

Technologies for objects, objects for uses...

STEAD newsletter 3

october 2003

p 1

STEAD is a project based on educational action and supported by the European Commission. It aims at enhancing (young) people's awareness of science and technology impact on daily life. It is in-keeping with the European Science and Technology Week and will simultaneously take place in Germany, Belgium, France and the United-Kingdom from September to November 2003.

*European Science and
Technology Week
November 3rd-9th 2003.*

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Editorial /

During the 80s in Chicago, five-year-old children discovered science through an educational approach based on experimentation developed by Leon Lederman. At the same time, at the *California Institute of Technology in Pasadena*, fifth-grade pupils were introduced to science following a similar approach. This is a method called "ZAP". Through experiments performed by the children themselves, the ZAP method reinforces the questioning principle, the need for observation and taste for creativity.

During the 90s, in France, Robert Germinet, then Director of the Ecole des Mines de Nantes, developed a method based on the American model to make engineers "ingenious" (Robert Germinet *L'apprentissage de l'incertain*, Editions Odile Jacob, 1997). The idea behind his method, APA - "Apprentissage Par l'Action" (Learning through Action) - is the same as ZAP's. Its goal: to allow pupils to confront reality. It develops mastery of the subject matter and of basic scientific phenomena. It leads to the solution that "really works". APA is a learning experience done individually or in small groups. It faces the pupils with their duty: to ask the right questions, to mobilise their knowledge, to try out, to invent, to create and to start over as often as necessary. Through APA, pupils can ask for the teacher's guidance or work in team.

STEAD, a project supported by the EU within the framework of the 2003 Europe Science Week, works along the same principles. STEAD did not invent anything new. STEAD seeks to implement the best means of achieving its goal: to raise awareness among youth of the impact of science through a series of educational discovery and "scenario building" activities. STEAD relies on effective solutions, on its partners' experience in science awareness raising and education, and on the interest in the project expressed by educators from Germany, Belgium, France and Great Britain.

STEAD's "pedagogical" objective is to arouse curiosity, creativity and interest for science and technology among primary school pupils. In other words, the first questions create the first desires: what do I want to be when I'm older? A singer? A lofter? A tagger? Perhaps, but why not a scientist or an engineer, or maybe a designer!

STEAD's plan is to give pupils the opportunity to play detective, to lead the investigation, to question reality. To examine solutions, to test them out, to understand why some "things" happen this way and others another way. This method is used, notably in England, under the name of "inquiry method".

Although STEAD is a European Project, it also draws on the different national experiences. The variety of approaches thus guarantees the intrinsic quality of the proposed experimentations: analysis and discovery of the nature of "things" in Seine Saint-Denis; a hands-on approach to exploring and examining the design and development of domestic electrical and electronic appliances in Bradford; early learning activities through thematic research in Virton, Belgium; thinking up and generating new ideas from existing objects in Cologne and surrounding areas.

STEAD demonstrates that "when we only hear we forget, when we see we understand, when

we do, not only do we understand but we can also create." The pedagogical model underlying the STEAD approach is based on three key elements: observation, experimentation and conceptualisation.

The STEAD project was developed to illustrate a changing reality: we had become used to science providing technical solutions rather than offering the best solutions to complex needs. Nowadays, it is the users' needs that drive the market. It is now virtually impossible to design a high performance vacuum cleaner without thinking about whether it will be too heavy to handle. The single-solution method - most often used by the engineers - is being substituted with a large number of possibilities among which we must choose judiciously. Today, this choice is the prerogative of the Designer, a new key figure in product development. STEAD also endeavours to demonstrate that Science and technology share a common vehicle of choice: Design.

Insights /

Following is some information gathered here and there, notably in CORDIS Focus, the Newsletter published by the European Communities. This newsletter is available by free subscription from Innovation Helpdesk, DG Enterprises, Direction Innovation , EUFO 2286, L-2920 Luxembourg, Fax : +352-4301 32084 or by e-mail : innovation@cec.eu.int

Commission publishes strategy for environmentally friendly products

On 18 June, the Commission adopted a new communication on integrated product policy (IPP) in an effort to reduce the environmental impact of a certain number of products used in everyday life. The Commission's communication sets out a number of actions, including in particular the need to place design obligations on producers. IPP deals with all stages of a product's lifecycle from cradle to grave. It seeks to reduce the environmental damage a product may cause at different stages during its lifecycle. This communication is a response to the rising quantity of products being made in Europe. Thus, for example, the environmental impact of a washing machine includes the materials it is made of, the energy, water and detergents it consumes during use. And of course, it also involves its eventual disposal as waste. The Commission deems that environmental performance can be a factor of competitiveness. It appears that this will give design an enhanced role.

