

Creativity in Japan and the U.S.

The article by Dr. Makoto Kikuchi (Sept./Oct. 1984) has provoked lively discussion on Japanese R&D's roots, achievements, and prospects.

This is a difficult point indeed, as long as we are left without a proper definition of "creativity" and general agreement on how to measure it. To assume that the West (the teacher) is creative, appears legitimate, but in the same breath to deny it to Japan (the pupil) appears presumptuous. Furthermore, why couldn't the teacher teach creativity as well? Not knowing exactly what creativity is, I would assume that Westerners (or rather any specific nationality of westerners) and Japanese are creative, and throw the burden of proof equally on both sides.

We know about the patent situation in Japan and the larger number of patent registrations, as well as about the larger number of graduates in some of the physical sciences; but we are not sure of what this means. We know that Japan compares well with other industrial nations in terms of R&D expenditures as percentage of GNP; but we are not clear as to the meaning of the substantially larger portion of these expenditures provided by corporations rather than by the government. Is that the key reason why Japanese R&D is more needs-oriented than seeds-oriented? We also know that robots (using the U.S. definition) are more numerous in Japan than in the U.S.; but does that mean that Japan imitates the U.S., while Americans are not able to imitate themselves? We also

know that technological trade, though cumulatively negative for Japan, has been positive on an annual basis for more than a decade; but is that enough to declare once and for all that the "copy cats" are changing sides?

Is this so-called creativity the prerogative of an individual, and thus to be refused to a collectivity (as one reader apparently implied when referring to Japanese "consensus")? Also, is creativity the apogee of some specialized line of research suddenly culminating in a meaningful breakthrough, and thus to be refused to some continuous and more general effort concentrating on the improvement of a given technology (something like the "next generation" syndrome)?

Finally, if you would allow me to call on more than 30 years' experience in teaching, let me assure you that no teacher feels that he has lost his relevance when his pupil outperforms him on some scores. I enjoyed your anonymous reader's expression "midwife technology" as an image of Japanese technology. It is with the help of a midwife that most of us were born!

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Hazards of Nuclear Energy

I read with great interest your excellent feature on nuclear energy in the recent (Nov./Dec. 1984) *Journal of Japanese Trade & Industry*.

I was dismayed, however, to find little

mention of the serious hazards associated with nuclear energy as a means of generating electricity. These include exposure hazards, supply and operational accidents, plant security, and the lack of any known means for the safe storage and disposal of radioactive waste.

It has been several years since any new nuclear energy plants were begun in the United States, because of growing public awareness of these problems and the ability of an aroused citizenry to affect private policies through public governmental actions. There may be some useful lessons in this recent history for Japan.

James S. Uleman
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Praise Indeed

Thank you very much for your interesting *Journal of Japanese Trade & Industry*. Many questions about the Japanese economy are answered through the study of your articles. But new questions arise, and I look forward to the next issue.

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Publisher's Note

Clutching at Spiders' Threads

By Naohiro Amaya

Protectionism is a vain doctrine. Even as the protectionist demands protection from the winds of competition, he demands the freedom to profit from free trade when it is to his advantage. "Just this once" is the protectionist's implausible cry, yet what would happen to free trade if everyone were to demand the same protection? The result would obviously be "a condition of war of everyone against everyone" (Thomas Hobbes). And everyone, including the instigator of the protectionist trend, would suffer.

Advocates of protectionism who assume that they can maximize profits by monopolizing the right to protection even as they fish in the river of competition would do well to

ponder the Japanese story called "The Spider's Thread."

One day, as Buddha was gazing down into hell from heaven, he noticed a robber named Kandata and suddenly remembered that Kandata had, after all, one good deed to his credit: he had once avoided killing an insect. Buddha therefore resolved to save the robber and, catching a nearby spider, he lowered it down into hell. The spider spun out a silvery thread as it descended and landed by the suffering Kandata. Seeing the thread, Kandata immediately began to climb it thinking that here was a way to escape hell's agonies. After he had climbed some distance, he stopped to look down and was amazed to see hundreds of other sinners clinging to the thread and following his ascent. "This is my thread," he yelled, "Get off!" No sooner were the words out of his mouth than the thread snapped just above his head. Watching Kandata plunge back into hell, Buddha heaved a deep sigh.

