



*This translation has been a communal effort
by the student workers on the mountain.*

I



Look at this Grain

I believe that a revolution can begin from this one strand of straw. Seen at a glance, this rice straw may appear light and insignificant. Hardly anyone would believe that it could start a revolution. But I have come to realize the weight and power of this straw. For me, this revolution is very real.

Take a look at these fields of rye and barley. This ripening grain will yield about 22 bushels (1,300 pounds) per quarter acre. I believe this matches the top yields in Ehime Prefecture. And if this equals the best yield in Ehime Prefecture, it could easily equal the top harvest in the whole country since this is one of the prime agricultural areas in Japan. And yet these fields have not been plowed for twenty-five years.

To plant, I simply broadcast rye and barley seed on separate fields in the fall, while the rice is still standing. A few weeks later I harvest the rice and spread the rice straw back over the fields.

It is the same for the rice seeding. This winter grain will be cut around the 20th of May. About two weeks before the crop has fully matured, I broadcast rice seed over the rye and barley. After the winter grain has been harvested and the grains threshed, I spread the rye and barley straw over the field.

I suppose that using the same method to plant rice and winter grain is unique to this kind of farm-

ing. But there is an easier way. As we walk over to the next field, let me point out that the rice there was sown last fall at the same time as the winter grain. The whole year's planting was finished in that field by New Year's Day.

You might also notice that white clover and weeds are growing in these fields. Clover seed was sown among the rice plants in early October, shortly before the rye and barley. I do not worry about sowing the weeds—they reseed themselves quite easily.

So the order of planting in this field is like this: in early October clover is broadcast among the rice; winter grain then follows in the middle of the month.



"And yet these fields have not been plowed for twenty-five years."

In early November, the rice is harvested, and then the next year's rice seed is sown and straw laid across the field. The rye and barley you see in front of you were grown this way.

In caring for a quarter-acre field, one or two people can do all the work of growing rice and winter grain in a matter of a few days. It seems unlikely that there could be a simpler way of raising grain.

This method completely contradicts modern agricultural techniques. It throws scientific knowledge and traditional farming know-how right out the window. With this kind of farming, which uses no machines, no prepared fertilizer and no chemicals, it is possible to attain a harvest equal to or greater than that of the average Japanese farm. The proof is ripening right before your eyes.

Nothing at All

Recently people have been asking me why I started farming this way so many years ago. Until now I have never discussed this with anyone. You could say there was no way to talk about it. It was simply—how would you say it—a shock, a flash, one small experience that was the starting point.

That realization completely changed my life. It is nothing you can really talk about, but it might be put something like this: "Humanity knows nothing at all. There is no intrinsic value in anything, and every action is a futile, meaningless effort." This may seem preposterous, but if you put it into words, that is the only way to describe it.

This "thought" developed suddenly in my head when I was still quite young. I did not know if this insight, that all human understanding and effort are of no account, was valid or not, but if I examined these thoughts and tried to banish them, I could come up with nothing within myself to contradict them. Only the certain belief that this was so burned within me.

It is generally thought that there is nothing more splendid than human intelligence, that human beings are creatures of special value, and that their creations and accomplishments as mirrored in culture and history are wondrous to behold. That is the common belief, anyway.

Since what I was thinking was a denial of this, I was unable to communicate my view to anyone. Eventually I decided to give my thoughts a form, to put them into practice, and so to determine whether my understanding was right or wrong. To spend my life farming, growing rice and winter grain—this was the course upon which I settled.

And what was this experience that changed my life?

Forty years ago, when I was twenty-five years old, I was working for the Yokohama Customs Bureau in the Plant Inspection Division. My main job was to inspect incoming and outgoing plants for disease-carrying insects. I was fortunate to have a good deal of free time, which I spent in the research laboratory, carrying out investigations in my specialty of plant pathology. This laboratory was located next to Yamate Park and looked down on Yokohama harbor from the bluff. Directly in front of the building was the Catholic Church, and to the east was the Ferris Girls' School. It was very quiet, all in all the perfect environment for carrying on research.

The laboratory pathology researcher was Eiichi Kurosawa. I had studied plant pathology under Mako-to Okera, a teacher at Gifu Agricultural High School, and received guidance from Suehiko Igata of the Okayama Prefecture Agricultural Testing Center.

I was very fortunate to be a student of Professor Kurosawa. Although he remained largely unknown in the academic world, he is the man who isolated and raised in culture the fungus which causes *bakanae* disease in rice. He became the first to extract the plant growth hormone, gibberellin, from the fungus culture. This hormone, when a small amount is absorbed by the young rice plants, has the peculiar effect of causing the plant to grow abnormally tall. When given in excess, however, it brings about the

opposite reaction, causing the plant's growth to be retarded. No one took much notice of this discovery in Japan, but overseas it became a topic of active research. Soon thereafter, an American made use of gibberellin in developing the seedless grape.

I regarded Kurosawa-san* as my own father, and with his guidance, built a dissection microscope and devoted myself to research on decay-causing resin diseases in the trunk, branches and fruit of American and Japanese citrus trees.

Looking through the microscope, I observed fungus cultures, crossbred various fungi and created new disease-causing varieties. I was fascinated with my work. Since the job required deep, sustained concentration, there were times when I actually fell unconscious while working in the lab.

This was also a time of youthful high spirits and I did not spend all of my time shut up in the research room. The place was the port city of Yokohama, no better spot to fool around and have a good time. It was during that time that the following episode occurred. Intent, and with camera in hand, I was strolling by the wharf and caught sight of a beautiful woman. Thinking that she would make a great subject for a photograph, I asked her to pose for me. I helped her onto the deck of the foreign ship anchored there, and asked her to look this way and that and took several pictures. She asked me to send her copies when the photos were ready. When I asked where to send them, she just said, "To Ofuna," and left without mentioning her name.

After I had developed the film, I showed the prints to a friend and asked if he recognized her. He gasped and said, "That's Mieko Takamine, the famous

*-san is a formal title of address in Japanese used for both men and women.

movie star!" Right away, I sent ten enlarged prints to her in Ofuna City. Before long, the prints, auto-graphed, were returned in the mail. There was one missing, however. Thinking about this later, I realized that it was the close-up profile shot I had taken; it probably showed some wrinkles in her face. I was delighted and felt I had caught a glimpse into the feminine psyche.

At other times, clumsy and awkward though I was, I frequented a dance hall in the Nankingai area. One time I caught sight there of the popular singer, Noriko Awaya, and asked her to dance. I can never forget the feeling of that dance, because I was so overwhelmed by her huge body that I could not even get my arm around her waist.

In any event, I was a very busy, very fortunate young man, spending my days in amazement at the world of nature revealed through the eyepiece of the microscope, struck by how similar this minute world was to the great world of the infinite universe. In the evening, either in or out of love, I played around and enjoyed myself. I believe it was this aimless life, coupled with fatigue from overwork, that finally led to fainting spells in the research room. The consequence of all this was that I contracted acute pneumonia and was placed in the pneumothorax treatment room on the top floor of the Police Hospital.

It was winter and through a broken window the wind blew swirls of snow around the room. It was warm beneath the covers, but my face was like ice. The nurse would check my temperature and be gone in an instant.

As it was a private room, people hardly ever looked in. I felt I had been put out in the bitter cold, and suddenly plunged into a world of solitude and loneliness. I found myself face to face with the fear of death. As I think about it now, it seems a useless fear,

but at the time, I took it seriously.

I was finally released from the hospital, but I could not pull myself out of my depression. In what had I placed my confidence until then? I had been unconcerned and content, but what was the nature of that complacency? I was in an agony of doubt about the nature of life and death. I could not sleep, could not apply myself to my work. In nightly wanderings above the bluff and beside the harbor, I could find no relief.

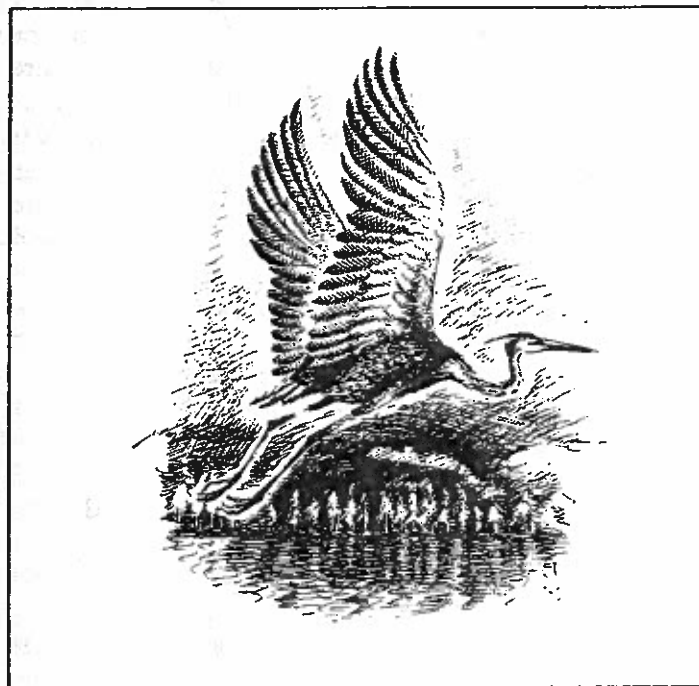
One night as I wandered, I collapsed in exhaustion on a hill overlooking the harbor, finally dozing against the trunk of a large tree. I lay there, neither asleep nor awake, until dawn. I can still remember that it was the morning of the 15th of May. In a daze I watched the harbor grow light, seeing the sunrise and yet somehow not seeing it. As the breeze blew up from below the bluff, the morning mist suddenly disappeared. Just at that moment a night heron appeared, gave a sharp cry, and flew away into the distance. I could hear the flapping of its wings. In an instant all my doubts and the gloomy mist of my confusion vanished. Everything I had held in firm conviction, everything upon which I had ordinarily relied was swept away with the wind. I felt that I understood just one thing. Without my thinking about them, words came from my mouth: "In this world there is nothing at all. . . ." I felt that I understood nothing.*

I could see that all the concepts to which I had been clinging, the very notion of existence itself, were empty fabrications. My spirit became light and clear. I was dancing wildly for joy. I could hear the small birds chirping in the trees, and see the distant waves glistening in the rising sun. The leaves danced green

*To "understand nothing," in this sense, is to recognize the insufficiency of intellectual knowledge.

and sparkling. I felt that this was truly heaven on earth. Everything that had possessed me, all the agonies, disappeared like dreams and illusions, and something one might call "true nature" stood revealed.

I think it could safely be said that from the experience of that morning my life changed completely.



Despite the change, I remained at root an average, foolish man, and there has been no change in this from then to the present time. Seen from the outside, there is no more run-of-the-mill fellow than I, and there has been nothing extraordinary about my daily life. But the assurance that I know this one thing has not changed since that time. I have spent thirty years, forty years, testing whether or not I have been mis-

taken, reflecting as I went along, but not once have I found evidence to oppose my conviction.

That this realization in itself has great value does not mean that any special value is attached to me. I remain a simple man, just an old crow, so to speak. To the casual observer I may seem either humble or arrogant. I tell the young people up in my orchard again and again not to try to imitate me, and it really angers me if there is someone who does not take this advice to heart. I ask, instead, that they simply live in nature and apply themselves to their daily work. No, there is nothing special about me, but what I have glimpsed is vastly important.

Returning to the Country

On the day following this experience, May 16th, I reported to work and handed in my resignation on the spot. My superiors and friends were amazed. They had no idea what to make of this. They held a farewell party for me in a restaurant above the wharf, but the atmosphere was a bit peculiar. This young man who had, until the previous day, gotten along well with everyone, who did not seem particularly dissatisfied with his work, who, on the contrary, had wholeheartedly dedicated himself to his research, had suddenly announced that he was quitting. And there I was, laughing happily.

