuit country, so whatever you know of a patient you should inform. However in Japan, it is rather questionable whether the knowledge passed on from doctor to patient is complete. It is said that most often, for whatever reason, doctors explain the patient's condition as rather less severe as it really is.

It is known that with a progressed type of cancer, it is difficult to fully treat in just two or three treatments. Patients find at the end of the treatments, that the effect was not up to what was expected. The patient then asks why it is not working. The doctor—knowing fully why—does not say much, which in turn causes the patient to think that the doctor is cold and indifferent.

In Japan, even the family is not entirely honest, fudging what is really happening. But the nature of the people can partially explain why that is. It is difficult for Japanese people to make straight-to-the-point remarks because the custom to encourage someone is not in their culture.

This shows how medicine in Japan is about 30 years behind that of the United States. Whether this is for better or worse, I cannot say. But it is the reality of Japan.

On the other hand, we hear now of doctors who exaggerate the prognosis to avoid problems, should they arise in the future. In a pet-crazy era, we can see the same phenomena in veterinarians.

Extreme cases put aside, what is important is having the kind of love to do whatever it is that needs to be done: Inform a patient with good doctor-patient communication and a subjective and professional opinion. The doctor should maintain his dignity but still respect the patient as a unique individual. This is the unchanging oath. However, sadly, this principle is in question now, and doctors are starting to think “it's not what you said, but who said it”.

Sacrifice is the Cost of True Contribution ~Devotion~

Cancer cells in its early stages are actually meek and weak. So how do they become so tough and grow so fearlessly? The answer is that all cells need nutrition (i.e., essential amino acids) to survive.

Even cancer cells are unable to produce this

nutrition on their own. However, compared to normal cells, cancer cells have a super-sensitive detection ability to sniff out nutrition in their environment—it only needs a concentration one-fifth of what a normal cell can detect. Also, according to Dr. Hitoshi Endo's research, cancer cells do a little give-and-take and consume essential amino acids while throwing out other amino acids that they can produce: the act of purposefully keeping itself lean. In other words, cancer cells are sensitive to food and are used to a starved condition, and are therefore tough enough to survive.

On the other hand, normal cells are thought to do a little take-and-take, definitely requiring more tender loving care. If there was a street fight between normal cells and cancer cells, cancer cells will obviously win (although they may kill themselves through apoptosis).

History shows that in repletion, it is difficult to learn to be a survivor. It has been pointed out that Japanese children nowadays, spoiled in a world of abundance, are ignorant of the concept of poverty and have no experience of sharing or helping out one another. Adults give their children and grandchildren what they want, and in that sort of environment, a child will not learn any sense of perseverance. Because they do not know the idea of scarcity, they will not know how to overcome it. We hear of horrific news of juvenile criminals, and we wonder what their parents have taught them.

Cancer cells survive by giving something they have produced. In society, fields such as academic, medicine, corporations, finance, all have their contributions to society. They all sacrifice something, to survive in return. This is true contribution. I hope that, as cancer cells do, we too learn to sacrifice and contribute to the regeneration of the Japanese economy.

The Cancer in Human Society ~Cancer Cell Goes to Rehab~

For example, if a regular stomach cell transferred to another organ, most likely it would be wiped out. But a cancer cell would survive; hence, it has the ability to metastasize.

Cancer cells can change its surface (not its basic structure) according the environment it is in, so

that it can survive in any organ. Change is their priority, and they do not hold on to what was past.

It makes you wonder, then, what we have that we need to cling on to? Can't most things afford being changed? We should not be bound to things that we do not need, and truthfully, not much is needed. For one to grow up, it is important that he lets go of himself.

I propose that missionaries become like cancer cells. What cancer cells do in a new environment is very similar to what missionaries should do in their new life in their new country, where they are to spread the gospel. That is how they reach out to a new community.

A new organ has its own unique characteristics, or culture. A cancer cell can take this in, make it its own, and grow in it. In addition, cancer cells have the spectacular ability to make its environment comfortable and livable. For example, it can create a new blood vessel that is tailored to carry essential nutrients to the cell. So, in order to stop its growth, we need to shut down that blood vessel and cut all routes of nutrition.

The cancer also conquers its surroundings by with enzymes (protease). Also, it manipulatively blocks the inter-communication between normal cells, causing them to go out of control. It is like the gangsters and the mafia of human society. Cancer is already thought of as "the bad guy", so curing cancer is like curing the mob—rephrased as ameliorating cancer (Tomizo Yoshida) or sending it to rehab (Knudson). There is an uncanny parallel between how humans become cancerous, and how a cell becomes cancerous.