A lone wolf in the midst of sheep is assured

of happiness, for he can ply his trade without opposition. This is the monopoly that Kandata wanted Buddha to concede him, but found himself turned down flat. The protectionist's arguments are the same—deliver me from competition so that I can compete more profitably—but where is the Buddha who will deny the protectionist's demand and cut the spider's thread?

There are many who hold out the spider-thread promise of salvation, but none has the wisdom or the power to cut off those who would seek salvation only for themselves and condemn everyone else to suffer competition. Nor are the sufferers strong enough to refuse the thread's lure and insist on working out their problems without intervention.

Trapped in a purgatory between heaven and hell, we clamber over each other in our rush to monopolize the spider-thread salvation of protectionism. Yet none can be saved unless all are saved, and the only salvation lies in curbing our double-standard vanity and cooperating to preserve fair competition.

CURRENT TOPICS

Nakasone Diplomacy in Top Gear

Prime Minister Yasuhiro Nakasone has started 1985 with diplomatic verve, flying to the United States for talks with newly reelected U.S. President Ronald Reagan on January 2 and touring four Oceanian countries, including Australia and New Zealand, later the same month.

In his talks with Reagan, Nakasone expressed his support for Washington's position in the nuclear disarmament talks held later between U.S. Secretary of State George Shultz and Soviet Foreign Minister Andrei Gromyko. On the subject of nuclear arms reduction, the Japanese and U.S. leaders agreed on the importance of close Japanese contacts and cooperation with the other free world nations. Nakasone also expressed his understanding of the Reagan administration's strategic defense initiative (SDI), popularly known as a "star wars" program, saying he regards it as part of efforts to abolish nuclear weapons. He told Reagan his government will study carefully its approach toward the U.S. space-borne anti-missile program, citing Japan's war-renouncing Constitution.

International and bilateral trade issues also came in for discussion. The two leaders reaffirmed the need for greater efforts to open up the markets and resist the pressures for protectionism. They agreed to cooperate closely with each other in initiating this year preparations for a new round of multilateral trade negotiations. The Japanese and U.S. leaders agreed to share serious efforts to ensure a more balanced development of bilateral trade and economic relations. Nakasone said that Japan will pursue policies to ensure economic growth led by domestic demand and pledged further efforts to allow imports a wider market access. They also agreed on a joint follow-up study by their aides to make mutual efforts really fruitful.

Nakasone pledged his personal efforts



Japan's Prime Minister Yasuhiro Nakasone with U.S. President Ronald Reagan and U.S. Secretary of State George Shultz

to ensure progress in four specific areas cited by Reagan, including Japanese purchases of U.S. telecommunications equipment.

It was Nakasone's fifth meeting with the American president since the former took power in late 1982, and it served to show the close personal relationship the two men have established. Nakasone prides himself on being the first Japanese premier to be on first-name terms with a U.S. chief of state. The quick trip to the United States following so closely upon his own reelection demonstrated anew Nakasone's desire to have Japan assume a more responsible role as a member of the Western camp, not only on the economic front but in international politics. It also may have mirrored his intention of impressing himself on the world community as a Japanese leader of international caliber.

The U.S. pins its hopes on Nakasone's leadership. A major task for the Prime Minister now is whether he can win support at home for what could turn out to be major concessions to Washington, which Tokyo would have to make to maintain and develop good relations between the two countries.

The week-long Oceania tour beginning January 13 took the globe-trotting premier to Fiji, Papua New Guinea, Australia and New Zealand. He briefed leaders of the four countries on his plans to promote non-military cooperation among Pacific nations, and won the support of Australian Prime Minister Bob Hawke and New Zealand Prime Minister David Lange for the concept.

Nakasone assured Hawke that Japan has no intention of sacrificing Australia in seeking to resolve its trade problems with other countries. He urged Australia to make its coal and other primary products more competitive and supply them in a more stable manner.

In New Zealand, Nakasone and Lange discussed nuclear problems. Lange told Nakasone that the proposed new round of trade talks should address agricultural problems as well as new areas such as high technology and service trade. On bilateral trade, the New Zealand leader urged Japan to open its market wider to farm and forestry product imports.