At that time I addressed everyone as follows, "On this side is the wharf. On the other side is Pier 4. If you think there is life on this side, then death is on the other. If you want to get rid of the idea of death, then you should rid yourself of the notion that there is life on this side. Life and death are one."

When I said this everyone became even more concerned about me. "What's he saying? He must be out of his mind," they must have thought. They all saw me off with rueful faces. I was the only one who walked out briskly, in high spirits.

At that time my roommate was extremely worried about me and suggested that I take a quiet rest, perhaps out on the Boso Peninsula. So I left. I would

have gone anywhere at all if someone had asked me. I boarded the bus and rode for many miles gazing out at the checkered pattern of fields and small villages along the highway. At one stop, I saw a small sign which read, "Utopia." I got off the bus there and set out in search of it.

On the coast there was a small inn and, climbing the cliff, I found a place with a truly wonderful view. I stayed at the inn and spent the days dozing in the tall grasses overlooking the sea. It may have been a few days, a week, or a month, but anyway I stayed there for some time. As the days passed my exhilaration dimmed, and I began to reflect on just what had happened. You could say I was finally coming to myself again.

I went to Tokyo and stayed for a while, passing the days by walking in the park, stopping people on the street and talking to them, sleeping here and there. My friend was worried and came to see how I was getting along. "Aren't you living in some dream world, some world of illusion?" he asked. "No," I replied, "it's you who are living in the dream world." We both thought, "I am right and you are in the dream world." When my friend turned to say good-bye, I answered with something like, "Don't say good-bye. To part is just to part." My friend seemed to have given up hope.

I left Tokyo, passed through the Kansai area* and came as far south as Kyushu. I was enjoying myself, drifting from place to place with the breeze. I challenged a lot of people with my conviction that everything is meaningless and of no value, that everything returns to nothingness.

But this was too much, or too little, for the everyday world to conceive. There was no communi-

* Osaka, Kobe, Kyoto.

cation whatsoever. I could only think of this concept of non-usefulness as being of great benefit to the world, and particularly the present world which is moving so rapidly in the opposite direction. I actually wandered about with the intention of spreading the word throughout the whole country. The outcome was that wherever I went I was ignored as an eccentric. So I returned to my father's farm in the country.

My father was growing tangerines at that time and I moved into a hut on the mountain and began to live a very simple, primitive life. I thought that if here, as a farmer of citrus and grain, I could actually demonstrate my realization, the world would recognize its truth. Instead of offering a hundred explanations, would not practicing this philosophy be the best way? My method of "do-nothing"* farming began with this thought. It was in the 13th year of the present emperor's reign, 1938.

I settled myself on the mountain and everything went well up to the time that my father entrusted me with the richly-bearing trees in the orchard. He had already pruned the trees to "the shape of sake cups" so that the fruit could easily be harvested. When I left them abandoned in this state, the result was that the branches became intertwined, insects attacked the trees and the entire orchard withered away in no time.

My conviction was that crops grow themselves and should not have to be grown. I had acted in the belief that everything should be left to take its natural course, but I found that if you apply this way of thinking all at once, before long things do not go so well. This is abandonment, not "natural farming."

*With this expression Mr. Fukuoka draws attention to his method's comparative ease. This way of farming requires hard work, especially at the harvest, but far less than other methods.

My father was shocked. He said I must rediscipline myself, perhaps take a job somewhere and return when I had pulled myself back together. At that time my father was headman of the village, and it was hard for the other members of the community to relate to his eccentric son, who obviously could not get along with the world, living as he did back in the mountains. Moreover, I disliked the prospect of military service, and as the war was becoming more and more violent, I decided to go along humbly with my father's wishes and take a job.

At that time technical specialists were few. The Kochi Prefecture Testing Station heard about me, and it came about that I was offered the post of Head Researcher of Disease and Insect Control. I imposed upon the kindness of Kochi Prefecture for almost eight years. At the testing center I became a supervisor in the scientific agriculture division, and in research devoted myself to increasing wartime food productivity. But actually during those eight years, I was pondering the relationship between scientific and natural agriculture. Chemical agriculture, which utilizes the products of human intelligence, was reputed to be superior. The question which was always in the back of my mind was whether or not natural agriculture could stand up against modern science.

When the war ended I felt a fresh breeze of freedom, and with a sigh of relief I returned to my home village to take up farming anew.

Toward a Do-Nothing Farming

For thirty years I lived only in my farming and had little contact with people outside my own community. During those years I was heading in a straight line toward a "do-nothing" agricultural method.

The usual way to go about developing a method is to ask "How about trying this?" or "How about trying that?" bringing in a variety of techniques one upon the other. This is modern agriculture and it only results in making the farmer busier.

My way was opposite. I was aiming at a pleasant, natural way of farming* which results in making the work easier instead of harder. "How about *not* doing this? How about *not* doing that?"—that was my way of thinking. I ultimately reached the conclusion that there was no need to plow, no need to apply fertilizer, no need to make compost, no need to use insecticide. When you get right down to it, there are few agricultural practices that are really necessary.

The reason that man's improved techniques seem to be necessary is that the natural balance has been so badly upset beforehand by those same techniques that the land has become dependent on them.

* Farming as simply as possible within and in cooperation with the natural environment, rather than the modern approach of applying increasingly complex techniques to remake nature entirely for the benefit of human beings.

This line of reasoning not only applies to agriculture, but to other aspects of human society as well. Doctors and medicine become necessary when people create a sickly environment. Formal schooling has no intrinsic value, but becomes necessary when humanity creates a condition in which one must become "educated" to get along.

Before the end of the war, when I went up to the citrus orchard to practice what I then thought was natural farming, I did no pruning and left the orchard to itself. The branches became tangled, the trees were attacked by insects and almost two acres of mandarin orange trees withered and died. From that time on the question, "What is the natural pattern?" was always in my mind. In the process of arriving at the answer, I wiped out another 400 trees. Finally I felt I could say with certainty: "This is the natural pattern."

To the extent that trees deviate from their nat-



"For thirty years I lived only in my farming..."

ural form, pruning and insect extermination become necessary; to the extent that human society separates itself from a life close to nature, schooling becomes necessary. In nature, formal schooling has no function.

In raising children, many parents make the same mistake I made in the orchard at first. For example, teaching music to children is as unnecessary as pruning orchard trees. A child's ear catches the music. The murmuring of a stream, the sound of frogs croaking by the riverbank, the rustling of leaves in the forest, all these natural sounds are music—true music. But when a variety of disturbing noises enter and confuse the ear, the child's pure, direct appreciation of music degenerates. If left to continue along that path, the child will be unable to hear the call of a bird or the sound of the wind as songs. That is why music education is thought to be beneficial to the child's development.

The child who is raised with an ear pure and clear may not be able to play the popular tunes on the violin or the piano, but I do not think this has anything to do with the ability to hear true music or to sing. It is when the heart is filled with song that the child can be said to be musically gifted.

Almost everyone thinks that "nature" is a good thing, but few can grasp the difference between natural and unnatural.

If a single new bud is snipped off a fruit tree with a pair of scissors, that may bring about disorder which cannot be undone. When growing according to the natural form, branches spread alternately from the trunk and the leaves receive sunlight uniformly. If this sequence is disrupted the branches come into conflict, lie one upon another and become tangled, and the leaves wither in the places where the sun cannot penetrate. Insect damage develops. If the tree

is not pruned the following year more withered branches will appear.

Human beings with their tampering do something wrong, leave the damage unrepaired, and when the adverse results accumulate, work with all their might to correct them. When the corrective actions appear to be successful, they come to view these measures as splendid accomplishments. People do this over and over again. It is as if a fool were to stomp on and break the tiles of his roof. Then when it starts to rain and the ceiling begins to rot away, he hastily climbs up to mend the damage, rejoicing in the end that he has accomplished a miraculous solution.

It is the same with the scientist. He pores over books night and day, straining his eyes and becoming nearsighted, and if you wonder what on earth he has been working on all that time—it is to become the inventor of eyeglasses to correct nearsightedness.

Returning to the Source

Leaning against the long handle of my scythe, I pause in my work in the orchard and gaze out at the mountains and the village below. I wonder how it is that people's philosophies have come to spin faster than the changing seasons.

The path I have followed, this natural way of farming, which strikes most people as strange, was first interpreted as a reaction against the advance and reckless development of science. But all I have been doing, farming out here in the country, is trying to show that humanity knows nothing. Because the world is moving with such furious energy in the opposite direction, it may appear that I have fallen behind the times, but I firmly believe that the path I have been following is the most sensible one.

During the past few years the number of people interested in natural farming has grown considerably. It seems that the limit of scientific development has been reached, misgivings have begun to be felt, and the time for reappraisal has arrived. That which was viewed as primitive and backward is now unexpectedly seen to be far ahead of modern science. This may seem strange at first, but I do not find it strange at all.

I discussed this with Kyoto University Professor Iinuma recently. A thousand years ago agriculture

was practiced in Japan without plowing, and it was not until the Tokugawa Era 300-400 years ago that shallow cultivation was introduced. Deep plowing came to Japan with Western agriculture. I said that in coping with the problems of the future the next generation would return to the non-cultivation method.

To grow crops in an unplowed field may seem at first a regression to primitive agriculture, but over the years this method has been shown in university laboratories and agricultural testing centers across the country to be the most simple, efficient, and up-to-date method of all. Although this way of farming disavows modern science, it now has come to stand in the forefront of modern agricultural development.

I presented this "direct seeding non-cultivation winter grain/rice succession" in agricultural journals twenty years ago. From then on it appeared often in print and was introduced to the public at large on radio and television programs many times, but nobody paid much attention to it.

Now suddenly, it is a completely different story. You might say that natural farming has become the rage. Journalists, professors, and technical researchers are flocking to visit my fields and the huts up on the mountain.

Different people see it from different points of view, make their own interpretations, and then leave. One sees it as primitive, another as backward, someone else considers it the pinnacle of agricultural achievement, and a fourth hails it as a breakthrough into the future. In general, people are only concerned with whether this kind of farming is an advance into the future or a revival of times past. Few are able to grasp correctly that natural farming arises from the unmoving and unchanging center of agricultural development.

To the extent that people separate themselves

from nature, they spin out further and further from the center. At the same time, a centripetal effect asserts itself and the desire to return to nature arises. But if people merely become caught up in reacting, moving to the left or to the right, depending on conditions, the result is only more activity. The non-moving point of origin, which lies outside the realm of relativity, is passed over, unnoticed. I believe that even "returning-to-nature" and anti-pollution activities, no matter how commendable, are not moving toward a genuine solution if they are carried out solely in reaction to the overdevelopment of the present age.

Nature does not change, although the way of viewing nature invariably changes from age to age. No matter the age, natural farming exists forever as the wellspring of agriculture.

One Reason That Natural Farming Has Not Spread

Over the past twenty or thirty years this method of growing rice and winter grain has been tested over a wide range of climates and natural conditions. Almost every prefecture in Japan has run tests comparing yields of "direct seeding non-cultivation" with those of paddy rice growing and the usual ridge and furrow rye and barley cultivation. These tests have produced no evidence to contradict the universal applicability of natural farming.

And so one may ask why this truth has not spread. I think that one of the reasons is that the world has become so specialized that it has become impossible for people to grasp anything in its entirety. For example, an expert in insect damage prevention from the Kochi Prefectural Testing Center came to inquire why there were so few rice leaf-hoppers in my fields even though I had not used insecticide. Upon investigating the habitat, the balance between insects and their natural enemies, the rate of spider propagation and so on, the leaf-hoppers were found to be just as scarce in my fields as in the Center's fields, which are sprayed countless times with a variety of deadly chemicals.

