

n e w s l e t t e r



Faculty of Engineering, Kyoto University

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Protecting Cultural Heritages from Post-Earthquake Fires



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As the new dean of the Graduate School of Engineering and the Faculty of Engineering, I am probably expected to introduce here some research or educational activities in the Faculty of Engineering at Kyoto University. This, however, was already done one year ago by my predecessor, Prof. Makoto Nagao, now the President of Kyoto University. Moreover, at present, we are restructuring the university system in view of the *Interim Report of the University Council*, which was released June 30th of this year. This report was submitted to the Monbusho (Ministry of Education, Science, Sports and Culture) under the title, "Universities in the 21st Century and Measures for Reform." Now, intensive debate and discussion on this issue will likely be carried out throughout the university; not only among researchers and staff, but also among students. Thus, I have selected a more unusual topic for this article.

Most people who have lived in a foreign country as a student or researcher may feel nostalgia for that country after returning home. In this context, I suppose that the readers of this article may have a special feeling for Kyoto as a second or third home, assuming they have stayed here for more than a year. Kyoto is a special town both for visitors and residents; namely a place where old and new culture mixes in all features of the city. Kyoto was the capital of Japan for more than a thousand years and therefore preserves many old cultural facilities and sites. On the other hand, Kyoto is well known as a home of venture business. Worldwide companies such as Kyocera and Nintendo made their start here in Kyoto.

Towards the end of World War II, many big and medium sized cities in Japan were bombed and burned out, while Kyoto and Nara remained untouched due to the existence of rich cultural heritage sites. There are many old wooden houses in Kyoto and many artistic cultural heritage sites are preserved in wooden temple and shrine structures which are surrounded by these old homes, built more than 50 years ago.

Following the 1995 earthquake in the Kobe area, large-scale fires raged throughout the city and thousands of homes

were burned. The percentage of wooden homes in Kyoto, however, is more than double that of Kobe. This implies that many cultural heritages would be burned, together with temples and shrines, should Kyoto be hit by a strong earthquake. Also, seismologists have been giving us warnings of the high possibility of a major earthquake occurring in the Kansai area, including Kyoto, in the near future.

Most of the important cultural monuments, such as temples and shrines are protected from ordinary fire by sophisticated fire protection facilities. These protection systems, however, may not be reliable during and after a major earthquake because some of the buried water pipes in Kyoto were disrupted by the Kobe earthquake despite the epicenter being more than 70 km away. Thus, most of the fire protection facilities at Kyoto temples and shrines will likely be completely destroyed in the case of a Kyoto earthquake. This means that many of the cultural heritages will be confronted by a spread of fire from the neighboring houses and buildings. Therefore, it is necessary to establish a fire protection system against spreading fires. This must be done by local and central governments, and concerned organizations. The cultural heritages are the common treasure of all the Japanese people as well as those who maintain them. In order to implement this, we first need to get the understanding of both the citizens of Japan and the world.

Thus, in October of 1997, a group of concerned individuals organized the "Council for the Protection of Cultural Heritages against Post-Earthquake Fires." The council consists of well known and nation-wide influential people from different field such as local government, industry, the arts and academia. In order to get publicity, we have held forums twice: first in October, 1997, in Kyoto, then again in July of 1998, in Osaka.

Fortunately, Kyoto has enough access to water resources to protect heritage sites from post-earthquake fires. For example, the Sosui Canal provides plenty of water at the highest point in Kyoto, which enables us to send water through buried water pipes to temples to provide water curtains surrounding the important structures containing artistic cultural heritage properties. Nevertheless, no matter what systems are adopted, we shall still require a large amount of financial resources and therefore we need the understanding of taxpayers.

It seems that we have only a few decades before the next big earthquake hits Kyoto. I hope, therefore, that you, the readers of this newsletter, will support our activities from overseas even after you have returned to your home countries. After all, for many of you, Kyoto is your home away from home.