(Taken from Cordis Focus, N° 224)

Experts claim that more resources are needed for science communication

EUSCEA, the European Science Events Association, has urged EU Member State governments to increase their moral and financial support for science communication events. In a statement issued on 16 June, EUSCEA highlights the important function that science communications events have in generating interest for science among the general public. According to EUCSEA, science weeks and festivals are effective ways of recruiting a new generation of scientists.

(Taken from Cordis Focus, N° 224)

⁽¹⁾ Read on this topic: "What is Design?"-Design and Function - the part dedicated by Professor Bruce Archer to the study of what is expected from a washing machine - p. 29 (L. Bruce ARCHER, Design Awareness and Planned Creativity in Industry, Office of Design, Dept. of Industry, Trade and Commerce, Ottawa, and Design Council of Great Britain, London, 1974

For additional information, please visit the website. <http://www.euscea.org/>

The Future of Science !

Is the future of science behind ? Even though science has built up quite a good deal of trust among the population, there are nevertheless some indications of disuse. First, there is the fact that young people are becoming less and less interested in scientific careers, due to the image of science studies, that they consider daunting. Another worrying fact is that 45% of the population does not feel interested in science despite a good appreciation of scientific issues. As regards applied research, a good number of people (51,5% of interviewees in a Eurobarometer Survey) consider that "many high-tech products are only gadgets". As for high school students, they do not find science courses attractive enough. Their view is shared by the teachers themselves who admit that course contents have not changed over the past decades, that educational methods are not innovative or experimental enough, etc.

According to Eurostat, women are still underrepresented in Science and Technology

Although the number of S & T graduates is on increase in every EU Member State, the report states that women are still not adequately represented in the field. Figures for 2001 reveal that being a scientist or working in a related field is generally a male occupation. Finland is the only exception to the rule. In this country, there were more women than men working as scientists in 2001. In an effort to counteract the under-representation of women in science, the European Commission has allocated 80 million euro under the Sixth Framework Programme (FP6) in order to promote women's participation in science and technology.

(Taken from Cordis Focus, N°224)

More details at: <http://europa.eu/int/comm/eurostat>

Innovation

The Plan for Innovation launched by the French government in early 2003 provides for awareness-raising activities directed to youth that will be carried out in coordination with the Ministry of National Education around six main themes:

- to continue making the inventory of ongoing experiences;
- to develop related educational tools for teachers;
- to initiate experimental actions in higher education institutions;
- to carry out operations in partnership with the Youth Science and Technology Federation;
- to involve the innovation contacts from each Education Office in every new action;
- to create "Entrepreneurship Houses" in Universities.

(Source : Industries - N° 86)

Publication

Professor Porchet's report on "Attractiveness and Qualities of University Science Studies", (*Attraits et qualités des études scientifiques universitaires*), produced in 2003 upon the

Minister's request, has been published on line by The French Ministry of Education. This report can be consulted and downloaded at: www.education.gouv.fr under *Actualités* (Current Events), *Rapports* (Reports) sub-topic
Also from the same author: "*Les jeunes et les études scientifiques : les raisons de la désaffection, un plan d'action*" (*Youth and Science Studies: The Reasons for Disuse, An Action Plan*) (March 2002)

Reviews /

Science and Culture: Technical Culture

Up to 1994, the CRCT (Centre de Recherche sur la Culture Technique - Centre for Research on Technological Culture) has published some thirty issues of the *Culture Technique* Review. Covering topics as diverse as "machines at home", "electricity, electronics, civilisation", "robotics and automation", among others, this Review was greatly appreciated among all sectors of the science and technology community.

The *Culture Technique* review is an important source of information for the development of a technological culture in schools, as it provides us with in-depth articles by researchers from France and abroad on a wide variety of subjects and topics that remain highly relevant today.

Below are two reviews of articles that are very much in line with the STEAD project theme. This review is available for consultation in French university libraries and in some libraries of art and design schools.

