

# TRAVELS NOW AND THEN

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## JAPAN 1996

### Aug 17 Sat

UA 817, LAX - Osaka, 11.15am.

### Aug 18 Sun

Arrive Osaka Kansai, 3.20pm.

Met by Prof. Y. Tsujimoto

Prof. Y. Tsujimoto Tel.: 81-06-850-6165, FAX: 81-06-850-6212.

Prof. Y. Tsujimoto, Home Tel.: 81-727-24-5534

email: [tujimoto@me.es.osaka-u.ac.jp](mailto:tujimoto@me.es.osaka-u.ac.jp)

Stay at Machikaneyama Kaikan, Osaka Univ.

### Aug 19 Mon

Visit Osaka U.

Lecture on Pump Rotordynamics

Stay at Machikaneyama Kaikan, Osaka Univ.

### Aug 20 Tue

Tsujimoto and I drove from Osaka to Akashi.

Took the cheaper car ferry (rather than Akashi bridge) from Akashi to Awaji island and on to the Naruta narrows bridge to see the vortex shedding as the sea flow through the narrow Naruto straits. Also visited the museum and took a boat tour out to see the vortices.

Stayed at hotel (Komatsushima?) near Naruto.



*Akashi-Awaji bridge.*



*Naruto narrows bridge.*



*Vortex in Naruto narrows.*

*Vortex in Naruto museum.*

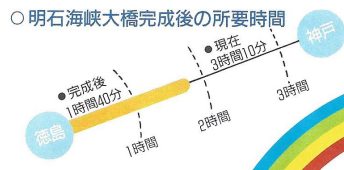
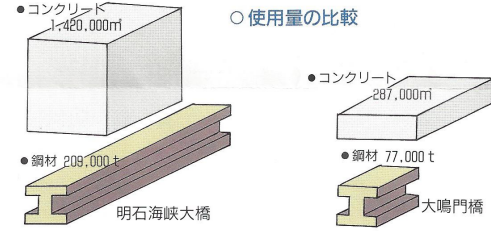
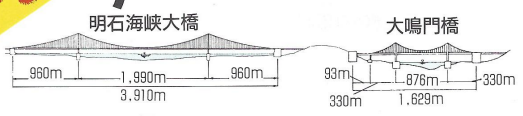
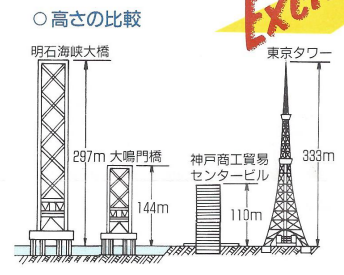
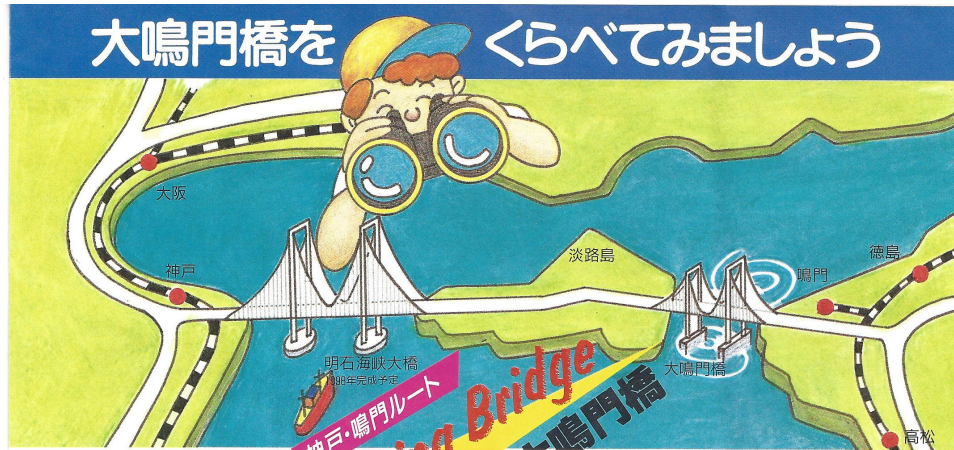


徳島県と淡路島を結ぶ架橋「大鳴門橋」  
 その完成を記念して大鳴門橋架橋記念館（エディン）が建設さ  
 れました。大鳴門橋完成に至るまでの記録や、徳島県の姿を  
 紹介するコーナー、海底探検やゆかいらい遊べるVRシアター  
 など楽しいことがいっぱい詰まったエキサイティングな施設です。



〒772 鳴門市鳴門町土佐泊浦字福池 TEL. 0886-87-1330





○世界長大径間吊橋の順位

順位	橋名	中央径間	備考
1	明石海峡大橋	1,990m	1998年完成予定
2	ハンバー橋	1,410m	英・1981年完成
3	ベラサノ・ナロウス橋	1,298m	米・1964年完成
4	ゴールデン・ゲート橋	1,280m	米・1937年完成
5	マキノ橋	1,158m	米・1957年完成
6	南備讃瀬戸大橋	1,100m	1988年完成
7	第2ボスボラス橋	1,090m	トルコ・1988年完成
8	ボスボラス橋	1,074m	トルコ・1973年完成
9	ジョージ・ワシントン橋	1,067m	米・1931年完成
10	来島第三大橋	1,030m	1999年完成予定
11	4月25日橋	1,013m	ポルトガル・1988年完成
12	来島第二大橋	1,010m	1999年完成予定
13	フォース道路橋	1,006m	英・1964年完成
14	北備讃瀬戸大橋	990m	1988年完成
15	セバーン橋	988m	英・1966年完成
16	下津井瀬戸大橋	940m	1988年完成
17	多々羅大橋	890m	1989年完成予定
18	大鳴門橋	876m	1985年完成
19	ニュー・タコマ・ナロウス橋	853m	米・1950年完成
20	因島大橋	770m	1983年完成



エディタワーが魅了する

2F

### 巨大な人工うず

海の底から、うず潮を見ている雰囲気させてくれる、高さ7 m、直径3.5 mのエディタワー。海の底から見る人工うずは迫力満点。また海底で演出されるうずのメカニズムを大型テレビで徹底解説。

### 大鳴門橋コーナー

最も美しい海峡、鳴門海峡に雄大なうず潮を眼下にみる人類の英知の結晶「大鳴門橋」。その完成に至るまでの記録をパネルや模型、実際に使われている材料や道具の実物などで紹介。

3F



### 徳島県コーナー

徳島に数ある名所・観光地、美しい自然、永い歳月の間つかわれてきた郷土芸能、風土、特産品などをマイコン、ビデオ、写真などを使ってあらゆる角度から楽しく紹介。

3F



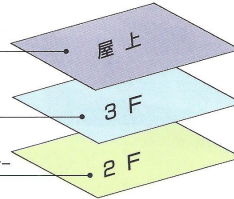
### 大鳴門橋架橋記念館の概要

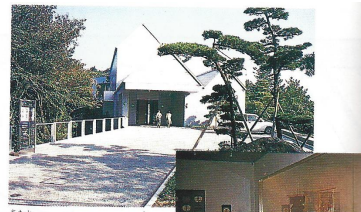
- 建物 / 鉄筋コンクリート3階建  
敷地面積 1,973㎡、延床面積 約2,650㎡
- 駐車場 / 約270台、延面積 約9,000㎡