The professor was also surprised to find that while the harmful insects were few, their natural predators were far more numerous in my fields than in

the sprayed fields. Then it dawned on him that the fields were being maintained in this state by means of a natural balance established among the various insect communities. He acknowledged that if my method were generally adopted, the problem of crop devastation by leaf-hoppers could be solved. He then got into his car and returned to Kochi.

But if you ask whether or not the testing center's soil fertility or crop specialists have come here, the answer is no, they have not. And if you were to suggest at a conference or gathering that this method, or rather non-method, be tried on a wide scale, it is my guess that the prefecture or research station would reply, "Sorry, it's too early for that. We must first carry out research from every possible angle before giving final approval." It would take years for a conclusion to come down.

This sort of thing goes on all the time. Specialists and technicians from all over Japan have come to this farm. Seeing the fields from the standpoint of his own specialty, every one of these researchers has found them at least satisfactory, if not remarkable. But in the five or six years since the professor from the research station came to visit here, there have been few changes in Kochi Prefecture.

This year the agricultural department of Kinki University has set up a natural farming project team in which students of several different departments will come here to conduct investigations. This approach may be one step nearer, but I have a feeling that the next move may be two steps in the opposite direction.

Self-styled experts often comment, "The basic idea of the method is all right, but wouldn't it be more convenient to harvest by machine?" or, "Wouldn't the yield be greater if you used fertilizer or pesticide in certain cases or at certain times?" There are always

those who try to mix natural and scientific farming. But this way of thinking completely misses the point. The farmer who moves toward compromise can no longer criticize science at the fundamental level.

Natural farming is gentle and easy and indicates a return to the source of farming. A single step away from the source can only lead one astray.

Humanity Does Not Know Nature

Lately I have been thinking that the point must be reached when scientists, politicians, artists, philosophers, men of religion, and all those who work in the fields should gather here, gaze out over these fields, and talk things over together. I think this is the kind of thing that must happen if people are to see beyond their specialties.

Scientists think they can understand nature. That is the stand they take. Because they are convinced that they can understand nature, they are committed to investigating nature and putting it to use. But I think an understanding of nature lies beyond the reach of human intelligence.

I often tell the young people in the huts on the mountain, who come here to help out and to learn about natural farming, that anybody can see the trees up on the mountain. They can see the green of the leaves; they can see the rice plants. They think they know what green is. In contact with nature morning and night, they sometimes come to think that they know nature. But when they think they are beginning to understand nature, they can be sure that they are on the wrong track.

Why is it impossible to know nature? That which is conceived to be nature is only the *idea* of nature arising in each person's mind. The ones who see true

nature are infants. They see without thinking, straight and clear. If even the names of plants are known, a mandarin orange tree of the citrus family, a pine of the pine family, nature is not seen in its true form.

An object seen in isolation from the whole is not the real thing.

Specialists in various fields gather together and observe a stalk of rice. The insect disease specialist sees only insect damage, the specialist in plant nutrition considers only the plant's vigor. This is unavoidable as things are now.

As an example, I told the gentleman from the research station when he was investigating the relation between rice leaf-hoppers and spiders in my fields, "Professor, since you are researching spiders, you are interested in only one among the many natural predators of the leaf-hopper. This year spiders appeared in great numbers, but last year it was toads. Before that, it was frogs that predominated. There are countless variations."



It is impossible for specialized research to grasp the role of a single predator at a certain time within the intricacy of insect inter-relationships. There are seasons when the leaf-hopper population is low because there are many spiders. There are times when a lot of rain falls and frogs cause the spiders to disappear, or when little rain falls and neither leaf-hoppers nor frogs appear at all.

Methods of insect control which ignore the relationships among the insects themselves are truly useless. Research on spiders and leaf-hoppers must also consider the relation between frogs and spiders. When things have reached this point, a frog professor will also be needed. Experts on spiders and leaf-hoppers, another on rice, and another expert on water management will all have to join the gathering.

Furthermore, there are four or five different kinds of spiders in these fields. I remember a few years ago when somebody came rushing over to the house early one morning to ask me if I had covered my fields with a silk net or something. I could not imagine what he was talking about, so I hurried straight out to take a look.

We had just finished harvesting the rice, and overnight the rice stubble and low-lying grasses had become completely covered with spider webs, as though with silk. Waving and sparkling with the morning mist, it was a magnificent sight.

The wonder of it is that when this happens, as it does only once in a great while, it only lasts for a day or two. If you look closely there are several spiders in every square inch. They are so thick on the field that there is hardly any space between them. In a quarter acre there must be how many thousands, how many millions! When you go to look at the field two or three days later, you see that strands of web several yards long have broken off and are waving about in

the wind with five or six spiders clinging to each one. It is like when dandelion fluff or pine cone seeds are blown away in the wind. The young spiders cling to the strands and are sent sailing off in the sky.

The spectacle is an amazing natural drama. Seeing this, you understand that poets and artists will also have to join in the gathering.

When chemicals are put into a field, this is all destroyed in an instant. I once thought there would be nothing wrong with putting ashes from the fireplace onto the fields.* The result was astounding. Two or three days later the field was completely bare of spiders. The ashes had caused the strands of web to disintegrate. How many thousands of spiders fell victim to a single handful of this apparently harmless ash? Applying an insecticide is not simply a matter of eliminating the leaf-hoppers together with their natural predators. Many other essential dramas of nature are affected.

The phenomenon of these great swarms of spiders, which appear in the rice fields in the autumn and like escape artists vanish overnight, is still not understood. No one knows where they come from, how they survive the winter, or where they go when they disappear.

And so the use of chemicals is not a problem for the entomologist alone. Philosophers, men of religion, artists and poets must also help to decide whether or not it is permissible to use chemicals in farming, and what the results of using even organic fertilizers might be.

We will harvest about 22 bushels (1,300 pounds) of rice, and 22 bushels of winter grain from each quarter acre of this land. If the harvest reaches 29 bushels,

* Mr. Fukuoka makes compost of his wood ashes and other organic household wastes. He applies this to his small kitchen garden.

as it sometimes does, you might not be able to find a greater harvest if you searched the whole country. Since advanced technology had nothing to do with growing this grain, it stands as a contradiction to the assumptions of modern science. Anyone who will come and see these fields and accept their testimony, will feel deep misgivings over the question of whether or not humans know nature, and of whether or not nature can be known within the confines of human understanding.

The irony is that science has served only to show how small human knowledge is.

The Terms for Abandoning Chemicals

Today Japanese rice growing stands at an important crossroads. Farmers and specialists are confused as to which path to follow—to continue paddy transplanting, or to move over to direct seeding, and if the latter, to choose cultivation or non-cultivation. I have been saying for the past twenty years that direct seeding non-cultivation will eventually prove to be the best way. The speed with which direct seeding is already spreading in Okayama Prefecture is eye-opening.

There are those, however, who say that turning to a non-chemical agriculture to supply the nation's food is unthinkable. They say that chemical treatments must be used to control the three great rice diseases—stem rot, rice blast disease, and bacterial leaf blight. But if farmers would stop using weak, "improved" seed varieties, stop adding too much nitrogen to the soil, and reduce the amount of irrigation water so that strong roots could develop, these diseases would all but disappear and chemical sprays would become unnecessary.

At first, the red clay soil in my fields was weak and unsuited for growing rice. Brown spot disease frequently occurred. But as the field gradually grew in fertility, the incidence of brown spot disease decreased. Lately there have been no outbreaks at all.

With insect damage the situation is the same. The most important thing is not to kill the natural predators. Keeping the field continuously under water or irrigating with stagnant or polluted water will also lead to insect problems. The most troublesome insect pests, summer and fall leaf-hoppers, can be kept under control by keeping water out of the field.

Green rice leaf-hoppers, living in the weeds over the winter, may become a virus host. If this happens the result is often a loss of ten to twenty percent from rice blast disease. If chemicals are not sprayed, however, there will be many spiders present in the field and one can generally leave the work to them. Spiders are sensitive to even the slightest human tampering and care must always be taken on this account.

Most people think that if chemical fertilizer and insecticides were abandoned agricultural yields would fall to a fraction of the present level. Experts on insect damage estimate that losses in the first year after giving up insecticides would be about five percent. Loss of another five percent in abandoning chemical fertilizer would probably not be far mistaken.

That is, if the use of water in the rice field were curtailed, and the chemical fertilizer and pesticide spraying encouraged by the Agricultural Co-op were abandoned, the average losses in the first year would probably reach about ten percent. The recuperative power of nature is great beyond imagining and after this initial loss, I believe harvests would increase and eventually surpass their original level.

While I was with the Kochi Testing Station, I carried out experiments in the prevention of stem borers. These insects enter and feed on the stem of the rice plant, causing the stalk to turn white and wither. The method of estimating the damage is simple: you count how many white stalks or rice there are. In a

hundred plants, ten or twenty percent of the stalks may be white. In severe cases, when it appears as though the whole crop has been ruined, the actual damage is about thirty percent.

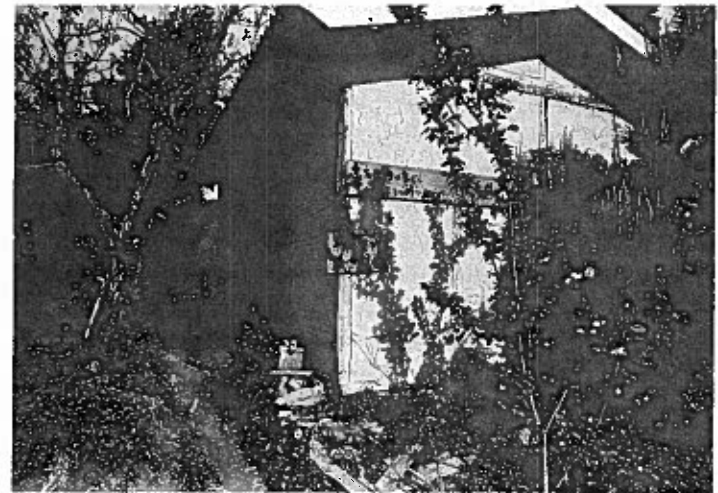
To try to avoid this loss, one field of rice was sprayed with insecticide to kill the stem borers; another field was left untreated. When the results were calculated it turned out that the untreated field with many withered stalks had the higher yield. At first I could not believe it myself and thought it was an experimental error. But the data appeared to be accurate, so I investigated further.

What happened was that by attacking the weaker plants the stem borers produced a kind of thinning effect. The withering of some stems left more room for the rest of the plants. Sunlight was then able to penetrate to the lower leaves. These remaining rice plants grew more strongly as a result, sent up more grain-bearing stalks, and produced more grains to the head than they could have without the thinning. When the density of stalks is too great and insects do not thin out the excess, the plants look healthy enough, but in many cases the harvest is actually lower.

Looking at the many research testing center reports you can find the results of using practically every chemical spray on record. But it is generally not realized that only half of these results are reported. Of course there is no intention of hiding anything, but when the results are published by the chemical companies as in advertisements, it is the same as if the conflicting data had been concealed. Results which show lower yields, as in the experiment with the stem borers, are checked off as experimental discrepancies and discarded. There are, of course, cases in which insect extermination results in increased yields, but there are other cases in which the yield is

reduced. Reports of the latter rarely appear in print.

Among agricultural chemicals, herbicides are probably the most difficult to dissuade farmers from using. Since ancient times the farmer has been afflicted with what might be termed "the battle against the weeds." Plowing, cultivating between the rows, the ritual of rice transplanting itself, all are mainly aimed at eliminating weeds. Before the development of herbicides, a farmer had to walk many miles through the flooded rice fields each season, pushing a weeding tool up and down the rows and pulling weeds by hand. It is easy to understand why these chemicals were received as a godsend. In the use of straw and clover and the temporary flooding of the fields, I have found a simple way to control weeds without either the hot, hard labor of weeding or the use of chemicals.