Mainz 大学



砂 本 順 三

合成・生物化学専攻教授

通常 Mainz 大学と呼び習わしているが、正しくは Johannes-Gutenberg Universität, Mainz である。大学のある Mainz 市は、約2000年前ローマ人が初めて葡萄を植樹した古い歴史を持つドイツ西部の小都市である。それ故モーゼルと共にラインガウとして名高いドイツワインの名産地の一つでもある。Rhein 河に沿って北へスイスの Basel からフランスの Strasbourg を経てドイツの Köln に到るほぼ中間点にある。1448-1550年に Gutenberg がここで活版印刷を発明したことでも有名な所である。

Mainz 大学は、1476年 Papst Sixtus 4 世に依って設立された。日本の国立大学とは組織形態が異なり学部は存在せず、カトリック教義、プロテスタント教義、法律・経済、医学、哲学・教育、社会学、言語学 I、II、III、歴史学、数学、物理学、化学・薬学、生物学、地球化学、応用言語・文化科学、芸術、音楽、スポーツの19の学科 (Fachbereiche) がある。学生数は約26000でその約30%が大学院生である。その他 Max Planck 研究所など多数の研究所、センターが併設され、学科群と極めて有機的に連携、運営されている。特に学生の教育と研究指導に関しては全く区別がない。学部と大学院も組織として明確に区別されていない。教授総数は約700名、その他の教官は約4000名である。歴史と伝統に培われた教育・研究レベルは極めて高く、多数の優れた学者を輩出し国際的にも広く評価されている。

京都大学と Mainz 大学の学術交流は可なり古く、工学部化学系では以前から若手教官が多数留学し、また Mainz 大学からも多くの研究者が来学していた。特に Mainz 大学の H. Ringsdorf 教授 (現名誉教授) の尽力により DAAD (Deutscher Akademischer Austauschdienst) の基金で Mainz 大学の学生の本学への留学の資金援助が始まって以来、10年以上毎年3-4名の学部卒業生が9月初めから2月末まで本学に留学するようになった。本学での受入れに際しては、旧高分子化学教室の伊勢典夫名誉教授が個人的に随分と尽力されていたが、伊勢教授の御退官後は小職がその任を継ぎお世話してきた。平成7年度には文部省と DAAD の強い要請もあり、小職も努力させていただき、両大学間での正式な協定書の締結を見るに到った。今では、工学部・工学研究科全ての学生を対象とした授業料免除、修得単位互換に基づく相互交流が確立している。それにつけても、相互交流とは申せ、現実の両大学間の留学生数は甚だ不均衡である。本学からの留学生数が圧等的に少ない。文部省も DAAD もしばしばこの点を指摘する。しかし、それは希望する学生数が少ないのではない。我が国には DAAD のようなしっかりとした留学生への経済的支援をしてくれる機関がないための経済的理由に起因している。今後はせめて本学としても、意欲ある優秀な学生を海外に留学させるための十分な基金を準備するべきであろう。この場を借りて強く提言したい。



キャンパス内で憩う学生たち

Impressions of a Japanese University



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In my career before 1997 I was fortunate enough to have had experience with other academic systems than the one, very peculiar - the French one - in which I was partly educated, having also received an American graduate education. In the French system of higher education, engineering sciences are cultivated in a totally different kind of institutions than traditional universities, so-called «grandes écoles», an untranslatable term which is nonetheless best illustrated by the celebrated «Ecole Polytechnique» founded during the French Revolution in 1794, or the general term «Engineering Schools» - but there are also «grandes écoles» related to other fields of knowledge - in which the Elite of the Nation, is formed and the means of selection, whatever the future of the candidates, remains success in the exact sciences, mathematics and physics. I spent long stays in American, German, and Italian universities and one- or two-month stays in Swedish, English, Polish, Yugoslav and Turkish academic institutions. Apart from the English system which is peculiar with the specific position of Oxford and Cambridge, all these are practically copies of one of the accepted systems of the late 19th century of education, that is, essentially, the German and American university systems. When I received a generous invitation from Kyoto University to join momentarily the newly developed Department of Energy Conversion Science, I was a little worried. Not that I should see any hidden plans behind my hosts' offer, but I suffered from the very human fear to enter what I imagined to be a totally different system, in a country of which I do not - and unfortunately cannot technically in such a short time - master the language and appreciate at first ancestral traditions and views of the world which ought to be quite different from the mould in which I was formed, or deformed depending on the viewpoint. Educated Europeans know the famous book of Ruth Benedict written towards the end of World War II and giving a rather ambiguous, and certainly biased, view of Japanese mentality, full of contradictions in a way, and therefore complex, and finally inaccessible to our simplistic view which rather functions as a two-level computer-like system, one solution excluding any others a priori - although a scientist trained at *nonlinearity* like me should know the limitations of such apriorisms. And now what did I discover?