#### ● パノラマランド

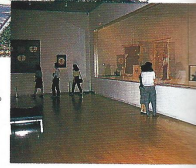
- 大鳴門橋コーナー
- 徳島県コーナー
- 多目的ホール

- 海底探検コーナー
- プレイコーナー
- 自然エネルギーコーナー

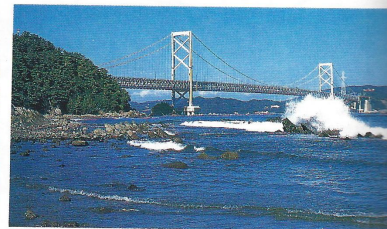




妙見山公園  
 恰美術館 妙見山公園中腹に平成4年開館。人間国宝で型絵染めの巨匠・故芹沢銈介の作品が多数展示され、新しい観光名所となっている。



大鳴門橋と渦潮 瀬戸内海と紀伊水道の潮の干満によって1.3にもの落差がでる大小無数の渦が発生する。潮流は普通ぐらゐだが、春と秋の大潮時には時速20km以上に達し、大きな渦にも達する。激しい潮流が轟音をあげて逆巻き千変万化する様子は驚異である。この豪快な渦潮をまたぐようにして昭和60年6月に大鳴門橋が架かり、自然美と人工美がおりなす魅力ある風景がある。



わかめの灰干し 生わかめに木灰をまぶして自然乾燥させる「灰干し」加工は鳴門の伝統製法。大毛浜海岸一帯でみられる灰干し風景は早春の風物詩となっている。

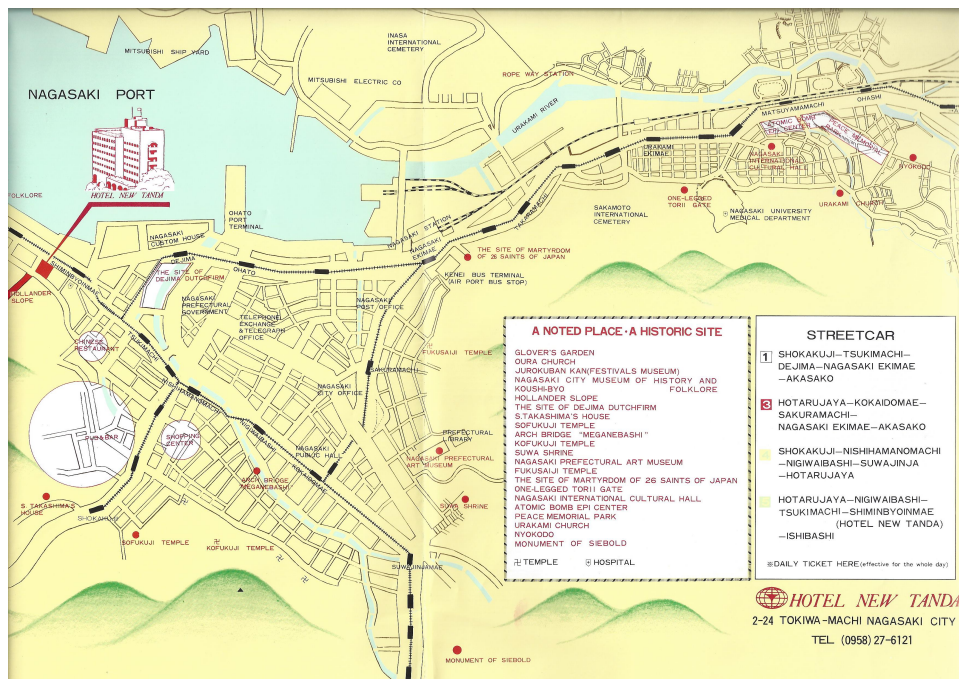


エスカヒル鳴門 東洋一の高低差(34m)を誇る観光用エスカレーター。鳴門公園の全景を一望できる展望台へ。



大鳴門橋架橋記念館 完成を記念して鳴門公園に建てられた。館内には、人工したエディタワを中心の着工から完成に至る使用機材を展示。屋上には大鳴門橋の展望台がある。

**Aug 21 Wed**  
 Drove back to Osaka.  
 Visit Osaka U.  
 Fly Osaka to Nagasaki, ANA 169, 6.40pm-7.50pm.  
 Stay in Hotel New Tanda, Nagasaki (Tel: 81-958-276121)



**Aug 22 Thu**

9.20: Mr. Oshima will pick me up at hotel and drive to Mitsubishi, Nagasaki.  
10.00-11.50: Tour of Nagasaki Res. and Devel. Ctr 12.00-13.00: Lunch  
13.15-14.30: Cloud Cavitation Lecture. 14.30: Move to Nagasaki Expt. Tank  
15.30-16.00: Tour of Nagasaki Experimental Tank.  
16.00-17.00: Discussion of cavitation.  
18.30-21.00: Dinner  
Tetsuji Hoshino, Dr.Sasazume  
Hoshino: Tel: 81-958-46-4661, FAX: 81-958-45-7701  
Hoshino: email: hoshino@ngs2.mhi.co.jp  
Stay in Hotel New Tanda, Nagasaki (Tel: 81-958-276121)

**Aug 23 Fri**

Train from Nagasaki to Fukuoka: 9.00am-10.58am L-Express (Kamome 10).  
9.00am-10.58am L-Express (Kamome 10) (Hoshino will have ticket.)  
Inoue will pick up. Check in hotel. 11.30-12.30 Lunch.  
13.00 Visit Kyushu Univ.  
13.30-14.30 Cloud Cavitation Lecture.  
15.00-17.00 Laboratory Tours.  
18.00-20.00 Dinner.  
Prof.Inoue, Furukawa, Hayami (ME)  
Inoue: Tel: 81-92-641-1101 X5538 FAX: 81-92-641-9744  
Inoue: email: ino@mech.kyushu-u.ac.jp  
Prof.Nakatake, Ando in Naval Architecture  
(Prof. Tsukamoto, Kyushu Inst. of Tech.).  
Stay in Sun Life Hotel near Hakata St. (81-92-473-7112)







August 23 (Fri.)