A mudwalled hut in the orchard.

Limits of the Scientific Method

Before researchers become researchers they should become philosophers. They should consider what the human goal is, what it is that humanity should create. Doctors should first determine at the fundamental level what it is that human beings depend on for life.

In applying my theories to farming, I have been experimenting in growing my crops in various ways, always with the idea of developing a method close to nature. I have done this by whittling away unnecessary agricultural practices.

Modern scientific agriculture, on the other hand, has no such vision. Research wanders about aimlessly, each researcher seeing just one part of the infinite array of natural factors which affect harvest yields. Furthermore, these natural factors change from place to place and from year to year.

Even though it is the same quarter acre, the farmer must grow his crops differently each year in accordance with variations in weather, insect populations, the condition of the soil, and many other natural factors. Nature is everywhere in perpetual motion; conditions are never exactly the same in any two years.

Modern research divides nature into tiny pieces and conducts tests that conform neither with natural

law nor with practical experiences. The results are arranged for the convenience of research, not according to the needs of the farmer. To think that these conclusions can be put to use with invariable success in the farmer's field is a big mistake.

Recently Professor Tsuno of Ehime University wrote a lengthy book on the relationship of plant metabolism to rice harvests. This professor often comes to my field, digs down a few feet to check the soil, brings students along to measure the angle of sunlight and shade and whatnot, and takes plant specimens back to the lab for analysis. I often ask him, "When you go back, are you going to try non-cultivation direct seeding?" He laughingly answers, "No, I'll leave the applications to you. I'm going to stick to research."

So that is how it is. You study the function of the plant's metabolism and its ability to absorb nutrients from the soil, write a book, and get a doctorate in agricultural science. But do not ask if your theory of assimilation is going to be relevant to the yield.

Even if you can explain how metabolism affects the productivity of the top leaf when the average temperature is eighty-four degrees (Fahrenheit), there are places where the temperature is not eighty-four degrees. And if the temperature is eighty-four degrees in Ehime this year, next year it may only be seventy-five degrees. To say that simply stepping up metabolism will increase starch formation and produce a large harvest is a mistake. The geography and topography of the land, the condition of the soil, its structure, texture, and drainage, exposure to sunlight, insect relationships, the variety of seed used, the method of cultivation—truly an infinite variety of factors—must all be considered. A scientific testing method which takes all relevant factors into account is an impossibility.

You hear a lot of talk these days about the benefits of the "Good Rice Movement" and the "Green Revolution." Because these methods depend on weak, "improved" seed varieties, it becomes necessary for the farmer to apply chemicals and insecticides eight or ten times during the growing season. In a short time the soil is burned clean of microorganisms and organic matter. The life of the soil is destroyed and crops come to be dependent on nutrients added from the outside in the form of chemical fertilizer.

It appears that things go better when the farmer applies "scientific" techniques, but this does not mean that science must come to the rescue because the natural fertility is inherently insufficient. It means that rescue is necessary because the natural fertility has been destroyed.

By spreading straw, growing clover, and returning to the soil all organic residues, the earth comes to possess all the nutrients needed to grow rice and winter grain in the same field year after year. By natural farming, fields that have already been damaged by cultivation or the use of agricultural chemicals can be effectively rehabilitated.



One Farmer Speaks Out

There is a great deal of concern in Japan these days, and justifiably so, about the deteriorating quality of the environment and the resulting contamination of food. Citizens have organized boycotts and large demonstrations to protest the indifference of political and industrial leaders. But all of this activity, if carried out in the present spirit, only results in wasted effort. To talk about cleaning up specific cases of pollution is like treating symptoms of a disease while the root cause of the malady continues to fester.

Two years ago, for instance, a conference for the purpose of discussing pollution was organized by the Agricultural Management Research Center, together with the Organic Agricultural Council and the Nada Co-op. The chairman of the conference was Mr. Teruo Ichiraku, who is head of the Japanese Organic Farmers Association, and is also one of the most powerful figures in the government's Agricultural Co-op. The recommendations of this agency as to which crops and seed varieties should be grown, how much fertilizer should be used and which chemicals should be applied are followed by nearly every village farmer in Japan.

Because such a diversity of influential people were taking part, I attended with hopes that far-

reaching action could be decided upon and put into effect.

From the standpoint of publicizing the food pollution problem, this conference could be said to have been successful. But like the other meetings, the discussions degenerated into a series of highly technical reports by research specialists and personal accounts of the horrors of food contamination. No one seemed willing to address the problem at its fundamental level.

In a discussion of mercury poisoning of tuna, for example, the representative of the Fisheries Bureau first spoke of how truly frightening the problem had become. At that time mercury pollution was being discussed every day on the radio and in the newspapers, and so everyone listened closely to hear what he had to say.

The speaker said that the amount of mercury in the bodies of tuna, even those taken in the Antarctic Ocean and near the North Pole, was extremely high. However, when a laboratory specimen taken several hundred years ago was dissected and analyzed, this fish, contrary to expectation, also contained mercury. His tentative conclusion suggested that mercury consumption was necessary for the fish to live.

The people in the audience looked at each other in disbelief. The purpose of the meeting was supposed to have been to determine how to deal with the pollution which had already contaminated the environment, and to take measures to correct it. Instead, here was this representative from the Fisheries Bureau saying that mercury is necessary for the tuna's survival. This is what I mean when I say that people do not grasp the root cause of pollution but only see it from a narrow and superficial perspective.

I stood up and suggested that we take joint action to set up, then and there, a concrete plan to deal with

pollution. Would it not be better to talk straightforwardly about discontinuing the use of the chemicals which are causing the pollution? Rice, for example can be grown very well without chemicals, as can citrus, and it is not difficult to grow vegetables that way either. I said that it could be done, and that I had been doing it on my farm for years, but that as long as the government continued to endorse the use of chemicals, no one else would give clean farming a try.

Members of the Fisheries Bureau were present at the meeting, as were people from the Ministry of Agriculture and Forestry and the Agricultural Co-op. If they and the chairman of the conference, Mr. Ichiraku, had really wanted to get things going and had suggested that farmers throughout the country should try growing rice without chemicals, sweeping changes could have been made.

There was one great problem, however. If crops were to be grown without agricultural chemicals, fertilizer, or machinery, the giant chemical companies would become unnecessary and the government's Agricultural Co-op Agency would collapse. To put the matter right out front, I said that the Co-ops and the modern agricultural policy-makers depend on large capital investment in fertilizer and agricultural machinery for their base of power. To do away with machinery and chemicals would bring about a complete change in the economic and social structures. Therefore, I could see no way that Mr. Ichiraku, the Co-ops or the government officials could speak out in favor of measures to clean up pollution.

When I spoke out in this way, the chairman said, "Mr. Fukuoka, you are upsetting the conference with your remarks," shutting my mouth for me. Well, that's what happened.

A Modest Solution to a Difficult Problem

So it appears that government agencies have no intention of stopping pollution. A second difficulty is that all aspects of the problem of food pollution must be brought together and solved at the same time. A problem cannot be solved by people who are concerned with only one or another of its parts.

To the extent that the consciousness of everyone is not fundamentally transformed, pollution will not cease.

For example, the farmer thinks that the Inland Sea* is of no concern to him. He thinks that it is the officials of the Fisheries Bureau whose business it is to look after fish, and that it is the job of the Environmental Council to take care of ocean pollution. In this way of thinking lies the problem.

The most commonly used chemical fertilizers, ammonium sulfate, urea, super phosphate and the like, are used in large amounts, only fractions of which are absorbed by the plants in the field. The rest leaches into streams and rivers, eventually flowing into the Inland Sea. These nitrogen compounds become food for algae and plankton which multiply in great numbers, causing the red tide to appear. Of

*The small sea between the islands of Honshu, Kyushu and Shikoku.

course, industrial discharge of mercury and other contaminating wastes also contribute to the pollution, but for the most part water pollution in Japan comes from agricultural chemicals.

So it is the farmer who must shoulder major responsibility for the red tide. The farmer who applies polluting chemicals to his field, the corporations who manufacture these chemicals, the village officials who believe in the convenience of chemicals and offer technical guidance accordingly—if each of these people does not ponder the problem deeply there will be no solving the question of water pollution.

As it is now, only those who are most directly affected become active in trying to cope with pollution problems, as in the case of the local fishermen's struggle against the big oil companies after the oil spill near Mizushima. Or else some professor proposes to cope with the problem by opening a channel through the belly of Shikoku Island to let the relatively clean water of the Pacific Ocean flow into the Inland Sea. This sort of thing is researched and attempted time after time, but a true solution can never come about in this way.

The fact of the matter is that whatever we do, the situation gets worse. The more elaborate the countermeasures, the more complicated the problems become.

Suppose a pipe *were* laid across Shikoku and water *were* pumped up from the Pacific and poured into the Inland Sea. Let us say that this may possibly clean up the Inland Sea. But where is the electric power going to come from to run the factory which will manufacture the steel pipe, and how about the power required to pump the water up? A nuclear power plant would become necessary. To construct such a system, concrete and all the various materials must be assembled, and a uranium processing center

built as well. When solutions develop in this way, they only sow the seeds for second- and third-generation pollution problems which will be more difficult than the previous ones, and more widespread.

It is like the case of the greedy farmer who opens the irrigation inlet too wide and lets the water come rushing into his rice paddy. A crack develops and the ridge crumbles away. At this point reinforcement work becomes necessary. The walls are strengthened and the irrigation channel enlarged. The increased volume of water only increases the potential danger, and the next time the ridge weakens, even greater effort will be required for reconstruction.

When a decision is made to cope with the symptoms of a problem, it is generally assumed that the corrective measures will solve the problem itself. They seldom do. Engineers cannot seem to get this through their heads. These countermeasures are all based on too narrow a definition of what is wrong. Human measures and countermeasures proceed from limited scientific truth and judgment. A true solution can never come about in this way.*

My modest solutions, such as spreading straw and growing clover, create no pollution. They are effective because they eliminate the source of the problem. Until the modern faith in big technological solutions can be overturned, pollution will only get worse.

*By "limited scientific truth and judgment," Mr. Fukuoka is referring to the world as perceived and constructed by the human intellect. He considers this perception to be limited to a framework defined by its own assumptions.

The Fruit of Hard Times

Consumers generally assume that they have nothing to do with causing agricultural pollution. Many of them ask for food that has not been chemically treated. But chemically treated food is marketed mainly in response to the preferences of the consumer. The consumer demands large, shiny, unblemished produce of regular shape. To satisfy these desires, agricultural chemicals which were not used five or six years ago have come rapidly into use.

How did we get into such a predicament? People say they do not care if cucumbers are straight or crooked, and that fruit does not necessarily have to be beautiful on the outside. But take a look inside the wholesale markets in Tokyo sometime if you want to see how the price responds to consumer preferences. When the fruit looks just a little better, you get a premium of five or ten cents a pound. When the fruit is classed "Small," "Medium" or "Large," the price per pound may double or triple with each increase in size.

The consumer's willingness to pay high prices for food produced out of season has also contributed to the increased use of artificial growing methods and chemicals. Last year, Unshu mandarin oranges grown in hothouses for summer shipment* fetched prices

*This fruit ripens naturally late in the fall.

ten to twenty times higher than seasonal mandarins. Instead of the usual price of 10 to 15 cents per pound, outrageous prices of \$.80, \$1.00, even \$1.75 to the pound were paid. And so, if you invest several thousand dollars to install the equipment, buy the necessary fuel, and work the extra hours, you can realize a profit.

