

Electronics and The Japanese Soul

—The Universality of Japanese Design—

By Kenji Ekuan

Rice and ceramics

Rice has been the king of cereals for over 2,000 years in Japan—perceived as not only the staff of life but also spiritual sustenance. The fact of having rice in the rice jar has been both insurance against starvation and psychological support in times of adversity. As a result, the Japanese have developed a profound respect for rice, and each grain is treated as a precious gem. Many people believed that the sound of rice being shaken in a bamboo holder could exorcise evil spirits and revive dying men. In effect, rice was seen to have a spirit of its own. Thus it was that people have engraved sutras on individual grains of rice. There has been an intense reverence for rice.

Children are told that retribution is in store (the bogeyman'll get them) if they are disrespectful toward their rice. Like ancient Greece and India, Japan is a land of animism where it is assumed that even inanimate objects have divine spirits. This divinity is nowhere more evident than in the Japanese attitude toward rice. Japan has developed as a rice-based culture, and Japanese agricultural progress has been largely a process of refining rice strains for improved yields. Civilization has been seen as being able to grow more rice more efficiently, and culture as the ability to grow better-tasting rice. The first rice from the harvest was often given as an offering to the gods, as were numerous rice products such as rice cakes or *sake* (rice wine). In the process, rice has developed into more than a staple food, becoming



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almost a work of art, and it is commonly said that both the gods and man rejoice when people grow, harvest, and partake of good rice.

Modern Japanese harbor a similar reverence for the ceramics which are made here in such profusion. Just as there was with rice, there is a religious devotion to improving the strain. Just as the gods are thought to reside in each grain of rice, so do the gods reside in every ceramic prod-

uct. When Japanese buy rice, they are very interested in what strain it is and where it was grown. In effect, they want to know what spirits it possesses. The same sort of interest is also seen among people purchasing ceramics. In effect, they want to know what spirits reside in this new product of the modern age.

Because both rice and ceramics have come from the same mother—the fertile soil of Japan—it is only natural that there

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should be an affinity between these seemingly dissimilar products.

In the century of modernization after Japan ended its long isolation under the Tokugawas, there has been a conscious effort made to assimilate the alien civilization of the West and all of its mechanical contrivances. For several generations, it was all Japan could do to catch up with the West, but once industrial civilization turned from mechanics to electronics, Japan was back in its element and moved quickly to establish its dominance.

Such is not to imply that Japan did not have production science and technology before the country was opened to foreign commerce, or that the technology which Japan possessed was in any way inferior. The ceramics, lacquerware, metalwork, textiles, and other craft-based products which Japan exhibited at the 1867 World Exposition in Paris were acclaimed by people from all nations as being of a stunningly high quality. Just as rice cultivation was the distillation of agricultural science and technology, so were these industrial arts the distillation of manufacturing science and technology. Indeed, it is precisely because Japan had such high standards of excellence that it was able to turn its talents to alien machinery and to catch up with the West.

Because the Japanese agrarian culture was a very information-intensive culture, the advent of the electronics age meant a break with past patterns of trying to catch up with the West. Japan came into its own with the shift to electronics because it was able to turn the same creative talents that had been honed on rice cultivation to electronics production. In effect, Japan was able to return to its traditional production techniques and to draw upon traditional Japanese strengths to make industrial goods works of art.

Truck farming in Japan is a mysterious and almost magical process as the tiller seeks, in partnership with the gods, to get best advantage of the genetic information encoded in each plant. By contrast, mechanized cultivation is somewhat arrogant as man seeks to impose his will on nature. As the electronics revolution has progressed, there is a feeling in Japan of being able to return once more to work in concert with the gods. Just as genetic engineering uses and manipulates nature's genetic information, electronics works with electrons and other building blocks of nature to create enhanced capabilities. This process of working within the bounds of nature to creatively refine and process natural elements for human consumption is very much within the Japanese tradition.

There is, of course, much in nature which cannot be understood by human lights. And being based upon such human lights, the mechanical sciences of the West are inevitably limited and inherently unstable. In the Japanese mode, the various aspects which surpass human understanding are included in respectful acknowledgments of the gods' presence. There is a feeling that things will ultimately go wrong if we attempt to exclude the divine from our works, and thus the Japanese style is to accept the existence of a spirit transcending human understanding.