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 SCHEDULE IN KYUSHU UNIVERSITY
 

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- 13:30-14:30 Seminar: "Cloud Cavitation Dynamics and Acoustics"
- 15:00-17:00 Laboratory tours in Department of Mechanical Engineering
- Liquid-Gas Flow, Aerodynamic Noise of Fan, etc. by Prof. Fukano  
 Two-phase flow in Pump, Darius Hydro-turbine, etc. by Prof. Furukawa  
 Axial compressor rotor, Lock-in of Vortex-shedding by Micro-excitation  
 by me
- 18:00-20:00 Dinner  
 Chinese restaurant "Hassen-kaku"

## Participant:

Kuniharu Nakatake, Professor  
 Dept. of Naval Architecture and Marine System Eng., Kyushu Univ.

Jun Ando, Associate Professor  
 Dept. of Naval Architecture and Marine System Eng., Kyushu Univ.

Tohru Fukano, Professor  
 Dept. of Mechanical Science and Engineering, Kyushu University

Masao Watanabe, Associate Professor  
 Dept. of Mechanical Science and Engineering, Kyushu University

Akinori Furukawa, Professor  
 Department of Intelligent Machinery and Systems, Kyushu University

Yoichi Kinoue, Associate Professor  
 Department of Intelligent Machinery and Systems, Kyushu University

Masahiro Inoue  
 Dept. of Energy and Mechanical Engineering, Kyushu University

Hiroshi Hayami, Professor  
 Department of Thermal Energy Systems, Kyushu University

Mitchihiro Nishi, Professor  
 Dept. of Mechanical Engineering, Kyushu Institute of Technology

Hiroshi Tsukamoto, Professor  
 Dept. of Mechanical Engineering, Kyushu Institute of Technology

Koichi Yoshida, Associate Professor  
 Dept. of Mechanical Engineering, Kyushu Institute of Technology

Kazuhiro Tanaka, Professor  
 Dept. of Mechanical System Eng., Kyushu Institute of Technology

*SATO FURUKAWA, now at Whittle.*

**Aug 24 Sat**

Drive to Aso with Inoue, wife and daughter. 10.30am: Arrive Aso.

Visit crater of Aso with its concrete shelters.

My hike to summit of Nakadake.

Descended along trail to top of ropeway.

16.00: Pick-up at ropeway stop of Sensuikyo where I met Inoue again.

Drive to hotel outside Aso area.



*With Inoues at Mount Aso*



*Mount Aso crater*



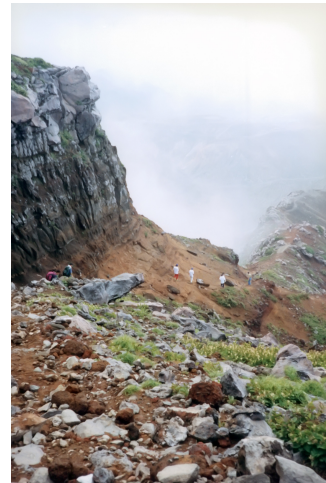
*Concrete shelters on Mount Aso*



*Mount Aso crater (Nakadake).*



*Mount Aso crater (Nakadake).*



*Hiking trail to summit of Nakadake.*



Summit of Nakadake.



**Aug 25 Sun**

Drive on outer rim of Aso (Gairinzan) incl. Daikanbo and Kuji.  
 Drive to Kumamoto airport.  
 Fly Kumamoto to Osaka Itami, JAC 696, 6.05pm-7.10pm.  
 Tsujimoto will meet me, have dinner and take me to Kyoto hotel.  
 Stay: Holiday Inn, Kyoto (Tel: 81-75-721-3131)

**Aug 26 Mon**

IUTAM, Kyoto

Tel: 81-75-753-5079, FAX: 81-75-752-5296

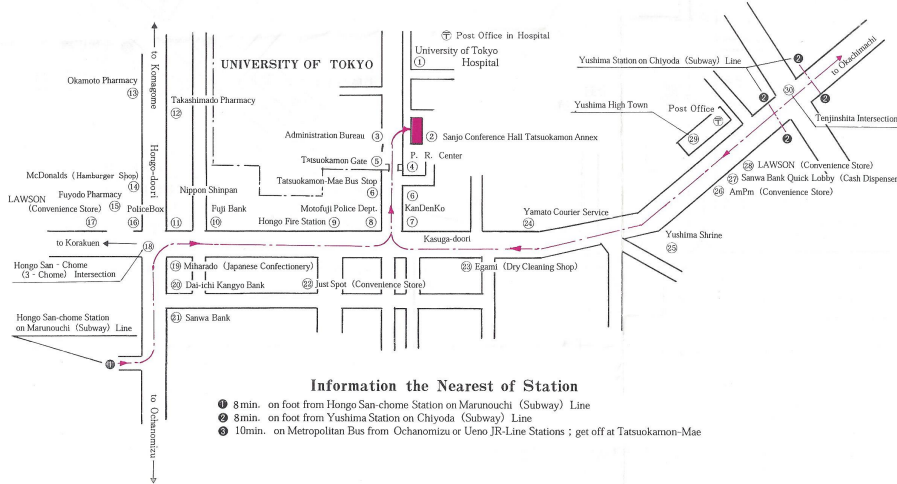
email: ictam@strsun1.kuciv.kyoto-u.ac.jp

Reception in KICH, 19.00-21.00 (Buffet dinner)

Stay: Holiday Inn, Kyoto (Tel: 81-75-721-3131)

IUTAM Congress, Kyoto, Japan, 1996 (2 presentations).