First, Japan is one of the most educated countries, one in which knowledge is recognized at its just value. To be a university professor there still captures some prestige in the population, what is not the case in America or France, but is still the case in Germany, although much less than earlier in the century. Second, Japanese universities since WWII have adopted a curriculum close to the American one and many Japanese students and teachers alike have now difficulties to imagine that other systems can exist; but the way Japanese university students are selected reminds us of the system of French «grandes écoles» with a very selective entrance competition. This creates a hierarchy among academic institutions, a hierarchy that is not always apparent from the outside but that does play a mysterious (for us) role for the communication between individuals of various Japanese institutions, in the same way as a foreigner is most often not aware of this hierarchy tacitly established between «Grandes Écoles» and perceives the consequences of this hierarchy with difficulty, if not with incredulity. The selective system based on a difficult entrance examination, whether in Japan or in France, although

good in principle, may have some bad consequences. First of all, having pronounced a rather definite judgment on students by means of this selection, we do not want to acknowledge any error of appreciation and thereafter give «simple» exams during the curriculum so as not to flank those «happy few». As a consequence, having spent much energy in preparing those entrance examinations, students adopt a rather relaxed attitude during the university years being more or less sure to succeed to the final exams without much efforts and to enter a prestigious administration or company upon completion of their studies. This does not favor creativity, and in particular initiation to scientific research which is my main concern. Second, the fabrication of an elite through the filter of a difficult exam, which reflects more cultural background than real knowledge and understanding, has a tendency to reproduce itself. In the end, although the spirit of the French revolutionaries in creating this system was to open it up to anybody, this has been vitiated and it became very close to the Mandarin's education.

Obviously, Kyoto University is one of the most prestigious Japanese universities, and as a consequence of what was just said, it does suffer from these inconveniences. But what saves Kyoto University from this is its geographic situation and the glory created by its alumni, in particular its Nobel prize winners and other celebrities, whether in sciences or in humanities. One inevitably compares Kyoto and Tokyo universities, and the temptation comes rapidly to declare that Kyoto University, in the heart of the old capital and the most visited, intellectual, and spiritual cities of Japan, is, in some sense, more «artistic» (in the sense of what is conceived as the «artist's life», not going to the extreme of the «bohème») in its style and mode of life and functioning. I agree with this feeling and the idea expressed by former Dean Hideo Shingu, Graduate School of Energy Science. The style of living in Kyoto, of both students and professors, without the stress of Tokyo's rhythm of life and the constant need to prove something to the external world, is beneficial and probably helps in a wiser view and more philosophical attitude towards life in general, and education in particular. The style of research itself is permeated by this attitude. I like that very much and Kyoto therefore provides an ideal place for a sabbatical stay. Evidently, it is not sufficient to declare a priori that one is the best, one must also continue to support this pretension by providing a teaching and producing a research of the highest caliber. The variety and quality of research at Kyoto University are witness of this continuous support and the good health of the system from that viewpoint. But to feel being among the best provides not only a personal satisfaction close to vanity, it also allows for a freedom of choice and behavior which permits some compliance in the rigidity of the system.

The project and realization of a Graduate School of Energy Science fully agrees with my views and we must thank its initiators who thought of gathering specialists in apparently different fields under the same banner. The Department of Energy Conversion Science illustrates directly my conception in so far as materials are concerned with the addition of environmental problems which are essentially a controlled exploitation and re-utilization of various types of energy with as little loss as possible.