Indeed, it may be this evocation of the animistic spirit common to all humankind which accounts for the fact that Japanese products have such global appeal and find such favor with peoples of other cultures. In effect, Japanese products are more than material goods; they also embody the divine spirits which inhabit this Japanese land in all its diversity.

Even though the Japanese people are as modern as anyone else, they still persist in rejecting the human-centered view of the

universe and insisting that there is a spirit in all objects, animate and inanimate. Faced with the need to co-exist in harmony with all things in this very crowded land, the Japanese have had to develop this ingrained animism as an essential element of surviving and succeeding in their relations with each other and nature. This shared recognition that there is a divinity about all things and people was thus a survival mechanism enabling the Japanese to live together, each in his own way, for the common good.

This was a survivalist principle born of the special conditions peculiar to Japan. Yet as the world grows more crowded and psychological distances shrink, the global community must inevitably become more and more like the Japanese village, and the behavioral patterns and ways of thinking evolved by Japan in its intimate diversity thus provide valuable hints for the success and survival of the global community. The rural gods of agrarian Japan live on in the high-tech ceramics and other products that Japan sells to the world, and as these Japanese-spirit products go out into the world they take with them the message of Japanese animism.

From hardware to software

There is a basic difference between traditional Japanese tools and those tools imported from the West. Whereas Japanese tools are multi-purpose implements that can be used for many different purposes, Western tools are use-specific. Western tools are stratified and segregated by use, Japanese tools unstratified.

To take the simple example of tools for carrying, the Western briefcase finds its Japanese counterpart in the *furo-*



Furoshiki carrying cloth



Furoshiki can be used to wrap anything.

Zabuton cushions



kimono



shiki—a simple piece of cloth. *Furoshiki* can be used to wrap everything from war-rants to watermelons. Since it would be impossible to carry a watermelon or a bowling ball in a briefcase (a case made to hold legal briefs), special containers have been designed for these different-shaped items. As a result of such specialization, there has been a proliferation of tools in the West.

This may also be seen in the difference between a chair and a *zabuton* (floor cushion). There are many different types of chair, each designed to accommodate a particular posture in a particular situation. Yet on the *zabuton*, a person can be as formal or informal as he likes. Form does not prescribe use, and the *zabuton* is much like the *furoshiki* in its diversity.

Likewise with other everyday items, such as the *kimono*. This simple garment of panels of straight-cut cloth sewn together in straight lines has an elegant simplicity which enables it to fit anyone. By contrast, Western clothing has to be person-specific, tailored to each individual's physical requirements. It is unusual that someone can borrow another person's Western clothes and look right in them, but with the *kimono* there is no need to worry about having "the right size."

This same difference between the Japanese proclivity toward multi-use tools and the West's use-specific orientation extends even into the home itself. The Japanese home has rooms which are not specific to any particular use, and which can be shut off or joined together with simple sliding doors. By day it may be a living room, and by night a bedroom (with *futon* fold-away bedding in preference to inflexible beds).

One of the main differences between the two kinds of tools is that the Western use-specific tool is designed for a specific task and anyone who uses the right tool for the task is likely to get approximately

the same results. But the traditional Japanese multi-purpose tool, by its very versatility, demands greater creativity and skill of its user. In a way, the use-specific Western tool may be considered hardware-like, and the Japanese tool software-like. The one is a mechanical contrivance which serves a specific purpose well enough but which is confined to that specific purpose, and the other demands ingenuity of its user yet is able to stretch with the human imagination. As such, there is a fundamental difference between Japanese and Western tools, a difference which is epitomized by the *furoshiki*'s flexibility and which I would call "furoshikibility."

Computers of the current generation are by and large use-specific machines designed in accordance with mechanical logic. Data bases also have rather specific (i.e. inflexible) parameters and uses. Until recently, computers and data processing have been largely a Western preserve. Yet as the effort is made to have computers transcend their current limitations, escape their traditional conceptual framework, and approach the unbounded imaginings of intelligence in playful communion with the gods, Japanese are necessarily coming to play a greater role in their development. Even though the hardware essentials are the same, they behave differently depending upon what program is inserted. This is a very *furoshiki*-like characteristic. As a tool, the *furoshiki* is the height of simplicity—a single piece of cloth—and the same culture which has given birth to the *furoshiki* is now about to impart *furoshiki*-like characteristics to the computer.