**MAP to the Sanjo Conference Hall Tatsukamon Annex**

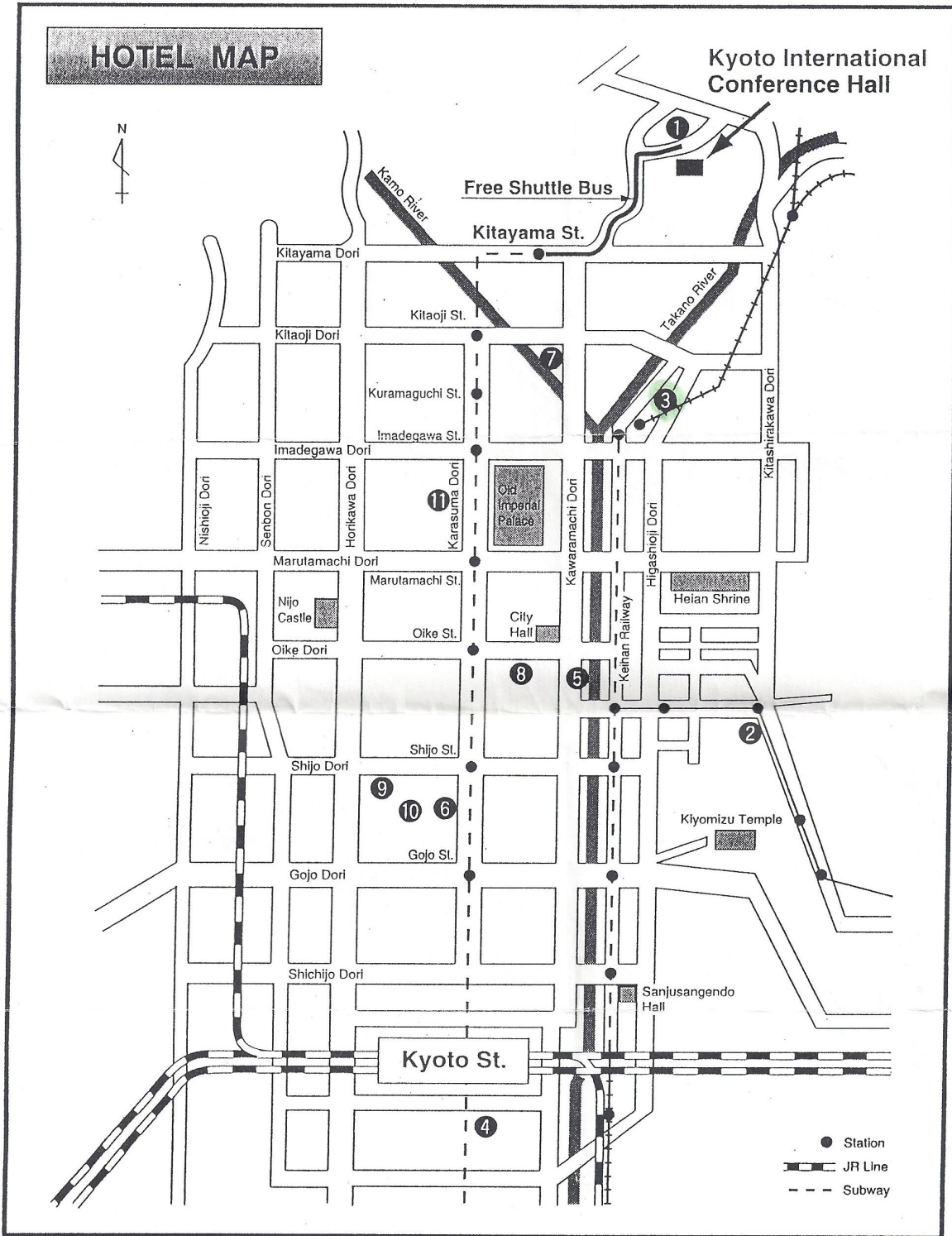


**Information the Nearest of Station**

- ① 8 min. on foot from Hongo San-chome Station on Marunouchi (Subway) Line
- ② 8 min. on foot from Yushima Station on Chiyoda (Subway) Line
- ③ 10min. on Metropolitan Bus from Ochanomizu or Ueno JR-Line Stations ; get off at Tatsukamon-Mae

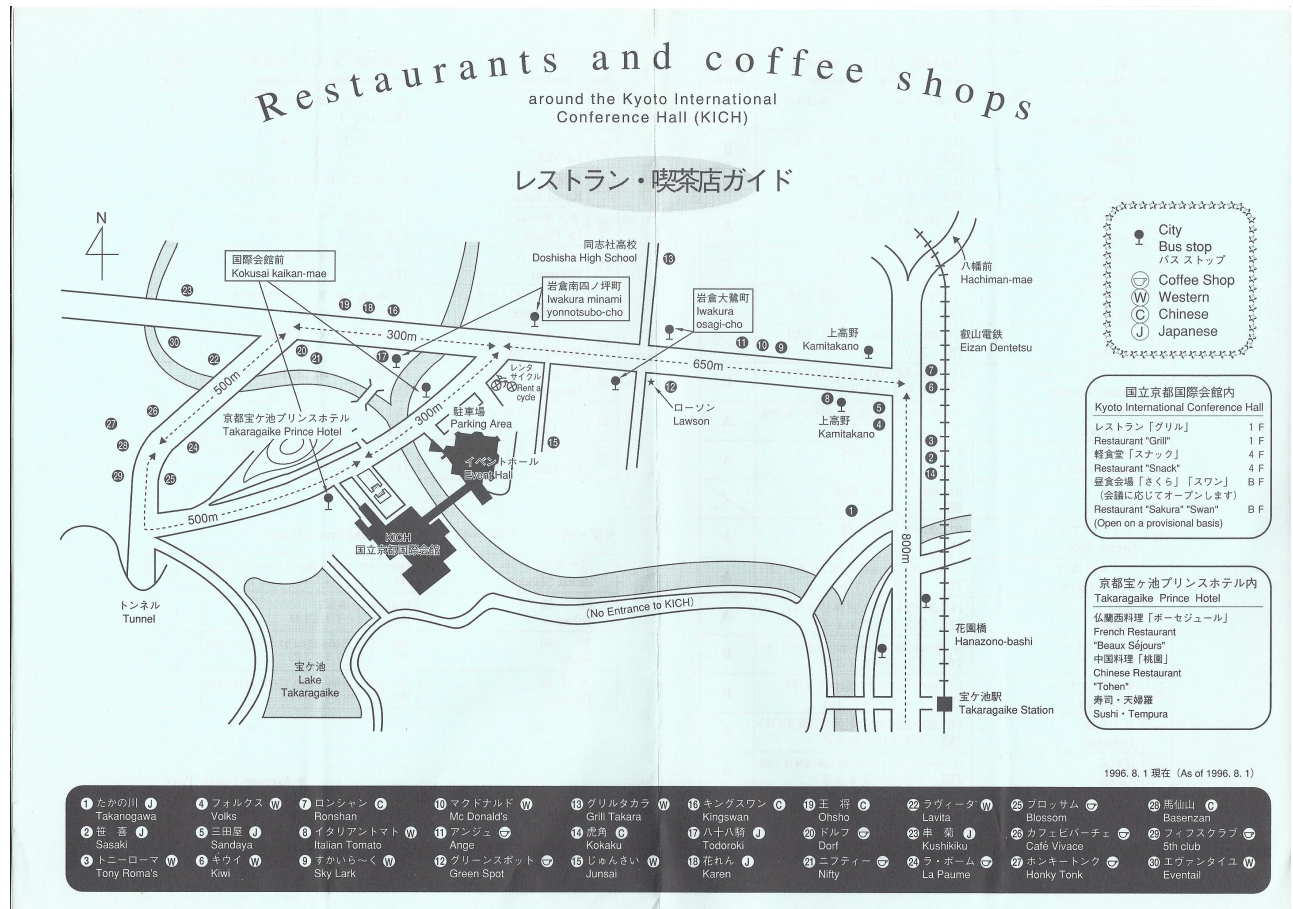
Division	Name	MAP No.
Hospital	University of Tokyo Hospital	①
Bus-Stop	Tatsukamon Mae	⑥
Police Dept	Motofuji Police Dept	⑧
Fire Station	Hongo Fire Station	⑨
Pharmacy	Takashimado Pharmacy Okamoto Pharmacy Fuyodo Pharmacy	⑬ ⑭ ⑮
Convenience Store (24TIME HOURS)	LAWSON Am/pm Just-Spot LAWSON	⑰ ⑱ ⑲ ⑳
Dry Cleaning Shop	Egami	㉓
Bank	Fuji Bank Dai-Itchi Kangyo Bank Sanwa Bank Sanwa Bank Quick Lobby (Cash Dispenser Only)	⑳ ㉑ ㉒ ㉔
Food Shop	McDonalds (Hamburger) Miharudo (Japanese Confectionery)	⑬ ⑭
Courier Service	Yamato Courier Service	㉕
Shrine	Yushima Shrine	㉖
Post office	Yushima High Town Building (1F)	㉗
Intersection	Hongo San - Chome (G-Chome) Intersection Tenjin-Shita Intersection	⑰ ㉘
University	Sanjo Conference Hall Tatsukamon Annex Administration Bureau P.R.Center	② ③ ④

