

MUSIC AND TECHNOLOGY IN JAPAN

by

MINAO SHIBATA

TOSHIRO MAYUZUMI (1929-) attended his first concert of concrete music in May 1952 at the Salle de l'Ancien Conservatoire in Paris, the first Japanese composer to experience concrete music. His comment was : « The concert was such a shock that it fundamentally altered my musical life. »

Returning to Japan from Paris after visiting Pierre Schaeffer's studio, he used the technique experimentally in parts of some film music, and subsequently, in the autumn of 1953, he completed the 13-minute « Œuvre pour Musique Concrète x, y, z », which was produced at a JOQR (NCB) in Tokyo. The « x » part consisted mostly of metallic sounds ; « y », of human and animal sounds and the sound of running water ; « z », musical instrument sounds. Over 150 elements were employed. This work had a nation-wide broadcast over the JOQR network and a sensational reception all over Japan. In the autumn of 1954, accordingly, JOQR invited Mayuzumi to write more concrete music. The result was « Boxing », a radio play, the script written by Yukio Mishima, the well-known Japanese novelist. Using over 300 types of sound, this second work proved even more popular with the public than the first.

In the autumn of 1954, a group of technicians and programme producers at NHK began rudimentary experiments in electronic music. Subsequently, they obtained a report (Technische Hausmitteilungen des NWDR's, 1954 ; Sonderheft über Electronische Musik) from the Northwest German Broadcasting Station, now the West German Broadcasting Station (West-deutscher Rundfunk) in Cologne, which gave them some idea of the theory, mechanism and methods of production. At the time, Makoto Maroi (1930-) was the Japanese composer most interested in electronic music. He spent three weeks at Stockhausen's studio in Cologne in the autumn of 1955.

NHK's Electronic Music Studio also dates from the autumn of 1955, when it was set up in studio 10 at the NHK building at Uchisaiwai-cho, Tokyo. The electronic equipment included Melochord (sine wave), Monochord (sawtooth wave) and other oscillators, 32 bandpass filters, recording machinery and

instruments. What could not be accommodated in the crowded studio remained in the hallway, where Toshiro Mayuzumi and other musicians and technicians worked for some forty days to produce the first Japanese electronic music.

The completed trilogy (« Music for Sine Waves by Proportion of Prime Number », « Music for Modulated Waves by Proportion of Prime Number » and « Invention for Square Waves and Sawtooth Waves » — each about five minutes long) had a nation-wide broadcast as the first electronic music to be produced in Japan.

Mayuzumi wrote : « We artists have thirsted for a complete freedom, without any restraint on the choice of materials or technical limitations... the more inorganic technique becomes, the greater is the need for purity of spirit or richness of sensibility or keenness of intuition... Machines could be more human than human beings themselves. »

In 1955, almost at the same time as Mayuzumi was composing his first electronic music, Toru Takemitsu (1930-) composed « Relief Statique », lyrical concrete music which was produced in a commercial broadcasting studio (NJB), and Minao Shibata (1916-) produced « Concrete Music for Stereophonic Broadcast » (20 minutes) at NHK. The latter consisted of a theme by percussion instruments, the first variation by natural sounds, the second by machine sounds. The rhythm series in the theme dominated throughout. In the underlying idea it may be similar to « Timbres-Durées » by Olivier Messiaen, but we are not sure about the details. At the end, the beating of the human heart, the ticking of a watch, and the twinkling of the stars were modulated and superimposed to symbolize limited life, unlimited space, and time in between.

All of the above works were publicly performed at Yamaha Hall, Tokyo, in February 1956.

Japanese journalism was extremely interested, and music magazines reported regularly on overseas contemporary music. We were thus well informed about such events as « Orphée 53 — Spectacle Lyrique », which caused a furore at Donaueschingen in 1953. We were very impressed to learn that concrete music had been effectively incorporated in a Kafka play at Kassel, and by the summary of what happened at the « Tagung für Elektronische und Konkrete Musik » held a little later at Basle. In other words, we knew this new music was being accepted by people in Europe.

In the autumn of 1956, NHK produced its second item of electronic music, the 15-minute « Variations on the Numerical Principle of 7 », by Moroi and Mayuzumi. Moroi composed the first half, in six parts, Mayuzumi the seventh part, equal in length to the first half.

