

Japan

Another academic city planned*Tokyo*

PLANS are being laid for a large-scale academic city in the Kansai area of Japan. It is hoped that the city will be approved as the region's next giant construction project following the completion of the new international airport at Osaka. Its proponents do not see it as a rival to Tsukuba Science City near Tokyo; it will aim more at basic research and cultural activities than Tsukuba, which is dominated by government research laboratories.

Two thousand five hundred hectares of land have been set aside for the city where the prefectures of Kyoto, Osaka and Nara meet. The location is within 30 km of Kansai's major cities of Kyoto, Osaka and Kobe with their large state universities, and the ancient capital of Nara.

The region also contains the headquarters of a number of Japan's high-technology companies, including several of those involved in research in biotechnology and new materials, and many are proud of being "Kansai" as against "Kanto" (Tokyo zone) companies. Contributions from companies and relocation of their research institutes could very significantly help construction of the new academic city.

The nucleus of the city is at present contained in the "International Institute for Advanced Studies", the only part of the city that has passed from a dream to a reality. The institute was set up, in name at least, in 1984 on the initiative of two former presidents of Kyoto University, Professor Azuma Okuda and Professor Michio Okamoto, a member of the Prime Minister's Council for Science and Technology and head of the Extraordinary Reform Council for Educational Reform.

Since then, the institute has successfully passed through its "phase one": raising a capital of 133 million yen (\$830,000), largely from Kyoto-based companies, to establish a foundation and open an administrative office. Now it is well into "stage two" in which 3,000 million yen (\$18.7 million) is being raised to endow the foundation and to allow construction work to begin. With luck the institute will be built and running in five years' time. It was conceived after the study of successful advanced studies institutes elsewhere, notably those at Aspen and Princeton and the Rockefeller Institute, as well as other unique research institutions, including the Research Triangle Park of North Carolina and the Cavendish Laboratory (*Nature's* issues of 1874 providing a record of its establishment).

As in other advanced studies institutes, the aim will be to invite "the foremost scholars of the world" to come and work there for periods of a few years at a time.

Early plans for the institute suggest it will provide an exceedingly pleasant environment: Japanese-style buildings containing guest houses, seminar rooms and dining halls are to be laid out in parkland and connected by the covered corridors found in temples and traditional houses.

The Advanced Studies Institute has in fact already begun activities with the sponsorship of international seminars in Kyoto on artificial intelligence and biosciences. More seminars, centred on scholars invited from abroad, will take place until the institute can assume its full functions.

Several other new facilities may serve as kernels for the academic city. Among them are a new branch of the National Library; a new graduate university, linked to the joint-use university research facilities like those at Okazaki; and a new laboratory

Synchrotron sources**Stanford versus Argonne?***Washington*

WITH pressure on the big science budget likely to increase in coming years, gentlemanly competition seems imminent over a proposal by the Stanford Synchrotron Radiation Laboratory (SSRL) to expand material research facilities at one of its electron storage rings. Recent experiments with the ring have been so successful that adding more beam lines might reduce the need for a future 6 GeV synchrotron coveted by Argonne National Laboratory.

The PEP (Positron Electron Project) ring at Stanford, generally agreed to have been something of a disappointment, was originally used for high-energy physics experiments, but with the impending completion of the Stanford Linear Collider (SLC), particle physicists have rather lost interest in it. In its heyday, PEP had five beam ports for high-energy physics experiments, but this figure is now down to one.

PEP might, however, be ideal for materials science measurements with synchrotron radiation if suitable beam ports and insertion devices were installed. For this purpose, the ring has to be run in a low-emittance mode. Although not designed for such a purpose, the machine excelled itself when low trials were conducted in March this year, reaching emittances close to those intended for the planned 6 GeV machine. It can reach energies of up to 8 GeV at low emittance, and if it were turned over exclusively for synchrotron radiation studies, 20 or more beam lines could be installed, according to Arthur Beinenstock, director of SSRL.

for basic research in electrocommunications to be run jointly by the Ministry of Posts and Telecommunications and the newly privatized Nippon Telegraph and Telephone Corporation. These are, at least, possibilities that are being pursued; whether they can be turned into realities remains to be seen.

Those supporting plans for the new academic city believe it will be complete within 15 years. But there remain differences of opinion about its final form. There are some in the universities nearby who see it as a chance to relocate existing departments requiring expansion or renewal, or to bring together related institutes from different universities in the areas.

Others see the creation of a new academic city as a chance to break free from restrictions in the Japanese university system and to create a new style of institute, where deficiencies perceived in Japan's basic research contribution can be rectified.

Alun Anderson

The Department of Energy (DoE) is indeed this week reviewing a proposal from SSRL to add three more beam lines to PEP, bringing the total to five. The proposal observes coyly that the existing beam lines have demonstrated "an emittance and dynamic aperture comparable to other potential storage rings presently being evaluated". The ring's long straight sections make it ideal for adding insertion devices such as undulators and wigglers.

The proposal to build a 6 GeV synchrotron radiation facility at Argonne by 1992 at an estimated cost of \$300 million has not yet received the official go-ahead from DoE, although its 1987 federal budget request includes some funds for preconstruction research and development. For the time being, extending the radiation facilities at PEP is being considered just as a means of paving the way for the dedicated 6 GeV machine, according to Lou Ianniello of DoE's office of basic energy sciences.

But Don Stevens, deputy associate director, adds that "it's a valid question" to ask whether an expanded PEP might not now be able to do all that the 6 GeV machine could do and one that "will have to be addressed".

Others are not so impressed. Ken Kliewer, who heads the 6 GeV project at Argonne, says that a dedicated above-ground machine could have up to 60 beam lines, and "Stanford can't match that". Kliewer thinks it unlikely that DoE will approve adding 20 or even 10 beam lines at PEP, in part because of the expense of necessary underground tunnelling.

Tim Beardsley