Farming out of season is becoming more and more popular all the time. To have mandarin oranges just one month earlier, the people in the city seem happy enough to pay for the farmer's extra investment in labor and equipment. But if you ask how important it is for human beings to have this fruit a month earlier, the truth is that it is not important at all, and money is not the only price paid for such indulgence.

Furthermore, a coloring agent, not used a few years ago, is now being used. With this chemical, the fruit becomes fully colored one week earlier. Depending on whether the fruit is sold a week before or after the 10th of October, the price either doubles or falls by half, so the farmer applies color-accelerating chemicals, and after the harvest places the fruit in a ripening room for gas treatment.

But when the fruit is shipped out early, it is not sweet enough, and so artificial sweeteners are used. It is generally thought that chemical sweeteners have been prohibited, but the artificial sweetener sprayed on citrus trees has not been specifically outlawed. The question is whether or not it falls into the category of "agricultural chemicals." In any case, almost everybody is using it.

The fruit is then taken to the co-op fruit-sorting center. In order to separate the fruit into large and small sizes, each one is sent rolling several hundred yards down a long conveyor. Bruising is common. The larger the sorting center, the longer the fruit is bounced and tumbled about. After a water washing

the mandarin oranges are sprayed with preservatives and a coloring agent is brushed on. Finally, as a finishing touch, a paraffin wax solution is applied and the fruit is polished to a glossy shine. Nowadays fruit is really "run through the mill."

So from the time just before the fruit has been harvested to the time it is shipped out and put on the display counter, five or six chemicals are used. This is not to mention the chemical fertilizers and sprays that were used while the crops were growing in the orchard. And this is all because the consumer wants to buy fruit just a little more attractive. This little edge of preference has put the farmer in a real predicament.

These measures are not taken because the farmer likes to work this way, or because the officials of the Ministry of Agriculture enjoy putting the farmer through all this extra labor, but until the general sense of values changes, the situation will not improve.

When I was with the Yokohama Customs Office forty years ago, Sunkist lemons and oranges were being handled in this way. I was strongly opposed to introducing this system to Japan, but my words could not prevent the current system from being adopted.

If one farm household or co-op takes up a new process such as the waxing of mandarin oranges, because of the extra care and attention the profit is higher. The other agricultural co-ops take notice and soon they, too, adopt the new process. Fruit which is not wax-treated no longer brings so high a price. In two or three years waxing is taken up all over the country. The competition then brings the prices down, and all that is left to the farmer is the burden of hard work and the added costs of supplies and equipment. Now he *must* apply the wax.

Of course the consumer suffers as a result. Food

that is not fresh can be sold because it *looks* fresh. Speaking biologically, fruit in a slightly shriveled state is holding its respiration and energy consumption down to the lowest possible level. It is like a person in meditation: his metabolism, respiration, and calorie consumption reach an extremely low level. Even if he fasts, the energy within the body will be conserved. In the same way, when mandarin oranges grow wrinkled, when fruit shrivels, when vegetables wilt, they are in the state that will preserve their food value for the longest possible time.

It is a mistake to try to maintain the mere appearance of freshness, as when shopkeepers sprinkle water on their vegetables over and over again. Although the vegetables are kept looking fresh, their flavor and nutritional value soon deteriorate.

At any rate, all the agricultural cooperatives and collective sorting centers have been integrated and expanded to carry out such unnecessary activities. This is called "modernization." The produce is packed and loaded onto the great delivery system and shipped off to the consumer.

To say it in a word, until there is a reversal of the sense of values which cares more for size and appearance than for quality, there will be no solving the problem of food pollution.

The Marketing of Natural Food

For the past several years I have sent 88 to 110 bushels (5,000-6,500 pounds) of rice to natural food stores in various parts of the country. I have also shipped 400 thirty-five-pound cartons of mandarin oranges in ten-ton trucks to the co-op living association in Tokyo's Sugunami district. The chairman of the co-op wanted to sell unpolluted produce, and this formed the basis of our agreement.

The first year was quite successful but there were also some complaints. The size of the fruit was too varied, the exterior was a bit dirty, the skin was sometimes shriveled and so on. I had shipped the fruit in plain unmarked cartons, and there were some people who suspected, without reason, that the fruit was just an assortment of "seconds." I now pack the fruit in cartons lettered "natural mandarins."

Since natural food can be produced with the least expense and effort, I reason that it should be sold at the cheapest price. Last year, in the Tokyo area, my fruit was the lowest priced of all. According to many shopkeepers the flavor was the most delicious. It would be best, of course, if the fruit could be sold locally, eliminating the time and expense involved in shipping, but even so, the price was right, the fruit was free of chemicals and it tasted good. This year I have been asked to ship two or three times as much as before.

At this point the question arises as to how far the direct sale of natural food can spread. I have one hope in this regard. Lately chemical fruit growers have been driven into an extremely tight economic pinch, and this makes the production of natural food more attractive to them. No matter how hard the average farmer works applying chemicals, coloring, waxing, and so on, he can only sell his fruit for a price that will barely cover expenses. This year, even a farm with exceptionally fine fruit can only expect to realize a profit of less than five cents per pound. The farmer producing slightly lower quality fruit will end up with nothing at all.

Since prices have slumped in the past few years, the agricultural co-ops and sorting centers have become very strict, selecting fruit of only the very highest quality. Inferior fruit cannot be sold to the sorting centers. After putting in a full day's work in the orchard harvesting the mandarin oranges, loading them into boxes, and carrying them to the sorting shed, the farmer must work until eleven or twelve o'clock at night, picking over his fruit, one by one, keeping only those of perfect size and shape.*

The "good ones" sometimes average only 25% to 50% of the total crop, and even some of these are rejected by the co-op. If the profit remaining is a mere two or three cents per pound, it is considered pretty good. The poor citrus farmer is working hard these days and still barely breaking even.

Growing fruit without applying chemicals, using fertilizer, or cultivating the soil involves less expense, and the farmer's net profit is therefore higher. The fruit I ship out is practically unsorted; I just pack the fruit into a box, send them off to the market, and get to bed early.

*The rejected fruit is sold for about half price to a private company to be squeezed for juice.

The other farmers in my neighborhood realize that they are working very hard only to end up with nothing in their pockets. The feeling is growing that there is nothing strange about growing natural food products, and the producers are ready for a change to farming without chemicals. But until natural food can be distributed locally, the average farmer will worry about not having a market in which to sell his produce.

As for the consumer, the common belief has been that natural food should be expensive. If it is not expensive, people suspect that it is not natural food. One retailer remarked to me that no one would buy natural produce unless it is priced high.

I still feel that natural food should be sold more cheaply than any other. Several years ago I was asked to send the honey gathered in the citrus orchard and the eggs laid by the hens on the mountain to a natural food store in Tokyo. When I found out that the merchant was selling them at extravagant prices, I was furious. I knew that a merchant who would take advantage of his customers in that way would also mix my rice with other rice to increase the weight, and that it, too, would reach the consumer at an unfair price. I immediately stopped all shipments to that store.

If a high price is charged for natural food, it means that the merchant is taking excessive profits. Furthermore, if natural foods are expensive, they become luxury foods and only rich people are able to afford them.

If natural food is to become widely popular, it must be available locally at a reasonable price. If the consumer will only adjust to the idea that low prices do not mean that the food is not natural, then everyone will begin thinking in the right direction.

Commercial Agriculture Will Fail

When the concept of commercial agriculture first appeared, I opposed it. Commercial agriculture in Japan is not profitable for the farmer. Among merchants the rule is that if an article which originally costs a certain amount is further processed, an extra cost is added when the article is sold. But in Japanese agriculture it is not so straightforward. Fertilizer, feed, equipment, and chemicals are purchased at prices fixed abroad, and there is no telling what the actual cost per pound will be when these imported products are used. It is completely up to the merchants. And with selling prices also fixed, the farmer's income is at the mercy of forces beyond his control.

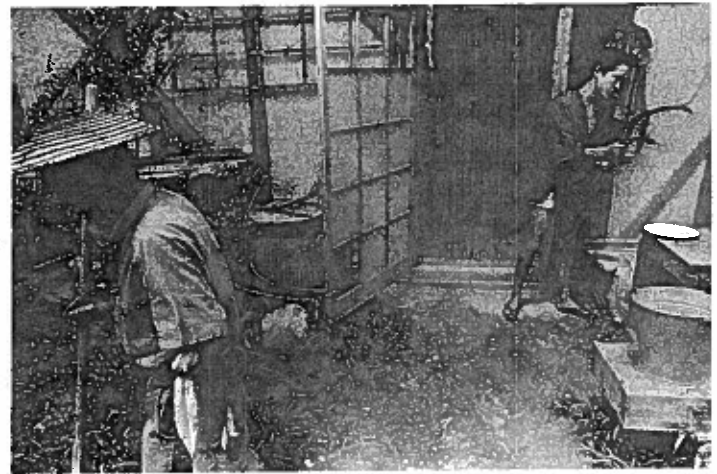
In general, commercial agriculture is an unstable proposition. The farmer would do much better by growing the food he needs without thinking about making money. If you plant one grain of rice, it becomes more than one thousand grains. One row of turnips makes enough pickles for the entire winter. If you follow this line of thought, you will have enough to eat, more than enough, without struggling. But if you decide to try to make money instead, you get on board the profit wagon, and it runs away with you.

I have been thinking lately about white leghorns. Because the improved variety of white leghorn lays

over 200 days a year, raising them for profit is considered good business. When raised commercially these chickens are cooped up in long rows of small cages not unlike cells in a penitentiary, and through their entire lives their feet are never allowed to touch the ground. Disease is common and the birds are pumped full of antibiotics and fed a formula diet of vitamins and hormones.

It is said that the local chickens that have been kept since ancient times, the brown and black *shamo* and *chabo*, have only half the egg-laying capacity. As a result these birds have all but disappeared in Japan. I let two hens and one rooster loose to run wild on the mountainside and after one year there were twenty-four. When it seemed that few eggs were being laid, the local birds were busy raising chickens.

In the first year, the leghorn has a greater egg-laying efficiency than the local chickens, but after one year the white leghorn is exhausted and cast aside, whereas the *shamo* we started with has become ten healthy birds running about beneath the orchard



Setting out for a day's work.

trees. Furthermore, the white leghorns lay well because they are raised on artificially enriched feed which is imported from foreign countries and must be bought from the merchants. The local birds scratch around and feed freely on seeds and insects in the area and lay delicious, natural eggs.

If you think commercial vegetables are nature's own, you are in for a big surprise. These vegetables are a watery chemical concoction of nitrogen, phosphorous, and potash, with a little help from the seed. And that is just how they taste. And commercial chicken eggs (you can call them eggs if you like) are nothing more than a mixture of synthetic feed, chemicals, and hormones. This is not a product of nature but a man made synthetic in the shape of an egg. The farmer who produces vegetables and eggs of this kind, I call a manufacturer.

Now if it is manufacturing you are talking about, you will have to do some fancy figuring if you want to make a profit. Since the commercial farmer is not making any money, he is like a merchant who cannot handle the abacus. That sort of fellow is regarded as a fool by other people and his profits are soaked up by politicians and salesmen.

In olden times there were warriors, farmers, craftsmen, and merchants. Agriculture was said to be closer to the source of things than trade or manufacturing, and the farmer was said to be "the cupbearer of the gods." He was always able to get by somehow or other and have enough to eat.

But now there is all this commotion about making money. Ultra-fashionable produce such as grapes, tomatoes, and melons are being grown. Flowers and fruit are being produced out-of-season in hothouses. Fish breeding has been introduced and cattle are raised because profits are high.

This pattern shows clearly what happens when

farming climbs aboard the economic roller coaster. Fluctuations in prices are violent. There are profits, but there are losses as well.