Another Austere Budget For Fiscal '85

The Japanese government has submitted for Diet approval another austere budget for fiscal 1985. General account expenditures of ¥52,499.6 billion (\$210 billion) are up 3.7% over the original budget for fiscal 1984. But general spending—which excludes debt-servicing costs and subsidies to local governments and is designed to finance annual policy

measures—is actually ¥300 million (\$1.2 million) less than the previous year, the third straight annual decline.

In drafting the budget, the Finance Ministry initially sought to reduce flotations of new deficit-covering bonds by ¥1 trillion (\$4 billion) in line with its goal of stopping all issues by fiscal 1990. But limited revenues and swollen debt-servicing costs permitted only a lesser cut of ¥725 billion (\$2.9 billion), clouding prospects of achieving financial reconstruction by the target year. The government will have no choice but to consider introducing a major indirect tax, perhaps modelled on Europe's value-added tax, in fiscal 1986.

Behind the 3.7% increase in the general-account budget, despite less general spending than in the previous year, is an 11.7% surge in the debt-servicing account. With bonds offered in the past beginning to mature in fiscal 1985, redemptions and other debt-servicing expenses account for 19.5% of the fiscal 1985 budget, outstripping social security to become the largest spending category.

These non-discretionary expenditures leave little room to increase appropriations for other programs. Nonetheless, special attention was paid, in consideration of the nation's international responsibilities, to defense spending, allowed to rise 6.9%, and official development assistance (ODA), boosted 10.0%. Most other programs, including social security and education, face spending cuts. The opposition camp and some quarters in the ruling Liberal-Democratic Party had demanded a substantial increase in public works spending to shore up economic recovery, but this category was allowed to rise only 2.3% to ¥6.37 trillion (\$25.5 billion).

Tax revenues cover 73.4% of the fiscal 1985 spending plan, up from 68.3% the previous year but still well below the 80% level that the Finance Ministry considers a benchmark of financial reconstruction.

The new defense budget calls for procurement of a new ground-to-air missile system, 14 F15 fighters, ten P3C anti-submarine planes and three destroyers.

Fiscal 1985 marks the final year of Japan's international pledge to double at least the amount of ODA recorded from 1976 through 1980 in the five years from 1981 through 1985. Aggregate appropriations for ODA in the five-year period now total ¥2,430.7 billion (\$9.7 billion), 97.7% of the target sum of ¥2,488.8 billion.

Among the handful of new programs slated to start in the coming year is a plan to establish a center to promote high-technology research and development. Funds totaling ¥12 billion (\$48 million) will be provided by the government and private sector. Government undertakings to be launched in the initial year will

include development of photo-responsive organic materials, a project called "Aqua Renaissance 90" to establish a system for recycling waste water.

In the energy sector, national oil reserves will be increased by 3 million kiloliters in fiscal 1985, raising total stocks to 20.5 million kiloliters, or the equivalent of 35.7 days' consumption. Private reserves required by law will be kept at 90 days.

Government Projects 4.6% Growth in Fiscal '85

The Japanese economy will keep on expanding in fiscal 1985, growing 4.6% in real terms, according to government projections. While lower than the estimated 5.3% growth rate for fiscal 1984, the annual economic outlook announced in late December suggests the economy will shift further toward the government-sought pattern of growth led by domestic demand rather than exports. With exports expected to decline, domestic demand is projected to grow steadily under the lead of private sector capital spending.

The forecast sees the economy growing 6.1% in nominal terms, bringing Japan's gross national product (GNP) to ¥314.6 trillion (\$1.26 trillion). It will be the first time that Japan's GNP exceeds the ¥300 trillion mark. The balance of payments surplus on current account—measuring goods and service trade, and certain monetary transfers—should top \$30 billion for the second straight year, reaching a record \$34 billion.

Domestic demand will account for 4.1 percentage points of the fiscal 1985 growth in real terms against an estimated 4.0 points in fiscal 1984, says the report. Foreign demand will contribute 0.5 points against 1.3 points the previous year. The private sector will be the driving force in domestic demand, its capital spending accounting for 1.6 points (1.8 points in fiscal 1984), personal expenditure 2.1 (1.6) and private housing investment 0.2 (0.1). Although corporate capital investment will slow, consumer spending and housing construction, both of which have remained sluggish despite the steady

economic recovery, will begin to pick up steam.