HOTEL ACCOMMODATION



- ① Takaragaike Prince Hotel
- ③ Holiday Inn Kyoto
- ⑤ Kyoto Royal Hotel
- ⑦ Kyoto Prince Hotel
- ⑨ Hotel Oaks Kyoto Shijo
- ⑪ Kyoto Palaceside Hotel

- ② Miyako Hotel
- ④ Hotel Keihan Kyoto
- ⑥ Karasuma Kyoto Hotel
- ⑧ Hotel Gimmond
- ⑩ Maruko Inn Kyoto







# SHUGAKUIN IMPERIAL VILLA



Shugakuin is derived from a Shugakuji which was constructed in the Middle of Heian Period (10th century). The temple was never rebuilt, only the name of the villa was designed by the architect Gomizuno who was the favorite of the 107th Emperor Goyzei. He was enthroned at the age of fifteen. It had been customary for the empress to be selected from among the noble families. Tokugawa Hidetada (1603-1656), however, arranged for his daughter (later Tofukumon-in) to become the Emperor's consort and the empress. Ten years later the Emperor died, giving the throne to his son, and began planning his retirement days in leisure. Looking for his garden, he finally selected the site and set about construction and finished in 1659. There

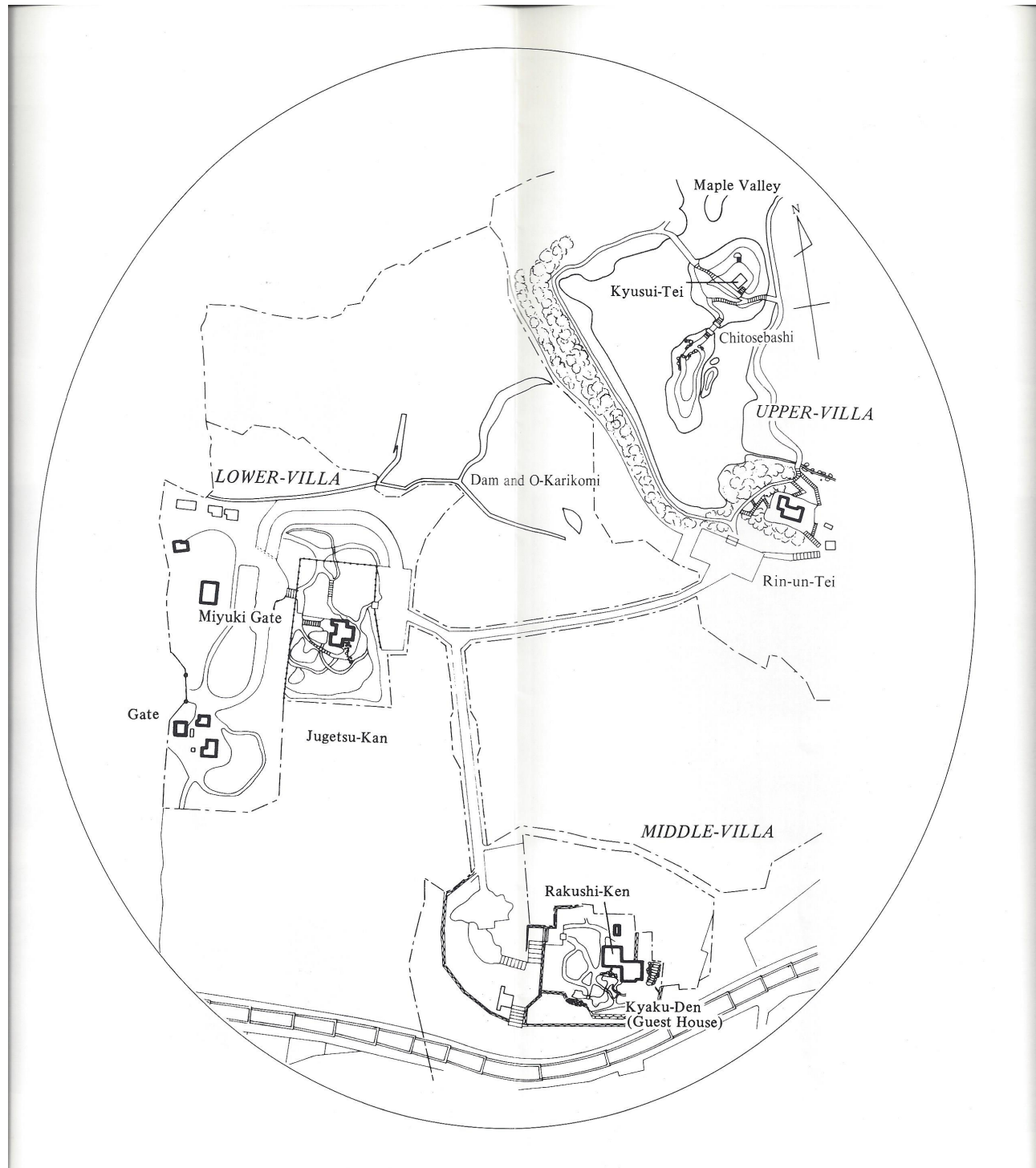
was a time when the Villa was not used and fell into disrepair. In 1822 the government started to repair the Villa and completed it in 1824.

## ●SUMMARY

The total area of the Villa is about 545,000 square meters (approximately 133 acres). The Villa was situated at the foot of Mt. Hiei to take advantage of the extraordinary beauty of the area with its fine views of the city and distant mountains to the north and east. The panoramic view together with the distant and adjacent forested slopes of the mountains and hills serve as a background for the garden. Thus the garden looks larger than it actually is. A landscape garden of this kind is called Syakkei (borrowed scenery). Shugakuin is considered one of the finest examples of this technique. The Villa consists of three parts, each one lies on a different elevation, and therefore we have the Upper, Middle and Lower villa; Originally the Middle villa was not a part of the complex. Ten years after the construction of the original Villa, it was built as a residence for the princess Akenomiya (the eighth daughter of the former Emperor

Gomizuno), and later the Rinkyuji nunnery was added here so that she could become a nun after the former emperor passed away. The nunnery supports itself now.