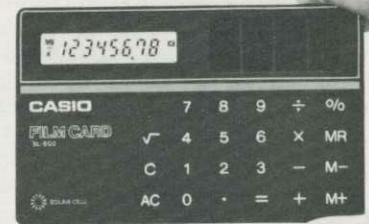
It is this *furoshikibility* in computers and all other Japanese electrical goods which accounts for their eminent rationality, sparse frugality, and human attractiveness. Able to stretch with the human imagination, they are at once distinctly contemporary and rich with future potential.

The aesthetics of simplicity

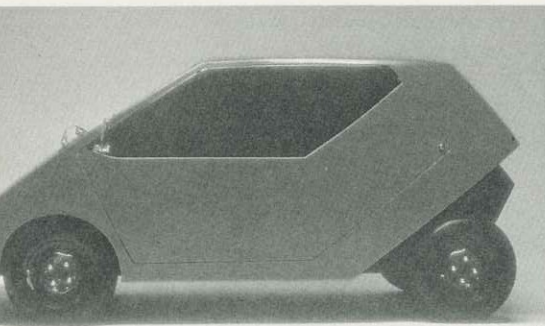
The Japanese products which have had the widest global appeal are the transistor radio, the snapshot camera, the wafer-thin calculator, and the motorcycle and compact car. The distinguishing feature common to all of these products is that they are small yet precision-built, lightweight yet heavy-duty. In other words, they are designed to be energy-frugal, resource-conservative, and labor-saving for the customer. Moreover, far from achieving this frugality and miniaturization at the sacrifice of quality, they achieve the human ideal of taking on added force by virtue of their simplicity.

Within the profusion of Japanese flower arrangements is a school which repudiates ornate displays of mixed bouquets and which attempts instead to portray the world of nature in a single flower. Were there more than one flower, it would simply be a bunch of flowers. It is the single flower alone which, by its very simplicity, is able to represent the entire set of flowers. This is perhaps the extreme representation of force through simplicity, yet the same aesthetics of simplicity runs through all of Japan's traditional arts, even up through modern state-of-the-art industrial products.

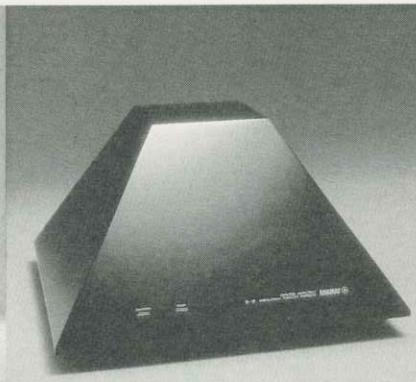
This aesthetics of simplicity was a continuing technical and artistic issue for the people as they sought to enrich their lives despite the harsh natural environment, and it was a quest for the ultimate in functionality. Over the years, this preference for simplicity has become so ingrained in the Japanese mind that it is now a goal of all technology and an essential element in



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Automobile



Power amplifier

the Japanese psyche. Indeed, this is why Japanese engineers and designers have been so much at home and so successful in the post-oil-crisis world.

The information revolution is also perceived in this same context, and it has stimulated efforts for simplification in keeping with the Japanese spirit of frugality. Information is seen as opening the way to unencumbered, efficient, and elegant solutions which expand rather than restrict human aspirations. This is an ideal field for the Japanese creative aesthetics. Making a single instrument serve diverse needs equally well not only cuts down on the number and variety of tools but also saves on physical and spatial resources to make Japan's densely populated urban environment comfortably possible. And using these simple yet high-potential tools with the *furoshiki* ability to serve a multitude of purposes requires that the would-be user have the programming know-how and talents to get the most out of the tool. Demanding creative application, such tools also give the pleasure of creation.