N° 3 Machines at home

CHRISTOFLEAU, *Que sera la vie domestique future - What will home life be like in the future?* (1924)
P-212-251

In 1925, A. Christofleau ponders over what home life will be like in twenty years' time. Using the example of central heating, which displaced the old chimney by standardising a particular service, the author wonders whether modern necessities of life, increasingly oriented towards the industrialisation of common services, he says, will not do away with the major part of secluded private life, giving way to a group-based living rather than to social living. From this perspective, he imagines that families will get together and pool their resources to carry out household chores: house maintenance (mainly using machines), supplying, food preparation, laundering, etc. Following the principle of the phalanstery, common meeting rooms, play rooms and nurseries would complete the set-up in large buildings whose dwellers would retire to their private quarters only for the night. Then follows a description of domestic objects that are supposed to make up for the absence of servants (a billionaire luxury) : door phone systems, water injection brush for floor maintenance, electrical floor polisher, dishwasher (seen at the 1925 Ideal Home Exhibition), washing, drying and ironing machine, shoe-shining machine, cold storing facilities in the kitchen, bread-making appliances (!), washing devices, peelers, mincers, salters, fat removers, cookers, roasters, various ovens and grills, service lifts and small wagons (to deliver the meals to the different dining halls), sterilisation and carbonated water dishwashing system. The author then goes

on with a description of each room and introduces us to "Baptisto", the electrical valet (a clever contraption made from a mechanical alarm clock, a battery, an electromagnet...).

Beyond its peculiar aspect (the Baptisto Robot), Christofleau's article lists the functions and services that can be automated or, at least, potentially mechanized. Twenty years before the post-war boom years, during which homes in France and throughout Western Europe would become equipped with washing machines, refrigerators, vacuum cleaners and a plethora of grinders, mincers and other food processors, Christofleau focuses on the sharing of resources and services for the benefit of a community.

Y. STOURDZE, *Autopsie d'une machine à laver- Autopsy of a Washing Machine (1980)*
P-29-43

Addressing the reader directly, Yves Stourdzé proposes to take a washing machine and to carry out an autopsy on it. Preferably, he notes, a machine from the early sixties. Why the early sixties? Precisely to perform an in-depth analysis of the constraints imposed by a society and era on the most common everyday tools.

The problem comes down to knowing whether a washing machine should be heavy or light. Throughout his career, Henry Ford has advocated for lightness as being an essential element of large scale products. In the fifties, French planners bet on the opposite. According to them, and to the smelters (the most directly concerned), an appliance that does not carry weight loses character. It is rubbish. This is why, as the author explains, French households were the last in Europe to be able to afford a washing machine since the heaviness of this type of material made it expensive. Meanwhile, thanks to a competitive and clear-sighted trans-alpine industry, the Italians happily welcomed affordable, light electrical machines, produced on a large scale and automated.

What other explanation can there be for the situation in France at the same time than a set of alliances among iron-cast manufacturers, providers of energy derived from fossil fuels (namely, coal-based gas production) and planners obsessed with the idea that a washing machine could be introduced in France only after subscribing to key principles that direct its use: *"Thick, heavy, hybrid (An electric motor and gas heating will make everyone happy!), semi-automatic: it must be anchored to the ground and have a women taking care of it."*

Hence, Yves Stourdzé states, a double requirement: one having to do with space and the other with availability. That is square meters and "spare time". Underlying all this is an absolutely technocratic ideology. This results in a series of consequences and lasting effects on a number of key issues in the modernisation of housing, which Yves Stourdzé endeavours to describe: technology and its relations with hygiene, distribution, public networks, apartment installations, housing conditions, etc.

Practical Notebook /

Website

Developed by La Moulinette according to technical specifications defined by the ENSCI-Les Ateliers (National Superior School of Industrial Creation), this site can be found at the following URL: <http://www.placeaudeign.com/stead>

Database

Developed by UNIBRAD according to technical specifications defined jointly, the STEAD database contains a wealth of information on the field of electrical household products, based on data provided by manufacturers in the industry and on an upstream research carried out as part of the project (Survey Reports # 1 and # 2). The first items of this database can be consulted at the following URL: <http://www.steaddatabase.com/database.html>

In the coming weeks, this database will be enhanced with additional pieces of information and items.

Partnerships /

Institutional Partners

- National Education, Inspection Académique of the Department of Seine Saint-Denis - F
- Municipality of Virton - B

Industrial Partners (as of 30 June, 2003)

- COMLIANCE SPECIALIST 3 - United Kingdom
- EMEA Network Services Organisation - United Kingdom
- MOTOROLA - United Kingdom
- MICROSOFT Ltd - United Kingdom
- DYSON - United Kingdom
- DYSON - France
- DYSON - Germany
- PFAFF- France

Current events /

Workshops are underway

Now entering its operational phase, the STEAD Project takes a step forward with thematic workshops to be held in September and October in some twenty intermediate and secondary school classes distributed among the United Kingdom, Belgium, Germany and France.