Failure is inevitable. Japanese agriculture has lost sight of its direction and has become unstable. It has strayed away from the basic principles of agriculture and has become a business.

Research for Whose Benefit?

When I first began direct-seeding rice and winter grain, I was planning to harvest with a hand sickle and so I thought it would be more convenient to set the seeds out in regular rows. After many attempts, dabbling about as an amateur, I produced a handmade seeding tool. Thinking that this tool might be of practical use to other farmers, I brought it to the man at the testing center. He told me that since we were in an age of large-sized machinery he could not be bothered with my "contraption."

Next I went to a manufacturer of agricultural equipment. I was told here that such a simple machine, no matter how much you tried to make of it, could not be sold for more than \$3.50 apiece. "If we made a gadget like that, the farmers might start thinking they didn't need the tractors we sell for thousands of dollars." He said that nowadays the idea is to invent rice planting machines quickly, sell them head over heels for as long as possible, then introduce something newer. Instead of small tractors, they wanted to change over to larger-sized models, and my device was, to them, a step backward. To meet the demands of the times, resources are poured into furthering useless research, and to this day my patent remains on the shelf.

It is the same with fertilizer and chemicals. In-

stead of developing fertilizer with the farmer in mind, the emphasis is on developing something new, anything at all, in order to make money. After the technicians leave their jobs at the testing centers, they move right over to work for the large chemical companies.

Recently I was talking with Mr. Asada, a technical official in the Ministry of Agriculture and Forestry, and he told me an interesting story. The vegetables grown in hothouses are extremely unsavory. Hearing that the eggplants shipped out in winter have no vitamins and the cucumbers no flavor, he researched the matter and found the reason: certain of the sun's rays could not penetrate the vinyl and glass enclosures in which the vegetables were being grown. His investigation moved over to the lighting system inside the hothouses.

The fundamental question here is whether or not it is necessary for human beings to eat eggplants and cucumbers during the winter. But, this point aside, the only reason they are grown during the winter is that they can be sold then at a good price. Somebody develops a means to grow them, and after some time passes, it is found that these vegetables have no nutritional value. Next, the technician thinks that if the nutrients are being lost, a way must be found to prevent that loss. Because the trouble is thought to be with the lighting system, he begins to research light rays. He thinks everything will be all right if he can produce a hothouse eggplant with vitamins in it. I was told that there are some technicians who devote their entire lives to this kind of research.

Naturally, since such great efforts and resources have gone into producing this eggplant, and the vegetable is said to be high in nutritional value, it is tagged at an even higher price and sells well. "If it is profitable, and if you can sell it, there can't be anything wrong with it."

No matter how hard people try, they cannot improve upon naturally grown fruits and vegetables. Produce grown in an unnatural way satisfies people's fleeting desires but weakens the human body and alters the body chemistry so that it is dependent upon such foods. When this happens, vitamin supplements and medicines become necessary. This situation only creates hardships for the farmer and suffering for the consumer.

What is Human Food?

The other day someone from NHK television came by and asked me to say something about the flavor of natural food. We talked, and then I asked him to compare the eggs laid by the hens in the coop down below with those of the chickens running free up in the orchard. He found that the yolks of the eggs laid by the chickens cooped up on the typical chicken ranch were soft and watery and their color was pale yellow. He observed that the yolks of the eggs laid by the chickens living wild on the mountain were firm and resilient and bright orange in color. When the old man who runs the *sushi* restaurant in town tasted one of these natural eggs, he said that this was a "real egg," just like in the old days, and rejoiced as if it were some precious treasure.

Again, up in the tangerine orchard, there are many different vegetables growing among the weeds and clover. Turnips, burdock, cucumbers and squash, peanuts, carrots, edible chrysanthemums, potatoes, onions, leaf mustard, cabbage, several varieties of beans, and many other herbs and vegetables are all growing together. The conversation turned to whether or not these vegetables, which had been grown in a semi-wild manner, had a better flavor than those grown in the home garden or with the aid of chemical fertilizer in the fields. When we compared

them, the taste was completely different, and we determined that the "wild" vegetables possessed a richer flavor.

I told the reporter that when vegetables are grown in a prepared field using chemical fertilizer, nitrogen, phosphorus and potash are supplied. But when vegetables are grown with natural ground cover in soil naturally rich in organic matter, they get a more balanced diet of nutrients. A great variety of weeds and grasses means that a variety of essential nutrients and micronutrients are available to the vegetables. Plants which grow in such balanced soil have a more subtle flavor.

Edible herbs and wild vegetables, plants growing on the mountain and in the meadow, are very high in nutritional value and are also useful as medicine. Food and medicine are not two different things: they are the front and back of one body. Chemically grown vegetables may be eaten for food, but they cannot be used as medicine.

When you gather and eat the seven herbs of spring,* your spirit becomes gentle. And when you eat bracken shoots, osmund and shepherd's purse, you become calm. To calm restless, impatient feelings, shepherd's purse is the best of all. They say that if children eat shepherd's purse, willow buds or insects living in trees, this will cure violent crying tantrums, and in the old days children were often made to eat them. *Daikon* (Japanese radish) has for its ancestor the plant called *nazuna* (shepherd's purse), and this word *nazuna* is related to the word *nagomu*, which means to be softened. *Daikon* is the "herb that softens one's disposition."

Among wild foods insects are often overlooked.

*Watercress, shepherd's purse, wild turnip, cottonweed, chickweed, wild radish, and bee nettle. Illustrated on pg. 121.

During the war, when I worked at the research center, I was assigned to determine what insects in Southeast Asia could be eaten. When I investigated this matter, I was amazed to discover that almost any insect is edible.

For example, no one would think that lice or fleas could be of any use at all, but lice, ground up and eaten with winter grain, are a remedy for epilepsy, and fleas are a medicine for frostbite. All insect larvae are quite edible, but they must be alive. Poring over the old texts, I found stories having to do with "delicacies" prepared from maggots from the outhouse, and the flavor of the familiar silkworm was said to be



In a patch of mustard and wild turnips.

exquisite beyond compare. Even moths, if you shake the powder off their wings first, are very tasty.

So, whether from the standpoint of flavor or from the standpoint of health, many things which people consider repulsive are actually quite tasty and also good for the human body.

Vegetables that are biologically closest to their wild ancestors are the best in flavor and the highest in food value. For example, in the lily family (which includes *nira*, garlic, Chinese leek, green onion, pearl onion, and bulb onion) the *nira* and Chinese leek are highest in nutrition, good as herbal medicine, and also useful as a tonic for general well-being. To most people, however, the more domestic varieties, such as green onion and bulb onion, are regarded as the best tasting. For some reason, modern people like the flavor of vegetables that have departed from their wild state.

A similar taste preference applies to animal foods. Wild birds when eaten, are much better for the body than domestic fowl such as chickens and ducks, and yet these birds, raised in an environment far removed from their natural homes, are regarded as good tasting and sold at high prices. Goat's milk has a higher food value than cow's milk, but it is the cow's milk which is in greater demand.

Foods that have departed far from their wild state and those raised chemically or in a completely contrived environment unbalance the body chemistry. The more out of balance one's body becomes, the more one comes to desire unnatural foods. This situation is dangerous to health.

To say that what one eats is merely a matter of preference is deceiving, because an unnatural or exotic diet creates a hardship for the farmer and the fisherman as well. It seems to me that the greater one's desires, the more one has to work to satisfy

them. Some fish, such as the popular tuna and yellowtail must be caught in distant waters, but sardine, sea bream, flounder, and other small fish can be caught in great abundance in the Inland Sea. Speaking nutritionally, creatures which live in freshwater rivers and streams, such as carp, pond snails, stream crayfish, marsh crabs and so on, are better for the body than those from salt water. Next come shallow-water ocean fish, and finally fish from deep salt water and from distant seas. The foods that are nearby are best for human beings, and things that he has to struggle to obtain turn out to be the least beneficial of all.

That is to say that if one accepts what is near at hand, all goes well. If the farmers who live in this village eat only the foods that can be grown or gathered here, there will be no mistake. In the end, like the group of young people living in the huts up in the orchard, one will find it simplest to eat brown rice and unpolished barley, millet, and buckwheat, together with the seasonal plants and semi-wild vegetables. One ends up with the best food; it has flavor, and is good for the body.

If 22 bushels (1,300 pounds) of rice and 22 bushels of winter grain are harvested from a quarter acre field such as one of these, then the field will support five to ten people each investing an average of less than one hour of labor per day. But if the field were turned over to pasturage, or if the grain were fed to cattle, only one person could be supported per quarter acre. Meat becomes a luxury food when its production requires land which could provide food directly for human consumption.* This has been shown clearly and defi-

*Although most meat in North America is produced by feeding field crops such as wheat, barley, corn, and soybeans to animals, there are also large areas of land best used when rotated regularly into pasture or hayfields. In Japan, almost no such land exists. Almost all meat must be imported.

nately. Each person should ponder seriously how much hardship he is causing by indulging in food so expensively produced.

Meat and other imported foods are luxuries because they require more energy and resources than the traditional vegetables and grains produced locally. It follows that people who limit themselves to a simple local diet need do less work and use less land than those with an appetite for luxury.

If people continue to eat meat and imported food, within ten years it is certain that Japan will fall into a food crisis. Within thirty years, there will be overwhelming shortages. The absurd idea has swept in from somewhere that a change from rice-eating to bread-eating indicates an improvement in the everyday life of the Japanese people. Actually this is not so. Brown rice and vegetables may seem to be coarse fare, but this is the very finest diet nutritionally, and enables human beings to live simply and directly.

If we do have a food crisis it will not be caused by the insufficiency of nature's productive power, but by the extravagance of human desire.

A Merciful Death for Barley

Forty years ago, as a result of increasing political hostility between the United States and Japan, importing wheat from America became impossible. There was a general movement throughout the country to grow wheat domestically. The American wheat varieties being used require a long growing season and the grain finally matured in the middle of Japan's rainy season. Even after the farmer had taken such great pains to grow the crop, it would often rot during the harvest. These varieties proved to be very unreliable and highly susceptible to disease, so the farmers did not want to grow wheat. When ground and toasted in the traditional way, the taste was so terrible that you almost choked and had to spit it out.

The traditional varieties of Japanese rye and barley can be harvested in May, before the rainy season, so they are comparatively safe crops. Farmers had wheat cultivation forced upon them nonetheless. Everyone laughed and said there was nothing worse than growing wheat, but they patiently went along with the government policy.

After the war, American wheat was again imported in large quantities, causing the price of wheat grown in Japan to fall. This added to the many other good reasons to discontinue wheat growing. "Give up wheat, give up wheat!" was the slogan propagated na-

The Culture of Food

When asked why we eat food, few think further than the fact that food is necessary to support the life and growth of the human body. Beyond this, however, there is the deeper question of the relationship of food to the human spirit. For animals it is enough to eat, play, and sleep. For humans, too, it would be a great accomplishment if they could enjoy nourishing food, a simple daily round, and restful sleep.

Buddha said, "Form is emptiness and emptiness is form." Since the "form" of Buddhist terminology indicates matter, or things, and emptiness is the mind, he is saying that matter and mind are the same. Things have many different colors, shapes, and flavors, and people's minds flit from side to side, attracted to the various qualities of things. But actually, matter and mind are one.

Color

In the world there are seven basic colors. But if these seven colors are combined, they become white. When split by a prism the white light becomes seven colors. When man views the world with "no-mind" the color in the color vanishes. It is no-color. Only when they are viewed by the seven-colored mind of discrimination do the seven colors appear.

Water undergoes countless changes but water is still water. In the same way, although the conscious mind appears to undergo changes, the original unmoving mind does not change. When one becomes infatuated with the seven colors, the mind is easily distracted. The colors of leaves, branches, and fruit are perceived, while the basis of color passes unnoticed.