Learning Moves From an Inchworm ~Deciding Which Way to Go~

I believe that in times like today, it is more important to decide how to live (direction) than to decide on what goal to achieve. It is important to accustom yourself to the time and internationalism, and to stop and think wholly and gracefully before you make that first step.

What is expected in a time when we lack the magnanimity to accept basic research that seems extremely inefficient is the mind and wit to refute and convince others. We need the spirit and drive to show true initiative and internationalism by eva-

luating the world's trend. We must reexamine history and study and make time our friend.

According to Chief Prosecutor Akio Harada, phrases that Inazo Nitobe used to define an internationalist were "a wise generosity" "meditation over action" "policy over dispute or victory" and "examples and action". In a closed society, it is most important to secure a leverage point.

The inchworm is the larva of the geometridae family, and there is said to be 300 different types in Japan. The characteristics of the inchworm are widely used in research all over the world. For example, it is said that for a robot to steadily move forward on an unsteady surface such as the moon, the movement of the inchworm is most appropriate. Old Chinese literature says the reason the inchworm contracts so much is so that it can take a big step forward. Like so, the little creature has played a big role in research for many years.

Of all the cancer buds, only the strongest survive. The one that does survive apparently knows the ropes to survival, and this also can be exemplified by the inchworm.

"The inchworm secures its original point by planting its sucker. It then pushes its front legs forward to advance, without moving the original point. The inchworm never loses its originality". The inchworm's method of maintaining its originality is the idea behind a theory that globally-known Japanese cancer researcher, Waro Nakahara, chief of the cancer institute and national cancer institute, had presented (according to Takashi Sugimura, honored chief of the cancer institute).

"To hold a leverage point and advance like an inchworm". Now more than ever, I see that my master Dr. Knudson's research style was surely subtle and noble.

Life Expectancy and Regenerative Medicine ~The Maximum Age Is 120 Years?~

Regenerative medicine is frequently the talk of town these days. After an egg is fertilized, it undergoes cell division. Then it is implanted in the placenta. The outer cells of the blastocyst make up the placenta, and the inner cells make up the individual. In regenerative medicine, scientists take out this inner cell mass that creates the individual and transfers it to a test tube, where it is cultivated.

This cultivated mass (the stem cell) is then differentiated into various types of cells. And research continues in the area of creating stem cells out of somatic cells. Stem cells in a test tube can become different types of cells such as liver, blood, muscles. If a stem cell can be made from somatic cells, this would not create any immunologic rejection issues when injected into the donor, which would be a revolutionary advancement in medicine.

If a stem cell is injected into the myocardium of a patient who had a myocardial infarction, the cells would travel to where the necrosis occurred and differentiate into new cardiomyocytes. An individual being possesses the factors to induce differentiation, so this process is possible.

As exemplified in procedures such as stem cells for spinal cord injuries, we are certainly entering a period of regenerative medicine and cell therapy. For now, we do not completely know what factors induce cell differentiation for human nerve, muscle, blood cells in the tube. The world is in search to identify these factors, and the one who does will probably get a Nobel award (The factor activin for amphibian cells has been discovered by Dr. Makoto Asashima).

And future hot topics will include life expectancy. Issues of life expectancy are different from those of aging. Even if you are well and healthy at 120 years old, you will die—this life expectancy. The question is can we extend it? There have been reports in animal studies that by inserting a certain gene—one that codes DNA-injuring substances to become harmless—life expectancy can indeed be extended. Because humans age with the same mechanism, should we find such gene in humans, a similar effect can be expected.

People in the 1900s had a life expectancy of 40 years. In 2000, that doubled and became 80 years. Will it double again and be 160 years in 2100? Currently, researchers are tackling the limit of 120 years. Ironically, cancer cells live on forever. Something that lives on forever kills something that wants to live on forever. Unquestionably, there is much to contemplate in the study of cancer cells.

Timely Diagnosis and Accurate Treatment ~ "Timing" Is Everything~

Obviously, the unraveling of the mechanism of

cancer cells will lead to the development of treatment.

This can be better explained by paralleling it to the mafia. Mr. A of the mafia has done much wrongdoing in his life. He has threatened others, been involved in rivalry fights and drug selling. His actions easily identify him as a member of the mafia. But how this Mr. A, who looks no different from Mr. B next door, got involved in such a group is hard to find out. Maybe something had happened in his younger years.

On the other hand, had we known why Mr. A decided to join the mafia and intervened his decision-making at the right time, Mr. A could have left the gang and started a new life.

Like so, it is important in medicine also to timely diagnose and accurately treat a patient. The effects will be great if you watch out for the right signs and diagnose and the right time.

Time is indeed the key here. There are times where you have to be patient and just observe. There is a best timing for everything, and to intervene then with the most accurate treatment is what makes a good educator, notably in medicine, a good doctor.