Workshop 1. "Behind Things"

Conducted by Fondation 93, the Association Française des Petits Débrouillards - AFPD, and by ENSCI-Les Ateliers in six primary schools from the Department of Seine Saint-Denis - F.

Schools	Addresses	Contacts	Schedule
Ecole élémentaire petits Ormes 2 Tel : +33 01 4866 2054 Headmaster MrsLEGRAND	9, rue Goya F-93600 Aulnay-sous-Bois	Catherine SIMON, teacher Guillaume THIBAUD, designer	From Week 37 to Week 42
Ecole Jaurès Tel : +33 01 4830 8006	7, rue Fabre d'Eglantine F-93700 Drancy	Marc ROMANILLOS, teacher Sarah DIAKITE, designer	From Week 37 to Week 42
Ecole élémentaire Diez Tel : +33 01 4971 5703 Headmaster Mrs BOUIGUES	38, av. Lénine F-93200 Saint Denis	Pascal MENY, teacher Hugues DESBROUSSES, designer	From Week 37 to Week 42
Ecole Clos de l'Arche Tel : +33 01 4304 1977 clos.arche.nlg@wanadoo.fr	10, rue de Villiers F-93160 Noisy-le-Grand	Rachel LEMAIRE, teacher Jérôme AICH, designer	From Week 37 to Week 42
Ecole Firmin Gémier Tel et Fax : +33 01 4833 5111 Headmaster Mrs Nicole COSSARD	14, rue Firmin Gémier F-93300 Aubervilliers	Susy BIQUE, teacher Grégoire TALON, designer	From Week 37 to Week 42
Ecole Romain Rolland Tel : +33 01 4870 6149 Headmaster Mrs FERNANDEZ	56, rue des blancs Villains F-93100 Montreuil	Patricia JOUANNY teacher Serge NOEL, designer	From Week 37 to Week 42

Industrial Partners

DYSON - France

PFAFF - France

Workshop 2. "Intelligent Home"

Conducted by the University of Bradford, UK, in four secondary schools in Yorkshire.

Schools	Address	Contacts	Schedule
Bradford Girl's Grammar School Head teacher : Mrs Warrington	Squire Lane, Bradford BD9 6RB Tel : 01274 545 395 Fax No : 01274 485595 www.bggs.com	Mr. David Ham Design Technology d.ham@bggs.com	One day workshop between the 15th and 26th September October, Classroom lesson
Feversham College (Muslim Girl's School) Head Teacher : Mrs Fitzpatrick	Swain House, Radcliffe Avenue, Bradford, West Yorkshire, BD2 1JL Tel : 01274 559500	Miss Lisa Sherratt ICT Co-ordinator lsherratt@tiscali.co.uk	One day workshop between the 15th and 26th September October, Classroom lesson
Skipton Girl's High School Head Teacher: Mrs J Renou	Gargrave Road, Skipton North Yorkshire, BD23 1QL Tel : 01756 707600 Fax No: 01756 701068 pates@sghs.org.uk sghs.org.uk/	Joanne Busfield busfieldj@sghs.org.uk	Joanne Busfield busfieldj@sghs.org.uk
Dixons City technology College Head Teacher: Mr. Lewis	Ripley St, Bradford, West Yorkshire, BD5 7RR Tel : 01274 776777 www.dixonsctc.org.uk	Mr. Brian Russell Design Technology	One day workshop between the 15th and 26th September October, Classroom lesson

Industrial Partners

- *COMLIANCE SPECIALIST 3*
- *EMEA Network Services Organisation*
- *MOTOROLA*
- *MICROSOFT Ltd*
- *DYSON UK*

Workshop 3. "Domestic Automation"

Conducted by CREACTION International, Saint-Léger, B, in four schools.

Schools	Addresses	Contacts	Schedule
Ecole primaire Libre subventionnée Ecole Sainte Thérèse	Rue Dufonteny, 11 7147 Carnières (Morlanwelz)	Ms. Sylvie CHERON Directrice Sylvie.cheron@tiscali.be	Not provided
Ecole fondamentale communale mixte	Rue Firmin Lepage , 18 6769 Meix-Devant-Virton	Ms. M.J. OLIVIER Directrice Oliviermj@yahoo.fr	Not provided
Ecole communale mixte de Chenois	Rue des Ecoles 6700 Virton	Mr André GILLARDIN Directeur Andre.gillardin@freebel.net	Not provided
Ecole communale mixte de Ruelle-Grancourt	Rue de Longuyon, 64 6760 Ruelle	Mr Marc LAROCHE Directeur Marc.laroche@swing.be	Not provided

Workshop 4. "Intelligent Comfort"

Conducted by IIID - International Institute for Integral Design, Stuttgart, D, in four primary schools (four classes).