The music was based on a scale of $49/7$, divided into 49 tones up to the seventh overtone, and showed the influence of Stockhausen's « Studie II » (based on a scale of $25/5$). The first half especially (composed by Moroi) was post-Webern.

Japanese dexterity and fastidiousness in tape editing and splicing, and in the refinement of the sounds produced, greatly helped in the production of electronic music. The production of « Variations », as electronic music was first appearing in Japan, cheered those concerned and gave producers confidence. « Variations » was broadcast on 27 November 1956, and has since become an electronic classic in Japan.

So far (1956), the production of taped music followed European models and the Japanese avant-garde still fumed to the « Domaine Musical » in Paris, the summer course in Darmstadt, or the electronic music studio in Cologne. By summer 1957, the time was ripe for the first contemporary music festival held at Karuizawa, a famous mountain resort in Japan, and organized by Hidekazu Yoshida (1914-), music critic, and Yoshiro Irino (1921-), Mayuzumi, Moroi, and Shibata, composers.

Japanese folklore had been used as material for compositions since the 1930's, e.g. Yoritsune Matsudaira (1907-) combined « gagaku » (ancient form of Japanese court music) with modern composition techniques in « Theme and Variations for Pianoforte and Orchestra », performed in Vienna in 1952 under Herbert von Karajan. Mayuzumi was of course quite conscious of the difference between the oriental sense of beauty and the Western, and the music produced at the NHK studio in autumn 1957, in striking contrast to his former works, was quite Japanese-like. The 30-minute « Aoi-no-Ue » was an electronic metamorphosis of a classic fifteenth century Noh. Two young Noh singers sang the classic Noh, unchanged ; a glissando of sine-waves substituted for Japanese flutes ; and the click noise or pulse through band-pass filters or white noise substituted for the percussion. The composer's aim was to use the irrational rhythm of Noh as effectively as possible. Naturally, this direct combining of ancient Japanese tradition and avant-garde Western technology provoked various controversies.

In 1959, Mayuzumi recorded the sounds of the huge bells that are famous in Buddhist temples all over Japan, and produced a 10-minute « Campanology », which was synthesized electronically. The first, third and fifth movements of his orchestral « Nirvana Symphony » was also called « Campanology ». The harmony was based on the sounds of bells, acoustically analysed. He believed that the sounds themselves could be taken to symbolize Buddhist feeling.

Some Japanese taped music was sent abroad, privately or through NHK Transcription-14 for overseas programmes : Takemitsu's « Sky, Horse, and Death » (1957) which was first performed by ~~Vortex~~ *Vortex*, an experimental music group in San Francisco. Originally composed for a radio play, the composer later rearranged it as an individual piece.

Also in 1959, the NHK studio co-operated in producing three other works for broadcasting (beside « Campanology »). These had something in common — texts, narrators, choruses, and orchestras employing electronic sounds, which seemed to be influenced by music that had been successful in Europe. These

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three works were : « Pythagorean Stars » by Makoto Moroi, « The Black Monastery » by Shin-ichi Matsushita (1930-) (produced by NHK in Osaka), and « Ondine » by Akira Miyoshi (1933-), which won the Prix Italia in 1960 (NHK Transcription-23). Electronic sounds supplemented instrumental, the composers mixing the electronic sounds effectively and according to their individual styles. « Red Cocoon » (1960) by Makoto Moroi was composed for a pantomime with slide and film projection. He sought excitement through modulated sounds that included some complicated components, in contrast to the relatively clear sounds used in his earlier works.

In 1962 there were three noteworthy compositions. In « Variété », Moroi reached a climax in the serial music genre of his earlier works. Yuji Takahashi (1939-), a disciple of Yannis Xenakis, composed « Phonogène », incorporating an element new in Japanese electronic music. Toshi Ichiyanagi (1933-), who studied under John Cage, composed « Parallel Music ». In other compositions, Takahashi employed stochastic music, and Ichiyanagi experimented with « chance operation ».