On the trade front, both exports and imports will increase at considerably slower rates than in fiscal 1984, scoring only single-digit gains. Export growth will fall to 6.1% from 14.6% the previous year as sales to the United States lose momentum following the deceleration of American economic growth. With imports also leveling out, Japan's trade surplus will stabilize at about \$44 billion.

Meanwhile, major research institutes and financial institutions are predicting real growth rates ranging from 3.6% to 6.0% in fiscal 1985, with most forecasting 4%-plus growth. They generally agree that growth will slow in the coming year, with the rate of the slowdown depending on how much domestic demand can offset the expected deceleration of export growth.

TSUKUBA EXPO '85 Opens March 17 -20m. Visitors Expected-

TSUKUBA EXPO '85—an international exposition on science and technology—will offer visitors a chance to peer at the shape of things to come when it opens for a six-month run at Tsukuba Science City north of Tokyo on March 17.

The Japan Association for the International Exposition, Tsukuba, 1985 is already campaigning to make the exposition a national event with mass media cooperation in its publicity. For example, it is urging schools, from elementary grades to senior high, to use the fair for study tours. The organizers expect some 20 million visitors in all.

Located on 100-hectares (250-acres) surrounded by a patchwork of fields and rice paddies, the spacious fairgrounds—equivalent to about 30 ballparks—will be divided into eight blocks, permitting more than 200,000 people a day to enjoy the science jamboree in safety and comfort. The Japanese government and business firms, including leading high-technology companies, have built 32 pa-



Tsukuba Expo '85 is expected to attract some 20 million visitors during its six-month run.

vilions at the site. Over 40 other countries, including the United States, the European Communities, the Soviet Union and China, as well as more than 30 international organizations have also built pavilions.

Located at the center of the fairgrounds, the two Japanese government pavilions are among the most interesting. The History Pavilion gives visitors a quick overview of the development of Japan's science and technology. The Theme Pavilion, meanwhile, contains a 21st-century vegetable "factory" growing tomatoes in hydroponic tanks illuminated by sunlight fed through optical fibers; visitors will be greeted by a high-performance robot that is an exact replica of a human being.

The government is also offering two other attractions—the children's plaza equipped with a pleasure labyrinth and a "skywalk" promenade, and the Expo Plaza with an electronic visual display system showing the entire site. Among foreign pavilions, the U.S. government's concentrates on artificial intelligence, the art of making a computer think like a man. And the Soviet and Chinese pavilions are expected to be no less popular.

Many private Japanese pavilions feature audiovisual shows. The Mitsui group is offering a "Water Theater," where the audience watches pictures projected on a waterfall that serves as a movie screen 7 meters high by 40 meters wide. The IBM pavilion—operated by IBM Japan—combines dome-like and globular screens.

In the information area, Nippon Telegraph & Telephone Public Corp. (NTT) lets visitors experience home banking, home work stations and teleconferencing. The NEC pavilion, with a 30-meter dish antenna installed on the roof, simulates a satellite communication station to show the fusion of computer and communication technology.

Not to be outdone, other attractions include a 47-seat linear motorcar that floats on a magnetic field above its 350-meter track, and the world's largest Ferris wheel at 85 meters in height. Children will also enjoy the Disneyland-style adventure rides, as fair organizers go out of their way to make sure TSUKUBA EXPO '85 has something for everybody.

Official and Private Economic Projections for Fiscal 1985

	Real Economic Growth (%)	Consumer Price Increase (%)	Current Account Surplus (\$1 bil.)
Government	4.6	2.8	34.0
Research Institute of Nat'l Economy	6.0	2.2	42.6
Mitsubishi Bank	5.1	3.7	34.0
Bank of Tokyo	4.6	2.6	40.5
Nippon Life Insurance	4.6	2.6	36.0
Sanwa Bank	4.5	2.4	47.0
Mitsui Bank	4.4	2.5	40.0
Fuji Bank	4.2	2.1	38.0
Dai-ichi Kangyo Bank	4.2	2.6	44.8
Nikko Research Center	4.1	2.8	39.5
Nomura Research Institute	4.0	2.6	39.4
Mitsubishi Research Institute	3.8	2.7	46.6
Tokai Bank	3.6	2.0	39.5