Schools	Addresses	Contacts	Schedule
Katholische Grundshule (Catholic Elementary school) Headmaster: M. Wolfgang BECKER	Schlossstrasse 8 53840 Troisdorf	Classe 1 Ms. Rita DENTER Classe 2 Ms. Ursula DOHMEN Kqsschlossstrasse@t-online.de www.kqs-schlossstr.com	Not provided
Katholische Grundschule (Catholic Elementary School) Headmaster: Ms. Gisela STEINBORN Tel : 02241 804600 Fax : 02241 70130	Bluecherstrasse 40 53842 Troisdorf	Classe 3 Ms. Christina BLISCHKE Classe 4 Ms. Christa SIEBEL Kqsbluecherstrasse@t-online.de	Not provided

Partenaire industriel

- DYSON Allemagne

Interview /

Marc Romanillos

“Design is a way of thinking rather than a specific technique”

Marc Romanillos, a teacher at the École Jaurès in Drancy, is involving his pupils in the STEAD Project. We wanted to find out what he thought about design in relation to science and technology and what were the reasons why he accepted to join this project.

In your view, what can design offer ?

Design offers hypotheses, ideas, reflections on current issues. The solutions provided by design are produced to precise specifications, notably material ones. Design may be considered as a philosophy, a method that makes it possible to look ahead and to anticipate the future.

What particular purpose can it serve ?

Design provides a cross-disciplinary approach that contributes to the evolution of our society. It constantly reinvents the elements it is concerned with. It is a dynamics that interacts with the environment, gets moving and is nourished by the questions it raises. It is an evolutionary discipline, that questions itself and moves ahead. Design is a way of thinking rather than a specific technique.

Why taking part in the STEAD Project ?

I have the opportunity to work with children and thus to dialogue with tomorrow's generation. Children are open and willing to discover new ways of seeing, of anticipating things, etc. The purpose of our participation is to raise their awareness of the impact of science and technology through design, to show them that we have our say, that we can take part in public debate and suggest concrete solutions. Through the project dynamics, by listing questions and formulating answers, the objective is to bring children to question what makes them and their environment. By making them aware of the impact of science and technology, and of design as well, on their daily life, the idea is that they understand that they can take hold of their future, that they have solutions to invent.

Interview by THIBAUT NARMAND, Fondation 93

Texts /

Quotation

“... Of all the objects surrounding me, that I use or devour, I am unable to produce any; I cannot even understand their manufacturing process. Should industry come to an end, should specialised engineers and technicians disappear, I would be absolutely unable to start things up again. Placed outside the economic industrial complex, I could not even manage to ensure my own survival: I would not know how to feed myself, how to dress myself, how to protect myself from the elements; my personal technical skills are far inferior to that of the Neanderthal man. Totally dependent on the society around me, I am nearly useless to it; all I can do is to write dubious comments on obsolete cultural objects.”

Michel HOUELLEBECQ, The Elementary Particles (Atomised in the UK)

Unofficial Translation

Random info

- Fashion: Colour of the season: flaming red
- Designers : *Marc Newson creates frying pans (T-Fal), Paul Smith designs furniture (Cappellini) and a telephone (Nokia), Jean Nouvel, a coffee set (Alessi)*
- Guide : *"Paris design 2004"* , bilingual French and English edition, on sale at newsstands, 6 Euros, published by the *Intramuros Magazine*
- *List of innovations that had an impact on leisure activities in France* (survey conducted by Ipsos for Sony France, quoted in *À Nous Paris - Week of 1-7 September, 2003*): Computer (98%), Mobile Phone and Internet (97%), Game Consoles (95%), DVD (92%), Digital Television (90%).

Education / Culture /

Selection : Read / See /Listen / Food for Thought

Read

Pierre JOUIN, *Une liberté toute neuve...Culture de masse et esthétique nouvelle dans la France des années 50.*, Klincksieck, Paris, 1995.