IMPERIAL HOUSEHOLD AGENCY

**Aug 27 Tue**

IUTAM, Kyoto

Stay: Holiday Inn, Kyoto

**Aug 28 Wed**

IUTAM, Kyoto

Afternoon excursion to rapids, 13.30-18.30

Stay: Holiday Inn, Kyoto

**Aug 29 Thu**

IUTAM, Kyoto

Banquet, 19.00-21.00

Stay: Holiday Inn, Kyoto



*Kiyomisaderu, Kyoto.*

**Aug 30 Fri**  
IUTAM, Kyoto  
Travel to Fuji.  
Stay at Fuji.

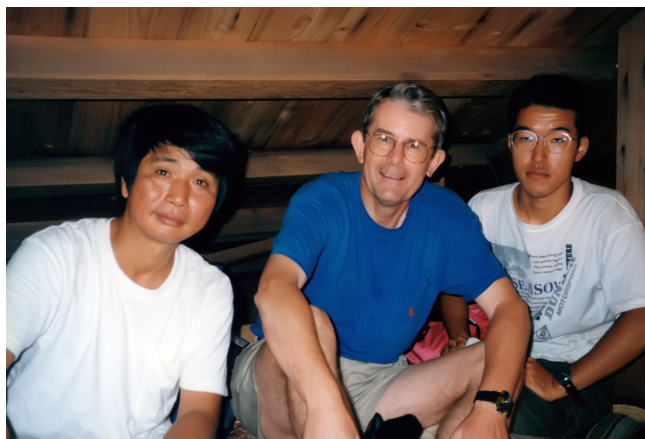
**Aug 31 Sat**  
Climb Fuji.  
Stay at Fuji.



*Mount Fuji trailhead.*

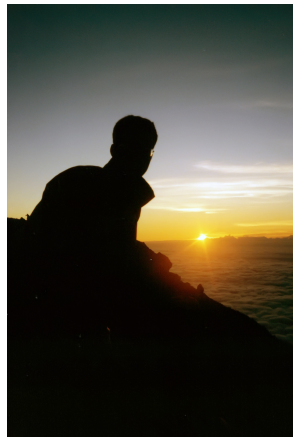


*Mount Fuji slope.*



*Mount Fuji Lodge.*

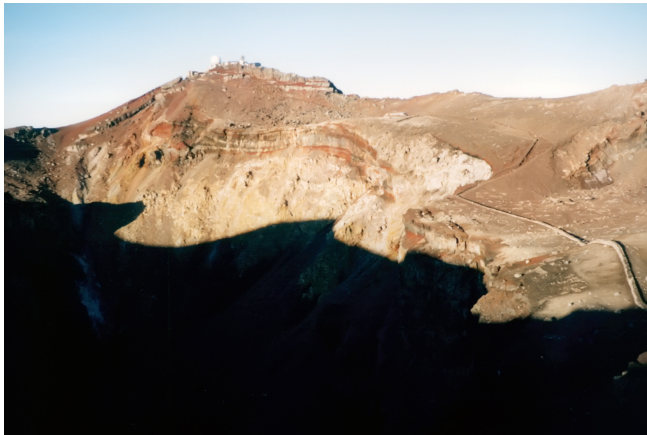




*Sunrise from summit.*



*Mount Fuji summit.*



*Mount Fuji crater.*



*Looking down.*

So it was that I took a taxi to the Kyoto Central Station and was soon speeding along at close to *160mph* on the shinkansen bound for Fuji City, about *200* miles to the east. The Kodama or limited express (for Japanese trains of various degrees of expressness are given useful identifiers) arrived exactly on time at *10.52am* at Shin-Fuji station. There I was met by my friend Yoshi Tsujimoto and one of his students, Masayuki Tanada, who had promised to carry both of us oldies to the summit of Fuji. Or so we teased him; in reality he was the very essence of quiet civility.

From Shin-Fuji station it is an increasingly tortuous drive of some two hours through the town of Fujinomiya and up the lower slopes of Mount Fuji. You start in the typically dense built-up area around Fuji City and Fujinomiya and rise gently through crowded, rolling farmland. Soon, however, this gives way to dense semi-tropical Japanese forest of low trees and a thick ground-covering of bamboo. Higher up this forest begins to change with increasing numbers of larger pine trees and a thinning of the bamboo. Eventually the bamboo disappears completely to leave an attractive highland forest of firs.

Our goal was the highest point reachable by road on the south side of Fuji, namely the mountain station of Shin-go-gome ("new fifth station"), high on the steep sides of the great volcano. By way of background, know that Fuji is a sacred mountain topped by a shrine. Pilgrims who begin at the base of the mountain are aided by ten stations roughly equidistant along the climb to the top. There are several routes up the mountain each with its own chain of ten stations. However, these days most hikers with a less devotional objective, drive as far as they can up the mountain. Roads on the north side and on the south side climb to just over *7500ft* where the fifth station, Go-gome, is located. The most popular route is up the Kawaguchi-ko trail from the Go-gome trailhead (*7592ft*) on the north side of the mountain. We followed the Fujinomiya trail that begins at Shin-go-gome (*7874ft*), the new fifth station, on the south side.

It was mid-afternoon before we reached the large parking area at Shin-go-gome and managed, somewhat fortuitously, to find a parking space. The weather had been very cloudy and misty as we drove up to this point and we had resigned ourselves to very limited visibility during the climb. But, as we readied our equipment in the parking lot, we began to catch glimpses of blue sky and sunshine above us. Buoyed in spirit we began our climb upwards from the crowded fifth station at about *2.00pm*. It is only a short climb up to the sixth station, Roku-gome, the intervals between stations being quite irregular in places. The sixth station also coincides with the tree line so that the terrain from here on was everywhere volcanic rock strewn with ash and geologically recent ejecta. We made steady progress up the rough and worn trail. Soon we were in bright sunshine with an uninterrupted carpet of clouds below us. The famously regular shape of Fuji was evident as the sun cast its shadow on the parchment of the top of the clouds. But the bright sun also meant that we were soon sweltering in the heat. We could see Shichi-gome, the seventh station, above us and it seemed deceptively close. But it took a depressingly long time to get there and we were struggling when we arrived at *10,000ft* and Shichi-gome about *4.00pm*.

Our plan was to climb some distance during the daylight hours and then to find a place to stay the night so that we could climb the last part before dawn the next day. In doing so we would be following the traditional timetable for climbing Mount Fuji. The idea is to reach the summit in time to enjoy what the Japanese call "goraiko", the semi-mystical experience of viewing the sunrise from the summit.

In theory it is possible to stay overnight in one of the many lodges on the mountain; almost all the stations have such a lodge. They consist of three or even four levels of shelves installed in a moderate, single storey hut. Hundreds of hikers are packed in like sardines on these shelves equipped with heavy cover-blankets. As we were climbing toward Shichi-gome, we heard word that many of the lodges were closing or had already closed for the winter. Shichi-gome lodge still seemed open for business. But it was very small, already crowded and a very long way from the summit for a pre-dawn hike. We decided to risk our chances further up the mountain since we still had a couple of hours of daylight.