Had he lived alone on that isolated island, we would not have been able to tell for sure whether Robinson Crusoe was a man of good conscience or evil schemes. Similarly, we cannot really tell the nature of a cancer cell when it stands alone. We only find out when it is placed among other cells, and through observing its interaction with them. Some are good and some are bad; it is better to focus on the adjectives that modify the cancer rather than the noun “cancer” itself.

We cannot tell a person or a cancer cell by just looking at its face (surface). Some very kind people could have the most devilish faces (an atypical cell could be misdiagnosed as cancerous) and vice versa.

According to Tomizo Yoshida, the distance between a normal cell and a cancer cell can be continuous. We first compare cancer cells to normal cells, seeing the former as deviations of the latter. Then we compare the two cells among themselves, which leads to the true understanding of cancer. I think that by this, he hinting that great innovations can be achieved by first reexamining old ground.

Rooming With Your Opposite ~The Truth of the Oval Form~

Many counterparts co-exist inside a living organism. In the cell, there is the oncogene and the anti-oncogene (tumor suppressor gene) that balance each other out. There is also the sympathetic nerve that counters the parasympathetic nerve, where the former activates and the latter suppresses. Like so, two opposites constitute a fine balance to maintain stability in an organism.

It is necessary for a healthy living system to be an oval with two fixed point observations. The neoplasia of single-cloned cells is like a concentric circle and is typical of cancer. Kanzo Uchimura had a keen insight when he said that the truth is not in the circle, but rather in the oval.

Even in society, when you are in a concentric circle of people, you tend to exclude different or opposing others, not being able to take them in. That is precisely how cliques or sects form. At first glance, people in a clique seem to do alright and get along famously with one another. But once something bad starts, they will inevitably perish because their self-purification abilities have diminished and they are not able to save themselves.

In an organism, when a certain cell dies it is regenerated by stimulation from surrounding cells. However, if you are in an enclosed group not prepared for outside influence, communication with your surroundings will become difficult and you will lose your chance to regenerate.

The same can be said in humans. In order to activate a certain group or society, you need guardians but you also need a few odd people to spruce it up. Surrounding yourself with brilliant straight-A types will not help you survive.

Another example is the corporate world. If the CEO is surrounded by “yes” people, meaning they only agree to whatever the CEO says, then the future of that company is bleak. It is important to have a few people that object and challenge your ways. Undergoing change within instigated from outside influences is also depicted in Rudolf Virchow’s anaplasie (somatic mutation).

The Last Word

The other day I read two books—Kokkano

Hinkaku (The Class of a Nation) by Masahiko Fujiwara and Chobakano Kabe (The Barriers of the Very Stupid) by Takeshi Yoro. The two are bestsellers, perhaps because the both authors write beyond their scientific backgrounds—Mr. Fujiwara a mathematician and Mr. Yoro an anatomist—and that was what appealed to the readers. I feel this describes our time today, but I sense a difference in the way they make their point. Mr. Fujiwara's method is straightforward, clear, and concise, whereas Mr. Yoro used compelling factors to portray a fool and thereby caused the reader to ponder such things. I see this as a comparison between the “paper and pencil” type mathematician whose thinking is straightforward, and the biological scientist who knows that not all situations can be clear-cut and practical. As one who studies the teachings of Inazo Nitobe and sees the philosophy of cancer as my axis, I understand the two very well.

Before World War II, Minister of Education Kunihiro Hashida under the Tojo regime explained the importance of having a “science spirit”. However, Tadao Yanaihara added that this needs to be a criticizing spirit that cannot be distorted by the government. I think that readers saw this scientific spirit in Mr. Fujiwara and Mr. Yoro. Still the critical mind is in essence the conscience of the scientist.

In cancer research, we often hear the term formative stimulation. This is a specific form of stimulation that initiates cancer development. Cancer does not originate from nothing. It is the result of a repeated stimulation.

The same can be said about education. I was told in my childhood days to read a different type of book for 30 minutes before I went to sleep, and so I did for 30 years. I sincerely believe that it is because of this habit that I cultivated an accepting attitude to embrace the thoughts of such as Shigeru Nambara, Inazo Nitobe, Kanzo Uchimura and Tadao Yanaihara. Stimulation is greater when it is from an influence that is new to you.

I thought of this as I discussed Inazo Nitobe's Bushido in my college class the other day. Students, although they may not listen to my lecture, seem to enjoy it when I digress. I find it important to consciously think outside the box.

Shigeru Nambara said that what our country is missing is, above all, the vision, passion, and ideals that touch the hearts of young people and students who are our future.

Reference

- 1) Okio Hino: Cancer Philosophy. Tokyo: EDITEX, 2009.