In the fifties, the French come in touch with a mass culture. Often Americanised, this culture is made up of objects that have now become symbolic. This work is intended to be a "resource book" on the period studied (1950-1965). In Chapter, II, *Le design et les biens d'équipements ménagers* (Design and Household Equipment Goods) (p. 71-77), the author draws a parallel between the look of household equipments and the external look of a number of objects related to science and technology (vacuum cleaners resembling artificial satellites; radiators whose design is similar to an air surveillance radar; an electric fan whose blades remind one of DC3 propellers, etc.) He also looks into "what latent desires are aroused among the consumers by the possession of those goods and what new conceptions of interior space it brings to their mind". Finally, he describes the modern kitchen as a new cultural place, as the centre of modernity, as a new aesthetic site.

See

Artists and Household Appliances : One of the most interesting contemporary artists undoubtedly is JEFF KOONS, who created a series of art installations displaying a variety of objects and images of modern life. Among his prolific production, which draws on and reflects the icons of material life, it is worth mentioning an installation based on vacuum cleaners. Titled *"New Hoover convertible Green, Red, Brown, New Hoover Deluxe Shamp polisher Yellow, Brown Doubledecker from the new series"*, this piece dated from 1981-1987 (Private Collection) displays household artefacts under glass. A complete catalogue of JEFF KOONS' works can be consulted (and purchased) at the Library of the Musée d'Art Moderne de la Ville de Paris (Palais de Tokyo).

DYSON, *Anatomy of a product, DESIGN, development, Validation and Manufacture*, A case study on CD-Rom with illustrations and explanatory notes. Find out everything, or almost everything, on the development, manufacturing and distribution of the famous bagless vacuum cleaners. Available in English only, it can be run either on a Macintosh or a PC.

Available from Diane Jackson, Design and Technology Unit, JMU, St Nicholas Building, Liverpool L3 5YD. Unit price: £ 15.

France 5 goes back to school: *A whole year in Year 1 1* (CP-Preparatory Course in France) , broadcasted on 25 August, and in September, Kindergartens, from Monday to Friday at 8:45 pm. A whole year in Year 7 (Sixième - Sixth form in France). A series of episode that takes us into the intimacy of the classrooms and of the teacher-pupil interaction. Each episode of 30 minute duration is a living reconstruction that speaks for itself.

Cité des Sciences et de l'Industrie (City of Science and Industry), Parc de la Villette: *Exposition Innovation et Design autour d'un métal- Innovation and Design on a Metal*, from Tuesday to Saturday from 10 am to 6 pm (7 pm on Sunday), until 2 November, 2003. A three-fold display on aluminium combining artistic creation, science and industry. 163 aluminium objects provide a chronological account of the history of this metal, considered the "material of modernity".

A Selection of websites by CREATION:

<http://www.ulg.ac.be/sciences/printemps.htm>

Accessible and downloadable Educational kits for teachers as part of the "Printemps des Sciences 2003".

<http://www.occe.net/ad21/semaine de la science 00/semaine de la science 2 10.htm>

A fun approach to mathematics

<http://www.sciencetech.technomuses.ca/français/collection/machine.dfm>

Canada Science and Technology Museum. A complete review of washing machines.

<http://www.maison-des-sciences.org/animations>

Animations of interest to Paris little boys and girls.

<http://www.no-bug.com>

Go to Exploration Science (some files available).

<http://www.cordis.lu/scienceweek/nearest01.htm>

A listing of addresses on national Science Museums.

Listen

France Inter. Saturday at 9:15 am, *Rues des entrepreneurs* (Entrepreneur Streets) with Didier Adès and Dominique Dambert.

France Culture. Saturdays and Sundays at 10:05 pm, *Les arts à l'école* (Arts in School)

France Culture. Monday to Friday at 2:35 pm, De l'un à l'autre "*L'art des métiers*" (From one to another "Craftmanship")

Food for Thought

"... one must sometimes go from knowledge of the workmanship to that of the machine and other times from knowledge of the machine to that of the work itself ...", excerpt from the Preliminary Discourse, Diderot and D'Alembert's Encyclopédie.

Late News : a few dates to remember

Exhibition "*Behind Things*"

From 3 to 7 November 2003, from 10 to 12 a.m. and from 2 to 4 p.m.

Private viewing on November 5th at 7 p.m.

Seminar 2 "*Science and education, Design's place*"

On November 5th from 2 to 6:30 p.m.

ENSCI-Les Ateliers, 48 rue Saint Sabin F-75001 Paris, Tel : 01 49 23 12 00