And so we pressed on. It was harder going now, both rougher and steeper. We had to pause quite often to get our breath in the rarefied air and so, though the large eighth station did not seem very high above us, it took a long time to reach it. At one rest stop, we had confirmation of the rumors we had heard further down the mountain. The lodge at the eighth station, Hachi-gome, was full; the proprietor could not pack another single soul into his establishment. This was depressing since we also had confirmation that all the higher lodges (mainly those on the summit) were closed for the season. But almost immediately, we had some more encouraging news. Apparently, there was another Hachi-gome lodge just a short distance around the mountain. This was on one of the other, less popular trails; apparently it was still open and even had some space left for the night. And so we pressed on in a somewhat more encouraged mood. Light was already beginning to fade as we reached the large and full Hachi-gome lodge and trudged past onto the cross-mountain trail that would take us about a half-mile to the east. There, at *11,150ft*, we found the other Hachigome and, with great relief, purchased three of the last available spaces. The fact that the cost was a highly inflated \$60 per person seemed of little consequence compared to the alternative.

And so we checked in to the Akaiwa Hachigome or "Eighth Stage Red Rock Lodge". In its literature it advertizes itself in these lyrical terms:

- *You can be relaxed since it is not crowded.*
- *You can enjoy the best sunrise from the room.*
- *You can climb faster since the Gotemba trail is less crowded.*
- *You can have as much curry and rice as you want for dinner.*
- *Please enjoy wonderful Fuji with us. We are waiting for you.*

though, of course, in Japanese, not in English. A few of the other inmates, spoke a little English, but otherwise I had to rely almost exclusively on my friend Yoshi.

As in all Japanese dwellings, we took off our shoes in the entrance way, in this case a small, sunken open space inside the doorway. Then, in our stocking feet, we stepped up onto the lowest of the carpeted platforms. The last few spaces which we had felt fortunate to claim were on the third and highest platform, with just about three feet of headroom below the wooden roof. To reach our precious space, it was necessary to climb up onto the second platform, carefully choosing our footing to avoid stepping on sleeping bodies and then to crawl over more bodies to the roughly *6ft* by *2ft* space that each of us had been allotted. But it was warm, comfortable and clean. And there was a sense of camaraderie and of shared adventure that made the atmosphere friendly and hospitable.

After stowing our belongings, we climbed down again to enjoy the evening meal of curry and rice, prepared in two great iron pots bubbling over the stove in the sunken hallway. We washed it down with cups of hot tea and it tasted marvellous after our exertions of the day. Crowded around the three small and low tables set up to serve as a temporary eating area, conversation was inevitable. We met the three young Tokyo women who got the very last places just after us and beside whom we would spend the night. I also had a publicly entertaining conversation with a very old Japanese women who had somehow managed to climb this far despite her arthritis and her bent frame. Later Yoshi related to me what he remembered of the banter over the dinner table. The old lady was from Tokyo and was climbing Fuji to visit a temple in which the mummy of a monk is kept (unfortunately that temple was closed). She was also a vegetarian and claimed that all the confusion in today's Japan came from eating meat. She was the soul of the party and, since I was the first foreigner she had ever talked with, she had a number of observations on me and on the circumstances in which the crowd found great amusement. Though her wry comments were lost on me, I felt I knew her thoughts when she asked for my hand and gently stroked it. In that quite public moment, I had a strange sense of quiet humanity and peaceful compassion. Seconds later the feeling was gone and the amiable chatter resumed. Later, when the conversation ebbed, we retired to our assigned spaces on the shelves to try and get some sleep before our early morning start. But just before the room lights were extinguished, I was moved to glance down to where the old lady was sleeping by the door. There she lay curled up without mattress pad, bed cover or head rest.

We arose about *4.00am* and made preparations for a pre-dawn departure. During our brief sleep, I and others had been awakened by the obvious distress of one of the other guests. He was having difficulty breathing and even the oxygen bottle that his friends had brought did not help very much. Eventually, the whole group dressed and left in order to get this man back down the mountain to medical attention. It was dramatic testimony to the effects that altitude (in this case *11,150ft*) can have on some people. As we were rising, we discovered that Yoshi was also feeling some of the effects of the altitude including headache and nausea. He decided to remain in the lodge while Tanada and I went to the summit. It was cold and dark as we set out, now following the Gotemba trail. Most of the other guests had a similar plan; while a few left before us, most followed and, looking back, we could see a twinkling line of flashlights wending its way up the mountain. The trail is well travelled and therefore not

difficult to follow in the dark; the main problem is the rough and loose footing which can cause an occasional stumble in the dark. It took about *1hr* for us to reach the torii gate which marks one's arrival at the crater rim at about *12,000ft*. It was lightening fast and so, along with crowds of others, we found a good vantage point from which to await the *6.00am* sunrise. And it was quite spectacular though too cold to stand and watch for long. Soon, we were off again, hiking around toward the west side of the crater rim aiming for the *12,385ft* summit of Mount Fuji. Unfortunately, a most unsightly weather station has been built right on top of the summit; this is not only an eyesore but it also spoils that rich excitement normally experienced in reaching a raw, high peak. Nevertheless, it was a moment of accomplishment for I had been through many adventures since I first dreamed of climbing Mount Fuji. There seemed a rightness to the moment and a sense of completion, of closure. There would be other dreams and other trials but they would be part of later chapters.

In the annals of the vulcanologists, Fuji is a young volcano whose oldest lava is only *8000* years old. It has been dormant for almost *300* years, the last eruption in *1707* occurring not in the impressive summit crater but much lower down on the southeast side of the mountain. This eruption produced a still-recognizable crater and a side cone known as Hoei-san that we would later pass during our descent. Though dormant recently, Fuji has been very active during the historical period; for example, *18* eruptions were recorded during the period from *781AD* to *1707AD*. Despite its recent inactivity, the crater at the summit is still an impressive *300ft* deep and almost half-a-mile across. Its interior walls are almost everywhere vertical and are highlighted by slashes of the stark volcanic colors, red, yellow and black.

There are other, less obnoxious buildings on the summit. The ancients clearly had a more refined sense for they built their shrine in a discreet and unobtrusive site on the rim opposite the summit. Indeed, the Japanese records tell of pilgrimages being made to the summit over a thousand years ago. The earliest recorded ascent was in the *870s* and shrines were built near the summit in the *1100s*. Today the Sengen shrine, where the cherry blossom is worshipped, is a most ecumenical establishment, tending to the needs of climbers from all around the world. Established climbing routes to the summit were first created by monks of the Shugendo sect. Initially, the most popular route was the one that we followed; it starts far below at a shrine in Fujinomiya. The stations and lodges appeared about *1430*, first on the Fujinomiya trail and later, in the *1600s*, on the most popular route today, namely that on the north side. Until about *100* years ago, only monks and priests climbed Fuji; indeed women were forbidden to do so until *1872*. Now, during the official, open season in July and August nearly *200,000* people set off for the summit. On busy weekends, this can mean an almost continuous queue of people on the most popular trails.