This is also true of food. In this world there are many natural substances that are suitable for human food. These foods are distinguished by the mind and are thought to have good and bad qualities. People then consciously select what they think they must have. This process of selection impedes the recognition of the basis of human nourishment, which is what heaven prescribes for the place and season.

Nature's colors, like hydrangea blossoms, change easily. The body of nature is perpetual transformation. For the same reason that it is called infinite motion, it may also be considered non-moving motion. When reason is applied to selecting foods, one's understanding of nature becomes fixed and nature's transformations, such as the seasonal changes, are ignored.

The purpose of a natural diet is not to create knowledgeable people who can give sound explanations and skillfully select among the various foods, but to create unknowing people who take food without consciously making distinctions. This does not go against the way of nature. By realizing "no-mind," without becoming lost in the subtleties of form, accepting the color of the colorless as color, right diet begins.

Flavor

People say, "You don't know what food tastes like until you try it." But even when you do try it, the

food's flavor may vary, depending on time and circumstance and the disposition of the person who is tasting.

If you ask a scientist what the substance of flavor is, he will try to define it by isolating the various components and by determining the proportions of sweet, sour, bitter, salty, and pungent. But flavor cannot be defined by analysis or even by the tip of the tongue. Even though the five flavors are perceived by the tongue, the impressions are collected and interpreted by the mind.

A natural person can achieve right diet because his instinct is in proper working order. He is satisfied with simple food; it is nutritious, tastes good, and is useful daily medicine. Food and the human spirit are united.

Modern people have lost their clear instinct and consequently have become unable to gather and enjoy the seven herbs of spring. They go out seeking a variety of flavors. Their diet becomes disordered, the gap between likes and dislikes widens, and their instinct becomes more and more bewildered. At this point people begin to apply strong seasonings to their food and to use elaborate cooking techniques, further deepening the confusion. Food and the human spirit have become estranged.

Most people today have even become separated from the flavor of rice. The whole grain is refined and processed, leaving only the tasteless starch. Polished rice lacks the unique fragrance and flavor of whole rice. Consequently, it requires seasonings and must be supplemented with side dishes or covered with sauce. People think, mistakenly, that it does not matter that the food value of the rice is low, as long as vitamin supplements or other foods such as meat or fish supply the missing nutrients.

Flavorful foods are not flavorful in themselves.

Food is not delicious unless a person thinks it is. Although most people think that beef and chicken are delectable, to a person who for physical or spiritual reasons has decided that he dislikes them, they are repulsive.

Just playing or doing nothing at all, children are happy. A discriminating adult, on the other hand, decides what will make him happy, and when these conditions are met he feels satisfied. Foods taste good to him not necessarily because they have nature's subtle flavors and are nourishing to the body, but because his taste has been conditioned to the *idea* that they taste good.

Wheat noodles are delicious, but a cup of instant noodles from a vending machine tastes extremely bad. But, by advertising, remove the idea that they taste bad, and to many people even these unsavory noodles somehow come to taste good.

There are stories that, deceived by a fox, people have eaten horse manure. It is nothing to laugh about. People nowadays eat with their minds, not with their bodies. Many people do not care if there is monosodium glutamate in their food, but they taste only with the tip of the tongue, so they are easily fooled.

At first people ate simply because they were alive and because food was tasty. Modern people have come to think that if they do not prepare food with elaborate seasonings, the meal will be tasteless. If you do not try to make food delicious, you will find that nature has made it so.

The first consideration should be to live in such a way that the food itself tastes good, but today all the effort goes instead into *adding* tastiness to food. Ironically, delicious foods have all but vanished.

People tried to make delicious bread, and delicious bread disappeared. In trying to make rich luxurious foods they made useless foods, and now people's appetites are unsatisfied.

The best methods of food preparation preserve nature's delicate flavors. The daily wisdom of long ago enabled people to make the various kinds of vegetable pickles, such as sun-dried pickles, salt-pickles, bran-pickles, and *miso*-pickles, so that the flavor of the vegetable itself was also preserved.

The art of cooking begins with sea salt and a crackling fire. When food is prepared by someone sensitive to the fundamentals of cookery, it maintains its natural flavor. If, by being cooked, food takes on some strange and exotic flavor, and if the purpose of this change is merely to delight the palate, this is false cooking.

Culture is usually thought of as something created, maintained, and developed by humanity's efforts alone. But culture always originates in the partnership of man and nature. When the union of human society and nature is realized, culture takes shape of itself. Culture has always been closely connected with daily life, and so has been passed on to future generations, and has been preserved up to the present time.

Something born from human pride and the quest for pleasure cannot be considered true culture. True culture is born within nature, and is simple, humble, and pure. Lacking true culture, humanity will perish.

When people rejected natural food and took up refined food instead, society set out on a path toward its own destruction. This is because such food is not the product of true culture. Food is life, and life must not step away from nature.

Living by Bread Alone

There is nothing better than eating delicious food, but for most people eating is just a way to nourish the body, to have energy to work and to live to an old age. Mothers often tell their children to eat their food—even if they do not like the taste—because it is “good” for them.

But nutrition cannot be separated from the sense of taste. Nutritious foods, good for the human body, whet the appetite and are delicious on their own account. Proper nourishment is inseparable from good flavor.

Not too long ago the daily meal of the farmers in this area consisted of rice and barley with *miso* and pickled vegetables. This diet gave long life, a strong constitution, and good health. Stewed vegetables and steamed rice with red beans was a once-a-month feast. The farmer's healthy, robust body was able to nourish itself well on this simple rice diet.

The traditional brown rice-and-vegetable diet of the East is very different from that of most Western societies. Western nutritional science believes that unless certain amounts of starch, fat, protein, minerals, and vitamins are eaten each day, a well-balanced diet and good health cannot be preserved. This belief produced the mother who stuffs “nutritious” food into her youngster's mouth.

there will be enough food to eat, in simply sowing seed and caring tenderly for plants under nature's guidance there is joy.

Various Schools of Natural Farming

I do not particularly like the word "work." Human beings are the only animals who have to work, and I think this is the most ridiculous thing in the world. Other animals make their livings by living, but people work like crazy, thinking that they have to in order to stay alive. The bigger the job, the greater the challenge, the more wonderful they think it is. It would be good to give up that way of thinking and live an easy, comfortable life with plenty of free time. I think that the way animals live in the tropics, stepping outside in the morning and evening to see if there is something to eat, and taking a long nap in the afternoon, must be a wonderful life.

For human beings, a life of such simplicity would be possible if one worked to produce directly his daily necessities. In such a life, work is not work as people generally think of it, but simply doing what needs to be done.

To move things in this direction is my goal. It is also the goal of the seven or eight young people who live communally in the huts on the mountain and help out with the farming chores. These young people want to become farmers, to establish new villages and communities, and to give this sort of life a try. They come to my farm to learn the practical skills of farming that they will need to carry out this plan.

If you look across the country you might notice that quite a few communes have been springing up recently. If they are called gatherings of hippies, well, they could be viewed that way too, I suppose. But in living and working together, finding the way back to nature, they are the model of the "new farmer." They understand that to become firmly rooted means to live from the yields of their own land. A community that cannot manage to produce its own food will not last long.

Many of these young people travel to India, or to France's Gandhi Village, spend time on a *kibbutz* in Israel, or visit communes in the mountains and deserts of the American West. There are those like the group on Suwanose Island in the Tokara Island chain of Southern Japan, who try new forms of family living and experience the closeness of tribal ways. I think that the movement of this handful of people is leading the way to a better time. It is among these people that natural farming is now rapidly taking hold and gaining momentum.

In addition, various religious groups have come to take up natural farming. In seeking the essential nature of man, no matter how you go about it, you must begin with the consideration of health. The path which leads to right awareness involves living each day straightforwardly and growing and eating wholesome, natural food. It follows that natural farming has been for many people the best place to begin.

I do not belong to any religious group myself and will freely discuss my views with anyone at all. I do not care much for making distinctions among Christianity, Buddhism, Shinto, and the other religions, but it does intrigue me that people of deep religious conviction are attracted to my farm. I think this is because natural farming, unlike other types of farming, is based on a philosophy which penetrates beyond

considerations of soil analysis, pH, and harvest yields.

Some time ago, a fellow from the Paris Organic Gardening Center climbed up the mountain, and we spent the day talking. Hearing about affairs in France, I learned that they were planning an organic farming conference on an international scale, and as preparation for the meeting, this Frenchman was visiting organic and natural farms all over the world. I showed him around the orchard and then we sat down over a cup of mugwort tea and discussed some of my observations over the past thirty-odd years.

First I said that when you look over the principles of the organic farming popular in the West, you will find that they hardly differ from those of the traditional Oriental agriculture practiced in China, Korea, and Japan for many centuries. All Japanese farmers were still using this type of farming through the Meiji and Taisho Eras* and right up until the end of the Second World War.

It was a system which emphasized the fundamental importance of compost and of recycling human and animal waste. The form of management was intensive and included such practices as crop rotation, companion planting, and the use of green manure. Since space was limited, fields were never left untended and the planting and harvesting schedules proceeded with precision. All organic residue was made into compost and returned to the fields. The use of compost was officially encouraged and agricultural research was mainly concerned with organic matter and composting techniques.

So an agriculture joining animals, crops, and human beings into one body existed as the mainstream of Japanese farming up to modern times. It could be said that organic farming as practiced in the

*1868-1926.

West takes as its point of departure this traditional agriculture of the Orient.

I went on to say that among natural farming methods two kinds could be distinguished: broad, transcendent natural farming, and the narrow natural farming of the relative world.* If I were pressed to talk about it in Buddhist terms, the two could be called respectively as Mahayana and Hinayana natural farming.

Broad, Mahayana natural farming arises of itself when a unity exists between man and nature. It conforms to nature as it is, and to the mind as it is. It proceeds from the conviction that if the individual temporarily abandons human will and so allows himself to be guided by nature, nature responds by providing everything. To give a simple analogy, in transcendent natural farming the relationship between humanity and nature can be compared with a husband and wife joined in perfect marriage. The marriage is not bestowed, not received; the perfect pair comes into existence of itself.

Narrow natural farming, on the other hand, is pursuing the way of nature; it self-consciously *attempts*, by "organic" or other methods, to follow nature. Farming is used for achieving a given objective. Although sincerely loving nature and earnestly proposing to her, the relationship is still tentative. Modern industrial farming desires heaven's wisdom, without grasping its meaning, and at the same time wants to make use of nature. Restlessly searching, it is unable to find anyone to propose to.

The narrow view of natural farming says that it is good for the farmer to apply organic material to the soil and good to raise animals, and that this is the best and most efficient way to put nature to use. To speak

*This is the world as understood by the intellect.

in terms of personal practice, this is fine, but with this way alone, the spirit of true natural farming cannot be kept alive. This kind of narrow natural farming is analogous to the school of swordsmanship known as the one-stroke school, which seeks victory through the skillful, yet self-conscious application of technique. Modern industrial farming follows the two-stroke school, which believes that victory can be won by delivering the greatest barrage of swordstrokes.

Pure natural farming, by contrast, is the no-stroke school. It goes nowhere and seeks no victory. Putting "doing nothing" into practice is the one thing the farmer should strive to accomplish. Lao Tzu spoke of non-active nature, and I think that if he were a farmer he would certainly practice natural farming. I believe that Gandhi's way, a methodless method, acting with a non-winning, non-opposing state of mind, is akin to natural farming. When it is understood that one loses joy and happiness in the attempt to possess them, the essence of natural farming will be realized. The ultimate goal of farming is not the growing of crops, but the cultivation and perfection of human beings.*

*In this paragraph Mr. Fukuoka is drawing a distinction between techniques undertaken in conscious pursuit of a given objective, and those which arise spontaneously as the expression of a person's harmony with nature as he goes about his daily business, free from the domination of the volitional intellect.