I do not make these complimentary comments to flatter my hosts, as it is really my own thinking. That is certainly why, in addition to the unforgettable environment of the city of Kyoto and of the Kansai region in general, and the kindness of so many people, I found myself in a most profitable situation during my stay in 1997-98. I cannot conclude this short essay without expressing my debt and gratitude to Dean Shingu of the Graduate School, to Professors Tatsuo Inoue, Eiji Matsumoto and Shoji Imatani from the Department, and also other professors from neighboring departments or faculties for the fruitful time spent in Kyoto. They and their institution have enriched me scientifically, socially, and spiritually.

Short Story about Krakow



Elzbieta FORNALIK

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Department of Mechanical Engineering

Far, far away is a country. For better understanding let's call it Poland. This country is not so big, not so small, not so hot and not so cold. In this country exists a city, which name is Krakow. I will try to tell the story about this ancient city. Please try to have a look at it through my eyes.

The Krakow originated under King Krak. It was a terrible time. The violent dragon made a stay under the King's castle. The people and animals were disappearing. King Krak worried about his kingdom. Next to the castle lived a young man who worked as a shoemaker. He got a good idea about what they should do with the bad dragon. He filled a lamb's skin with sulfur and put in front of the cavern. The dragon ate it and started to drink water from the river. He was drinking and drinking and then suddenly exploded. The kingdom was saved. The shoemaker, as an award married the princess and received half of the kingdom. Until now in Krakow there is a statue of the dragon to celebrate this event. In the present time, Krakow is a center of ideas and also of young people - students.

Probably everywhere around the world the studies are as difficult as is possible. In Poland the students put on the suits and neckties or very formal clothes for examinations. I didn't know that this is unusual. For us an examination is a very «big» event and we want to show it by our clothes. «Big» event also means stressful. In this case, one of the most important things is how to take a rest.

Krakow includes the spirit of the ancient and also present times. If somebody feels like they want to «breathe the air of our ancestry» she (or he) can take a walk along the Kings' road and see a lot of relics. On the way it is possible to take a rest under the trees, and meet very interesting people. It is a big adventure to meet somebody who is very famous and talks small talk about philosophy, science or milk prices. I would like to give you a small example. One time on the street I saw a crowd. I asked these people what happened over there and they answered that a very popular director was making a movie. A few minutes later I saw him - it was Steven Spielberg. He was producing «Schindler's List». After that in the cinema I saw the well-known streets of Krakow and I also saw my friend. He played a very small role, but he played in a very famous movie. Unfortunately, I didn't get the chance to talk with Steven Spielberg, but I did see him just next to me.

When the students wish to «breathe the air of culture» they can go to the concert-hall, opera, theater or disco. These places are performing the role of the «safety valve». There the different people can meet together, and the dissimilarities disappear. Krakow is a big city, there is no countryside as one of my friends said. Even between the modern streets and buildings somebody can find the wonderful silent places and feel the touch of the nature.

I am not able to describe everything, but what is the most important - atmosphere, which is made by people, by relics and even by music. It is good to meet on the street somebody who is smiling or singing. Krakow is a special place, where the pigeons are saying «Good morning», where it is good to stay and just to be.

Far, far away is a country ...



The Children's Parade in Traditional Clothes

ヴルカヌス研修に参加して

春を呼ぶ祭り



内 倉 嘉 彦

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ヴルカヌスプログラムで僕が企業研修を受けたのは、オーストリアの西端、ドイツ、スイスとの国境となっている、ボーデン湖のほとりの小さな村だった。印象に残っているのは、2月に行なわれた Funken Feuer という火祭りだ。キャンプファイヤーのように木を組み、てっぺんには魔女の人形をくくりつける。ヨーロッパの冬は長く、その冬を魔女が持ってくると言われている。いささか乱暴な感じがするが、魔女を焼き払い、春を呼ぶという祭りだ。この地方の生活は、古くは農業に頼っていたため、春の訪れを心待ちにしていたらしい。地域毎に木組みの形や大きさが異なり、ちょうど日本の御神輿のように地域自慢となっている。決して華やかな祭りではないが、春の訪れを喜ぶ人々の笑顔が印象的だった。豊かになった今でも、春はうれしいものようだ。地方に残る伝統的なお祭りだった。ヨーロッパ統合が進んでいるが、国や地方の個性、魅力を失わず、守り続けて欲しい。