One of the popular rituals is to purchase a wooden staff or "kongozue" and have it branded with the name of each station that you visit. All of the stations feature a brazier and branding irons for this purpose. A long queue of people were waiting at the Sengen Shrine on the summit for that particularly sought-after brand. Despite the queue, the shrine is a dignified and busy place; only the NTT telephone is incongruous.

After circling the crater, we began our descent and made rapid progress down the Gotemba trail by which we had ascended in the pre-dawn hour. Only one incident of note occurred. About *500ft* above the Akaiwa Hachi-gome lodge, we encountered the last of the previous night's guests, making very slow but steady progress up the mountain. It was the old lady using two canes to aid her balance on the rough trail. She seemed oblivious to our approach, intent on the effort required to labor up the steep slope in the morning sun. I thought for a moment of breaking into that reverie, but then realized I could not communicate with her at all without Yoshi. And so I just stood to the side as she inched her way slowly and silently by. No special feeling accompanied that moment, only a sense of loneliness and sadness. I stood wondering why she was so determined on climbing Fuji and on doing so alone. In her traditional Japanese clothes and thongs, she seemed to be from a different age and place than the middle-aged, affluent and meticulously-equipped women who were part of many of the groups of hikers we encountered. I still think of that old woman, wishing that I had made more of an effort to understand her, her unquenchable spirit and the feelings she invoked in me.

Back at the Hachi-gome lodge we found Yoshi much revived. This very day the lodge was closing for the season and the owners were busy packing their equipment and installing the shutters that would protect it from the winter storms. After breakfast, we resumed our descent, having decided to take a different route over this last leg. Thus we hiked down to the Shichi-gome lodge on the Gotemba trail and there forked right to circle the Hoei-san crater, now on our right. For the next couple of miles, the steep trail is composed of deep and loose sand/gravel known as "sunabashiri". This allows for a quite novel and rapid mode of descent, a cross between skiing and running, in which one can safely take large sliding steps much as one would on a sand-dune. It also provides fascinating views of the Hoei-san crater itself and its interesting combination of vertical striations of solid rock and slopes of sunabashiri. We kept to the right fork at each trail junction and circled down along the inside of the crater, eventually arriving at its base. From here it was a short hike along the cross-mountain trail back to Shin-go-gome and the car. Without much delay, we packed up and drove down the mountain to the Shin-Fuji station where I caught the shinkansen bound for Tokyo and Yoshi and Tanada began the long drive back to Osaka.

As I had imagined, it had not been a particularly difficult or scenic hike. Rather it had been an intriguing cultural experience, highlighted by my brief encounter with an old lady from a very different time and culture. In the days that followed I retained an eerie memory of that encounter and yearned to know what happened to her on the slopes of Fuji. I fervently hope she made it down safely.

### Sep 1 Sun

Travel Ueno to Hitachi City, Joban Line:

Super-Hitachi: Ueno 17.00-Mito 18.05

Off train at Mito Station. Only one exit.

Met by and dinner with Dr.Mitsuya, Hitachi

Mitsuya: Tel: 81-29-276-7334, FAX: 81-29-276-7450  
Mitsuya: email: GHA10354@niftyserve.or.jp  
Stay Hotel Sun-Garden, Hitachi City (81-294-22-5531).

**Sep 2 Mon**

Visit Hitachi.  
Dinner with Hitachi  
Train to Ueno, Super-Hitachi, Omika 19.00- Ueno 20.23  
Late: Travel to Ebara  
Stay Shinagawa Prince Hotel

**Sep 3 Tue**

Visit Ebara. Stay Ebara (near Haneda)  
Ebara Haneda Works: Mr. Hiroyuki Kato, Dr. Saito  
Ebara Kamakura Research: Dr. Yamamoto, Dr. Akira Goto, Dr. Sumio Saito  
Saito: email: saito02@ebara.co.jp  
Goto: Tel: 81-466-83-7606, FAX: 81-466-82-9371  
Goto: email: goto05296@erc.ebara.co.jp  
Stay Shinagawa Prince Hotel

**Sep 4 Wed**

Travel to IHI (Yokohama).  
13.00 - Nakanishi will meet me at Isogo Station (Negishi Line).  
13.00 - Travel to IHI Yokohama Institute  
13.20-13.30 Introduction to IHI  
13.30-15.00 Tour of cavitation tunnel, etc.  
15.00-17.00 Cavitation lecture and Rotordynamics Lecture  
17.30-19.00 Reception at IHI Yokohama Guest House  
Mr. Nakanishi (inducers), Dr. Okamura (ship)  
Nakanishi: Tel: 81-45-759-2057, FAX: 81-45-759-2185  
Nakanishi: email: nakanisi@ritj.ty.ihi.co.jp  
Stay at IHI Yokohama Guest House

# Agenda

for **Prof. Brennen's** visit to  
**IHI Research Institute(Yokohama)**  
 September 4,1996

Place : Meeting room(No. <sup>101</sup>~~202~~) in Yokohama Guest House

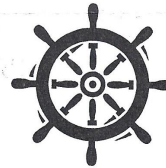
13:15~13:30 Introduction of IHI Dr. Okamura

13:40~15:00 Mini Tour to Several Laboratories

Hydraulic Laboratory	Mr. Kawasaki
Towing Tank	Dr. Shirose
Cavitation Tunnel	Dr. Shirose
Thermally Stratified Wind Tunnel	Mr. Hikami

15:10~17:00 Lectures and Discussion  
 "Cloud cavitation dynamics and acoustics"  
 "Fluid-induced rotordynamic effects in pumps"

17:30~19:00 Reception



## Sep 5 Thu

Visit Yokohama Nat.Univ.  
 (Prof.Kamemoto, Prof. Kurokawa)  
 Dinner with Kurokawa  
 Kurokawa: email: kuro@ibis.mach.me.ynu.ac.jp  
 Kurokawa arranging hotel in Yokohama

## Sep 6 Fri

Travel to Tokyo.  
 Visit Tokyo University. Cloud Cavitation Lecture.  
 16.00-17.30, NAOE Meeting room: Cloud Cavitation Lecture.  
 Beer party after lecture.  
 Prof.Kato and Prof.Matsumoto.  
 Matsumoto: Tel: 81-3-3812-2111 X6286, FAX: 81-3-3818-0835  
 Matsumoto: email: ymats@mech.t.u-tokyo.ac.jp  
 Stay in U.Tokyo guest house, Sanyo Kaikan.





**Sep 7 Sat**

Fly Tokyo, Narita - LAX, UA 890, 4.00pm-9.55am.

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*Last updated 7/30/99.  
Christopher E. Brennen*