Confusion about Food

A young fellow who had stayed three years in one of the huts on the mountain said one day, "You know, when people say 'natural food' I don't know what they mean any more."

When you think about it, everybody is familiar with the words "natural food," but it is not clearly understood what natural food actually is. There are many who feel that eating food which contains no artificial chemicals or additives is a natural diet, and there are others who think vaguely that a natural diet is eating foods just as they are found in nature.

If you ask whether the use of fire and salt in cooking is natural or unnatural, one could answer either way. If the diet of the people of primitive times, eating only plants and animals living in their wild state, is "natural," then a diet which uses salt and fire cannot be called natural. But if it is argued that the knowledge acquired in ancient times of using fire and salt was humanity's natural destiny, then food prepared accordingly is perfectly natural. Is food to which human techniques of preparation have been applied good, or should wild foods just as they are in nature be considered good? Can cultivated crops be said to be natural? Where do you draw the line between natural and unnatural?

It could be said that the term "natural diet" in

Japan originated with the teachings of Sagen Ishizuka in the Meiji Era. His theory was later refined and elaborated by Mr. Sakurazawa* and Mr. Niki. The Path of Nutrition, known in the West as Macrobiotics, is based on the theory of non-duality and the yin-yang concepts of the I Ching. Since this usually means a brown rice diet, "natural diet" is generally thought of as eating whole grains and vegetables. Natural food, however, cannot be summed up so simply as brown rice vegetarianism.

So what is it?

The reason for all the confusion is that there are two paths of human knowledge—discriminating and non-discriminating.** People generally believe that unmistakable recognition of the world is possible through discrimination alone. Therefore, the word "nature" as it is generally spoken, denotes nature as it is perceived by the discriminating intellect.

I deny the empty image of nature as created by the human intellect, and clearly distinguish it from nature itself as experienced by non-discriminating understanding. If we eradicate the false conception of nature, I believe the root of the world's disorder will disappear.

*George Osawa.

**This is a distinction made by many Oriental philosophers. Discriminating knowledge is derived from the analytic, willful intellect in an attempt to organize experience into a logical framework. Mr. Fukuoka believes that in this process, the individual sets himself apart from nature. It is the "limited scientific truth and judgment" discussed on pg. 84.

Non-discriminating knowledge arises without conscious effort on the part of the individual when experience is accepted as it is, without interpretation by the intellect.

While discriminating knowledge is essential for analyzing practical problems in the world, Mr. Fukuoka believes that ultimately it provides too narrow a perspective.

In the West natural science developed from discriminating knowledge; in the East the philosophy of yin-yang and of the I Ching developed from the same source. But scientific truth can never reach absolute truth, and philosophies, after all, are nothing more than interpretations of the world. Nature as grasped by scientific knowledge is a nature which has been destroyed; it is a ghost possessing a skeleton, but no soul. Nature as grasped by philosophical knowledge is a theory created out of human speculation, a ghost with a soul, but no structure.

There is no way in which non-discriminating knowledge can be realized except by direct intuition, but people try to fit it into a familiar framework by calling it "instinct". It is actually knowledge from an unnamable source. Abandon the discriminating mind and transcend the world of relativity if you want to know the true appearance of nature. From the beginning there is no east or west, no four seasons, and no yin or yang.



A mid-day meal of soup and rice with pickled vegetables.

When I had gone this far, the youth asked, "Then you not only deny natural science, but also the Oriental philosophies based on yin-yang and the I Ching?"

As temporary expedients or as directional markers they could be acknowledged as valuable, I said, but they should not be considered as the highest achievements. Scientific truths and philosophies are concepts of the relative world, and there they hold true and their value is recognized. For example, for modern people living in the relative world, disrupting the order of nature and bringing about the collapse of their own body and spirit, the yin-yang system can serve as a fitting and effective pointer toward the restoration of order.

Such paths could be said to be useful theories to help people achieve a condensed and compact diet until a true natural diet is attained. But if you realize that the eventual human goal is to transcend the world of relativity, to play in a realm of freedom, then plodding along attached to theory is unfortunate. When the individual is able to enter a world in which the two aspects of yin and yang return to their original unity, the mission of these symbols comes to an end.

A youth who had recently arrived spoke up: "Then if you become a natural person you can eat anything you want?"

If you expect a bright world on the other side of the tunnel, the darkness of the tunnel lasts all the longer. When you no longer *want* to eat something tasty, you can taste the real flavor of whatever you are eating. It is easy to lay out the simple foods of a natural diet on the dining table, but those who can truly enjoy such a feast are few.

Nature's Food Mandala

My thinking on natural food is the same as it is on natural farming. Just as natural farming complies with nature as it is, that is, nature as apprehended by the non-discriminating mind, so natural diet is a way of eating in which foods gathered in the wild or crops grown through natural farming, and fish caught by natural methods, are acquired without intentional action through the non-discriminating mind.

Even though I speak of non-intentional action and non-method, wisdom acquired over time in the course of daily life is, of course, acknowledged. The use of salt and fire in cooking could be criticized as the first step in the separation of man from nature, but it is simply natural wisdom as apprehended by primitive people, and should be sanctioned as wisdom bestowed by heaven.

Crops which have evolved over thousands and tens of thousands of years by dwelling together with human beings are not products born entirely from the discriminating knowledge of the farmer, and can be thought of as naturally occurring foods. But the instantly altered varieties which have not evolved under natural circumstances, but rather have been developed by an agricultural science which has drawn far away from nature, as well as mass-produced fish, shellfish, and domestic animals, fall outside that category.

Farming, fishing, animal raising, the everyday realities of food, clothing, shelter, spiritual life—everything there is—must form a union with nature.

I have drawn the following diagrams to help explain the natural diet which transcends science and philosophy. The first brings together the foods which people can most easily obtain, and these are arranged more or less in groups. The second shows the foods as they are available during the various months of the year. These diagrams compose nature's food mandala.* From this mandala it can be seen that the sources of food provided on the face of the earth are nearly limitless. If people will acquire food through "no-mind",** even though they know nothing at all about yin and yang, they can attain a perfect natural diet.

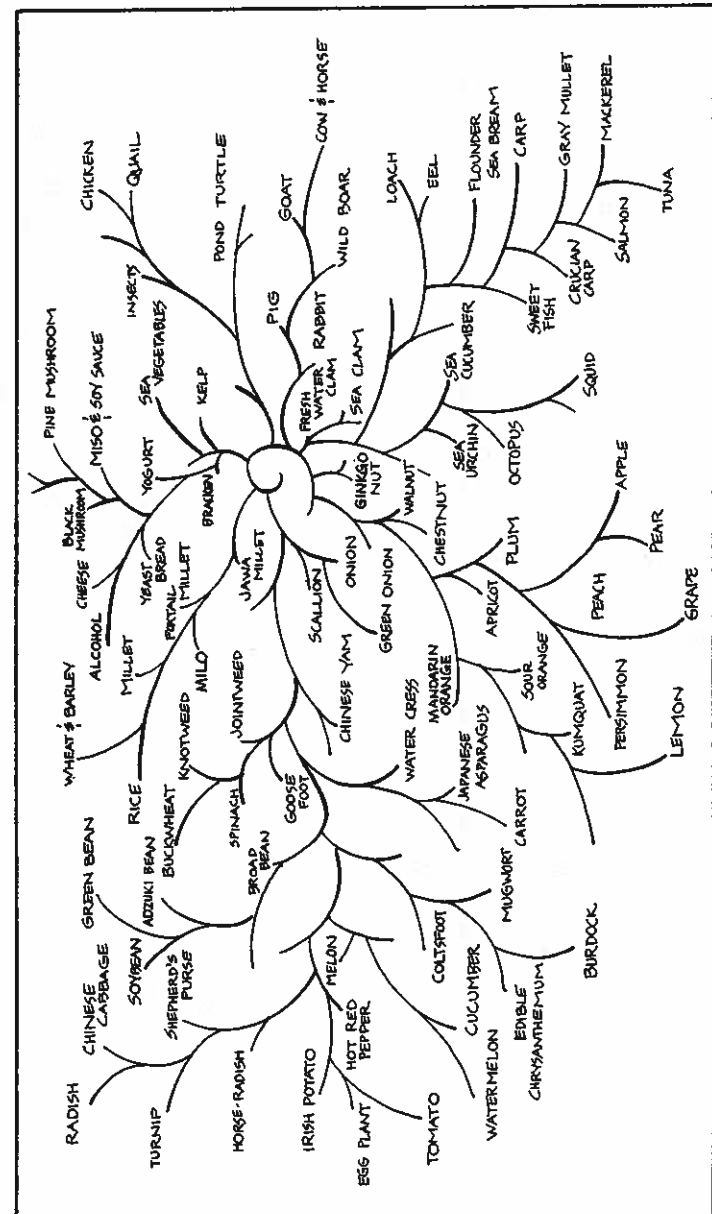
The fishermen and farmers in a Japanese village have no particular interest in the logic of these diagrams. They follow nature's prescription by selecting seasonal foods from their immediate area.

From early spring, when the seven herbs sprout forth from the earth, the farmer can taste seven flavors. To go along with these are the delicious flavors of pond snails, sea clams, and turban shellfish.

The season of green arrives in March. Horsetail, bracken, mugwort, osmund, and other mountain plants, and of course the young leaves of the persimmon and peach trees and the sprouts of mountain yams can all be eaten. Possessing a light, delicate flavor, they make delicious tempura and can also be used as seasonings. At the seashore, sea vegetables such as kelp, *nori*, and rockweed are delicious and abundant during the spring months.

*A circular diagram in eastern art and religion, symbolizing the totality and wholeness of its subject.

**A Buddhist term which describes the state in which there is no distinction between the individual and the "external" world.



NATURE'S FOOD MANDALA DIAGRAM ONE

Millet cakes are enjoyed at the autumn moon viewing celebrations. Parboiled soybeans are served along with taro potatoes. As autumn deepens, maize, and rice steamed with red beans, *matsutake* mushrooms, or chestnuts are eaten and enjoyed often. Most important, the rice which has absorbed the sun's rays all summer long ripens in the fall. This means that a staple food which can be plentifully obtained and is rich in calories is provided for the cold winter months.

At first frost one feels like looking in on the fish-broiler's stand. Deep-water blue fish such as yellowtail and tuna can be caught during this season. It is interesting that the Japanese radish and the leafy vegetables abundant during this season go well with these fish.

The New Year's holiday cooking is prepared largely from food which has been pickled and salted away especially for the great celebration. Salted salmon, herring eggs, red sea bream, lobster, kelp, and black beans have been served every year at this feast for many centuries.

Digging the radishes and turnips which have been left in the ground, covered with a blanket of soil and snow, is an enjoyable experience during the winter season. Grains and various beans grown during the year and *miso* and soy sauce are staples always on hand. Along with the cabbages, radishes, squash, and sweet potatoes stored in the autumn, a variety of foods are available during the months of bitter cold. Leeks and wild scallions go well with the delicate flavor of oysters and sea cucumbers which can be gathered then.

Waiting for spring to arrive, one catches sight of colt's foot shoots and the edible leaves of the creeping strawberry geranium peeping out of the snow. With the return of watercress, shepherd's purse, chick-

weed, and the other wild herbs, a garden of natural spring vegetables can be harvested beneath the kitchen window.

Thus, by following a humble diet, gathering the foods of the various seasons from close at hand, and savoring their wholesome and nourishing flavor, the local villagers accept what nature provides.

The villagers know the delicious flavor of the food, but they cannot taste the mysterious flavor of nature. No, it is rather that they taste it, but cannot express it with words.

A natural diet lies right at one's feet.