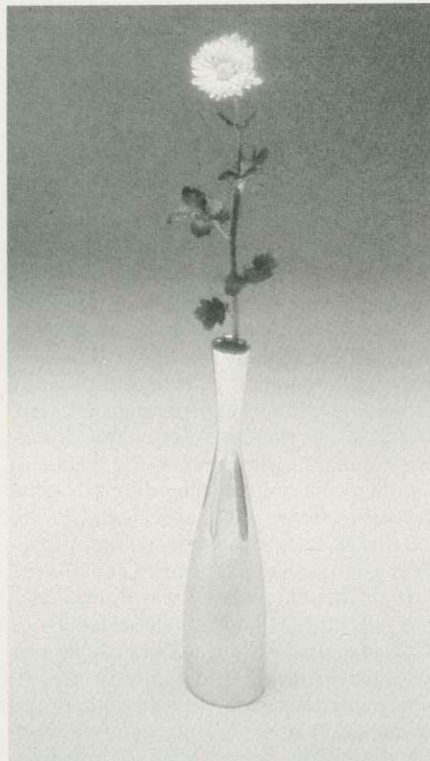
This is where man and machine interact, when the spirit animating the tool-user also animates the spirit of the tool.

People disciplining people-disciplining tools

To use a use-specific tool, you have to first follow the usage dictums laid down for the tool and its specific use. Yet in using a non-restrictive and *furoshiki* tool, you have to program its use for each object and objective. The tea ceremony is an example of using such *furoshiki* tools, and training in tea is largely a process of developing the ability to create tool-using programs. The way of tea (*sado*) is a way of expressing your individuality in how you use the tools, time, and place of the ritual. The same may be said of *judo*, *kado* (flower arrangement), *kyudo* (archery), and all of the other ritualized arts which appear on the surface so illogical from the modern perspective yet which are in reality perfectly suited to the information age.

In *judo*, for example, one starts by learning to live a simple, orderly life of respect for other people. Much of the early training is devoted to spiritual maturity and other aspects which might be considered peripheral were winning in physical combat the sole object. Likewise with the tea ceremony. Were the sole object to drink a cup of tea according to a prescribed form, this could surely be learned more quickly and more directly. Yet considerable time is given over to preparing the devotee to make his own judgments and to express his own individuality within the traditional ritual.

In the West, extraneous material is eliminated and instructions are written with unambiguous explanations of those parts which are logically necessary to the process. At the risk of exaggeration, it should be possible to transmit such skills simply by giving the student a well-written manual. Yet the programming arts embodied in the traditional Japanese arts are



transmitted by having the disciple live with the master, and even then their transmission is an uncertain thing. Much of the Japanese difficulty comes because the arts contain ethereal elements which defy verbal representation. There is a famous passage in a medieval Japanese text on landscaping which deals with how to structure a garden: "In placing the rocks, select rocks which are neither too large nor too small in relation to each other and place them at distances neither too near nor too far from each other." Such instructions would be worse than meaningless to the average Western gardener, and this example does much to illustrate why such programming arts have traditionally been part of an oral tradition conveyed from master to disciple.

For diverse elements to live in harmony, each stimulating the other to greater heights, requires a manual that is more than a manual. It is this ultra-manual which is at the heart of the Japanese tradition, and only tools which have been imbued with life in accordance with this ultra-manual can truly enrich human living.

This is the conceptual context of Japanese tools. Having been created and refined through the medium of rigorous training, these tools demand a certain discipline of people. Far from being an abstract and ancient lore, this tradition lives on in modern Japanese industry and imparts a distinctive quality to Japanese products. Japanese have been zealous in their pursuit of modernization. Seeking to imbibe this new spirit, the Japanese turned first to Western tools and equipment to learn the discipline of modern life.

In Japan, large-scale integrated circuits (LSIs) are accorded the same reverence as precious grains of rice, and the Japanese, with the value they place upon wholeness fraught with kinetic potential, have the utmost respect for the new breed of many futuristic tools which are just now being developed with LSIs. With the creative capabilities of these eminently *furoshiki* instrument, the Japanese are seeking to restructure their very way of life. This is the Japanese picture of so-called fifth-generation computers.

Tools with souls discipline people. People with souls discipline tools. And in the disciplining interaction between tools and people, we seek to find a new way of life. As such, tools are more than tools. Ideally, they are spiritual repositories renewing us and bringing us the joy of creation. This is why there is a need for respect and civility between tools and people. Defining the protocol between society and its new tools will, of course, require innumerable application ideas and great educational efforts. Yet only when this is done will the spirit that is in Japanese tools be able to reach all peoples in all countries. ●