In 1963, Joji Yuasa (1929-), Yoriaki Matsudaira (1931-), and Keitaro Miho, the jazz pianist, did some works in the NHK studio. Mayuzumi's « Olympic Campanology », on four tracks, rang through the Tokyo Olympic Stadium in the autumn of 1964 — a development of his earlier « Campanology ». In 1965, Ishii produced « Ripples », and Moroi « Phaeton », which won the Prix Italia.

Thus, the NHK studio has been producing electronic music for almost ten years. Wataru Uenami, chief of the studio from the beginning, had always wanted to invite Stockhausen, and finally succeeded in January 1966, when Stockhausen visited Japan. During his three-month stay, he composed « Solo für Melodieinstrument mit Rückkopplung », No. 19, and « Telemusik », No. 20, and performed them in Japan. Working in close association with Stockhausen, and under his guidance, NHK staff acquired experience they could not get with Japanese composers — for instance, an apparatus that can feedback in various grades was manufactured for « Solo », and « Telemusik » was produced by five-channel stereophonic recording.

Stockhausen's visit may have marked a turning-point in Japanese electronic music. Since spring 1966, with a broader background, many freer and bolder experimental works have been composed. « Icon », written by Joji Yuasa between autumn 1966 and spring 1967, was quite an exquisite piece for five channels ; only white noise was used, and the various types of sound masses formed interesting patterns of sounds. It excelled « Projection Essemplastic » (1964) until then the best of his works.

In 1967, the NHK studio developed the electronic « multi-piano ». The 88 strings of the piano are equipped with magnets, and the sound (electric current) is intricately modulated through the use of modulators and filters. The performer is enabled to create unexpected and unpredictable sounds.

Mayuzumi composed « Campanology for Multipiano » in 1967, the first work for the new instrument. Maki Ishii also used the multipiano in his « Kyo-O » (1968), where a standard piano, orchestra and tape were mixed with live electronic music. A live electronic performance of accumulated human voices was simultaneously accompanied by various taped sounds in « Assemblage » (1968) by Yoriaki Matsudaira.

In « Improvisation for Electronic Sounds » (1968) by Minao Shibata, technicians made up the sound imagery to a diagram of colours which the composer illustrated, and also devised equipment on the spot : one for changing the tones continuously, and one for intermitting various sounds that scatter around at random. Material provided by this equipment then had an improvised performance superimposed on it.

Moroi's « Shosange » (1968) and Mayuzumi's « Mandala » (1969) both show Buddhist influence. In « Variations on 7 » (1965), these two composers immersed themselves in the world of electronic sounds, trying to solve problems of the relationship between musical form and timbre contrasts. Their eyes now seem set outside, their aims to acquire, not exquisiteness but freer expression, not delicate nuance but unlimited scale dimensions. « Shosange » is based on the sound of the triton which is blown every March in « Omizutori » (an annual ritual) of Todaiji, a Buddhist temple in Nara (an echo of « Omizutori » can also be heard in Stockhausen's woodwind quintet, « Adieu » (No. 21). Various quaint sounds of the triton, shakuhachis (a bamboo recorder of six different sizes), and a large shamisen (stringed plectrum instrument) are electronically modulated and developed in the form of variations. « Shosange » can also be performed with other instruments, or dancers.

« Mandala » originally described the religious view of the cosmos of a Buddhist sect, and it is usually represented by a large drawing. In a broad sense, it can express phases or the perpetual changing of things. This Mayuzumi music consists of pure electronic sounds in the first half, and human voice sounds (laughter, cry, whisper, sigh and so on) in the second.

In 1968, the NHK studio moved to Studio 500 in the newly-built broadcasting centre at Yoyogi, Tokyo. This new studio is now working with still better equipment.

Besides the NHK studio there is also the Sogetsu Art Centre in Tokyo (moved to Junosuke Okuyama private studio since 1966), which has been producing taped music by Takemitsu, Ichiyanagi and Akiyama since 1960. There are also composers like Satoshi Sumitani who is working at the studio at Tokyo Gakugei University, Kenjiro Ezaki (1926-) who has his own studio, and Shiro Kon, who has produced his works at NHK, Osaka. Japanese taped music in the 1960's has not only been broadcast or used in films, but has been heard in station plaza, banks, coffee-shops, sculpture exhibitions and museums.