おフランスな人々？



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「フランス人の女の子はきれいである。」とよく聞くが、これは事実である。「フランス人は気取っている。」とよく言うが、これは嘘である。おそらく、フランス料理がそう言わせるのであろう。「フランス人の男の人はいやらしい。」という噂があるが、日本人と同じ程度であらう。フランス人は、非常に茶目っ気があってとてもかわいらしい。もちろん、きつい性格の人もあるが、日本人にきつい性格の人がいるのと同じである。日本人にとって、「はい」「いいえ」のはっきりしている人はきつく見えてしまうのであろう。しかし、それさえもフランス人を魅力的に見せてしまうのであった。

そんな自由、平等と博愛の国フランスで、色々な人に出会い、色々な話をした。時にくだらない冗談を言い合い、時に口論することもあった。しかし、そうすることによって、いろいろな考えが存在することを知った。その中で、どの考えが一番いいかは一概に言うことはできないが、自分とは違った考えを知ること、様々な物の見方をできるようになったと思う。

欧州滞在を終えて



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「あと5分も走れば国境を越えるよ。」
ランドレディーは、車外に流れる景色を眺めていた僕に言った。「向うに見える道路を越えるとワルン、あっちの

人はオランダ語を話さないんだよ。フラミッシュはフランス語もペラペラなのに。」「娘は今フランスの南部で働いているよ。あいつは5ヶ国語できるから。」「ベルギーの産業はフラミッシュのおかげで発展してきたんだよ。」彼女たちにとって国、国境とはなんなんだろうとコルトレイクに向かう車内で思った。国と国との「境」を消そうとする結果、自分の所属するマイノリティーを意識することは当然なのか。

「この滞在は世界を見る扉を開いてくれたね。」
酔う度に彼女は僕に言った。まさにそうだった。いやむしろ僕の内側に、日本という国を理解する扉を開いてくれたと言った方がいいのかもしれない。

ドイツで得たもの



松 岡 伸 晃

材料化学専攻
修士課程2年

僕のドイツでの生活の鍵は、何と言っても多くの仲間であった。ドイツ人だけでなく、実に様々な国出身の彼らと共に過ごした時間は、とても楽しかった。ほぼ毎日彼らと何かをしていた。飲みにも行った、プールにも行った、ローラブレイドもやった、映画も見た、テニスやアメフトやサッカーも見に行った、定期的にフィットネスにも通った、たまにはけんかもした。週末ともなれば決まってパーティーをやった。月に一度ほどは、どこかへ旅行にも行った。ドイツ国内だけでなくヨーロッパを周った。車で3時間もアウトバーンをとばせば、そこはもうチェコのプラハ。全く違った感覚が味わえた。100円もあればビール0.5ℓを飲むことができた！ちょうどプラハに行ったとき、長野オリンピックアイスホッケーでチェコがロシアに勝って優勝を決めた日だった。町中はパニックで、あらゆる人が国旗を高々と掲げ誇らしげだった。日本人であった僕は感謝され、若者グループに胴上げされた。僕らのグループにはロシア人もチェコ人もいる。ちょっと複雑であった。いずれにせよ、……人は……などといった色眼鏡をはずして周りを見渡せば、そこには別の世界があったように思う。

ヴルカヌス・プログラム：日欧産業協力センター（通商産業省とEU（欧州委員会）の協力により設立された団体、ホームページ：http://www.eu-japan.co.jp）による欧州での語学・企業研修で、内容としては、①派遣期間は1年、②旅費、滞在費および研修費用を支給、③対象は学部の3、4年生または大学院生である。工学部等教務課厚生補導担当が募集等の事務を所掌している。



フランス語学校の庭で談笑する留学生たち

国際交流日誌（平成10年2月27日～平成10年7月22日）

平成10(1998)年

2月27日(金) マサチューセッツ工科大学 Mark Eykholt 教授他1名来訪

4月15日(水) 工学研究科・工学部国際交流委員会

5月27日(水) 工学研究科・工学部国際交流委員会

6月24日(水) 工学研究科・工学部国際交流委員会

7月22日(水) 工学研究科・工学部国際交流委員会

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