In February 1969, at the gymnasium of the Yoyogi National Stadium, Tokyo, an avant-garde festival sponsored by the American Cultural Center was held under the title of « Cross Talk Intermedia ». It was organized by the American composer Roger Reynolds, the Japanese composer Joji Yuasa, and the Japanese critic Kuniharu Akiyama and, for three evenings, explored new uses of technology in art and held mixed media events : multiple screen projections, computer generated and live electronic music, experimental theatre and dance, psychedelic lighting. Ten American and five Japanese works were performed. « Cross Talk Intermedia » was expected to have as much importance to the Japanese avant garde as Expo'70 (March-September 1970) at Osaka. But, in fact, it was not successful from the technical point of view.

Space art, with sounds and lights, will be generously represented in many pavilions at Expo'70. At least 25 Japanese composers have produced electronic or taped music. A new experience is obtained as music resounds through loudspeakers in multiple channels inside huge buildings or in the open outside. One of the most fascinating examples is the « Space Theatre » of the Japan Iron and Steel Federation Pavilion, where Toru Takemitsu is in charge of production with music, laser and lighting ; 1300 loudspeakers, four 6-channel tape recorders and five consoles permeate the ceiling, walls, floor and all the intermediate space. New works by Takemitsu, Xenakis, and Takahashi are being first performed in this theatre.

Mayuzumi is produced at the grand « Festival Square », and Yoriaki Matsudaira, Ichianagi, Matsuchita and Takehisa Kosugi (1938-) are associated with him in the « Fantasia of Sounds and Lights » ; taped music on 11 channels flows out through a thousand loudspeakers (two 6-channel tape recorders are used ; one is retained for the speaker circuit ; hence the 11 channels).

It is impossible to predict what, after Brussels and Montreal, Expo'70, Osaka, will produce. But it is certainly the stage for lots of experimental taped music, far beyond what was originally expected. It is a new experience for composers, and they have tried to produce works that may be both tough and easy for a public used only to former Japanese taped music.

To summarize : Japanese composers had no experience of electrophonic instruments before the second world war ; 1953 represented the introduction to technology in music.

1953 First concrete music (« x, y, z » by Mayuzumi).

1955 First electronic music (trilogy by Mayuzumi).

1957 First combination of traditional Japanese music, Noh, and electronic music (« Aoi-no-Ue » by Mayuzumi).

1959 Combination of the cantata or radio-opera and electronic music (Moroi, Matsushita and Miyoshi).

- 1962 Introduction of aleatory methods (Ichiyanagi).
- 1964 First production with 6-channel tape recorder (« Transient 64 » by Yoriaki Matsudaira).
- 1966 Production of « Solo » and « Telemusik » by Stockhausen at the NHK studio.
- 1967 Five channels used to move sound around among five loudspeakers (« Icon » by Yuasa).

These are the main events, but not all the important works.

Japan at first looked mainly to the West, gradually incorporating traditional Japanese or Buddhist elements. Here Mayuzumi, Moroi, Takemitsu and Yuasa are the pioneers, producing many excellent works, but none seems to have a major influence on the others, none can be said to have taken over a decisive leadership.

We now have two problems : which part of what has been achieved will develop in the future ? and what has so far been lacking ?

Besides Western style music, Japan has traditional Japanese music in many genres. Here there seems little scope for technology. The most likely development is the incorporation into Western-style music of a traditional flavour that is nevertheless close to the modern Japanese way of life. In the purely technical aspect, for instance, in « Icon » by Yuasa, 25 very narrow bands of white noise are recorded in five channels (five bands for each channel) which fly around along five speakers like a spider's web ; and this kind of Japanese technique must be unique — a delicate and refined manipulation of sounds very much in the spirit of traditional Japanese art, and something we should preserve and cherish.

Meanwhile, a completely different trend was suggested at « Cross Talk Intermedia » in 1969, now being brought up to date in Expo'70 : an art closely related to living in huge modern buildings in modern cities, an attempt to allow this kind of music to advance into actual living. Uenami of NHK and his staff are studying ways of getting electronic music out of the laboratory and on to the street. We are also interested in the computer but, for the time being, it is used only for giving orders which select the loudspeaker, and not yet for composition. Our next experiments will be an attempt to combine a computer with an oscillator — difficult, but not impossible. Some of us hope to succeed within a few years.

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