

CLOSING THE SAFETY GAP AT UNIVERSITY LABORATORIES AND CHEMICAL INDUSTRIES IN TURKEY

Esma TOPRAK

**Chief Chemical Engineer and Summer Training
Coordinator**

**Bogazici University, Chemical Engineering Department
Istanbul – TURKEY**

E-mail: toprakes@boun.edu.tr

Safety Training

IUPAC-UNIDO-UNESCO SAFETY TRAINING PROGRAM

Date: April 23 – May 5, 2000

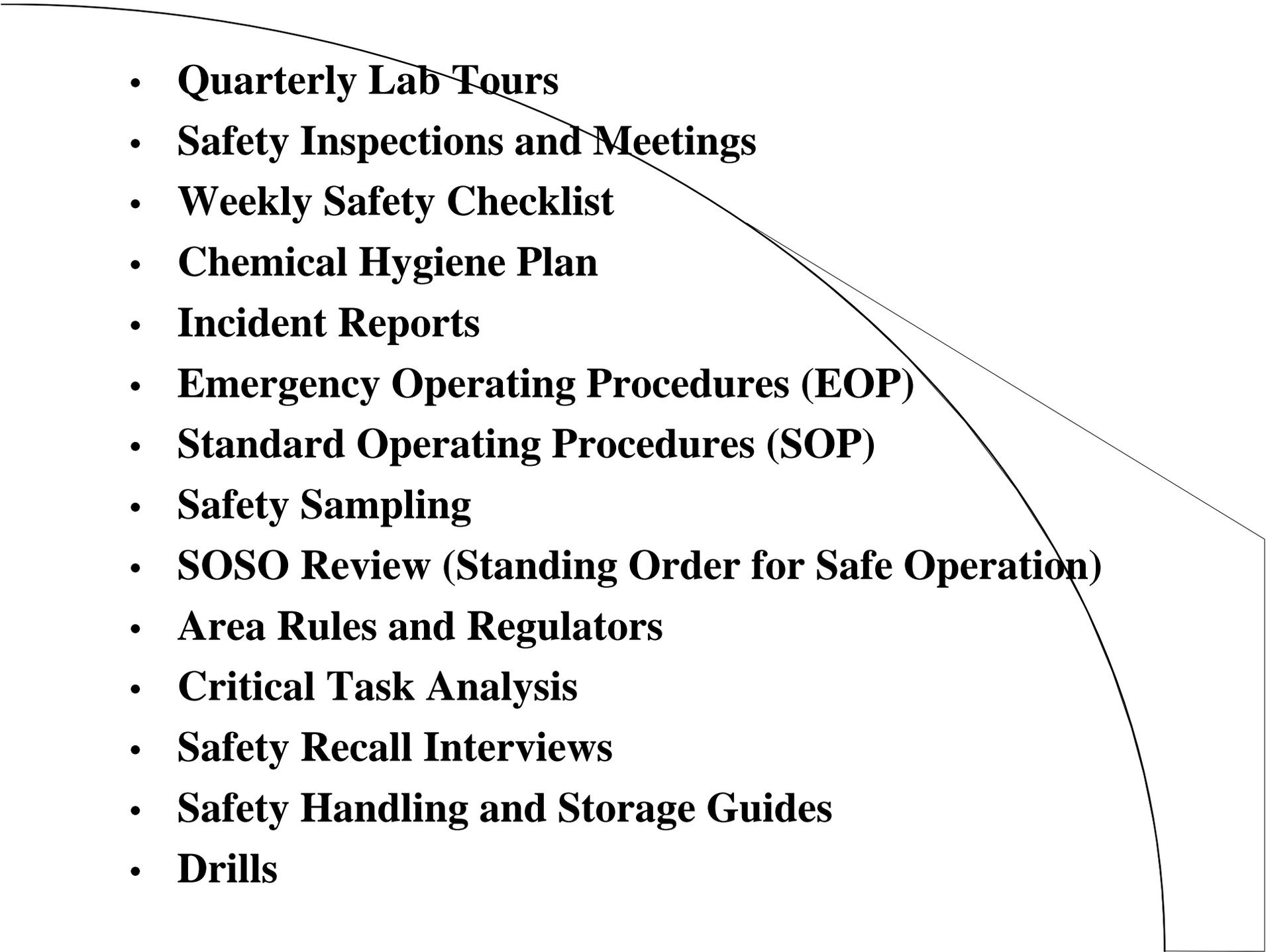
Sponsor Company: BP AMOCO Chemicals

Places of Visit:

- BP AMOCO Chemicals – Naperville Complex
Naperville, Illinois USA**
- Illinois Institute of Technology Chemical and
Environmental Eng. Dept. Chicago,
Illinois USA**
- BP AMOCO Chemicals – Green Lake Complex
Port Lavaca, Texas – USA**

Topics Covered

- **HSE Projects 2000, HSE Audits**
- **Product Stewardship**
- **Hazardous Waste, Waste Handling**
 - ✓ **Waste Definitions**
 - ✓ **Waste Clarifications**
 - ✓ **Waste Analysis**
- **Responsible Care**
- **Customer Support**
- **Emergency Response**
- **Site Safety**
- **Safety Reviews (Pre-Operation / Process)**
- **Lab / Process Unit H&S Information Binders**

- 
- **Quarterly Lab Tours**
 - **Safety Inspections and Meetings**
 - **Weekly Safety Checklist**
 - **Chemical Hygiene Plan**
 - **Incident Reports**
 - **Emergency Operating Procedures (EOP)**
 - **Standard Operating Procedures (SOP)**
 - **Safety Sampling**
 - **SOSO Review (Standing Order for Safe Operation)**
 - **Area Rules and Regulators**
 - **Critical Task Analysis**
 - **Safety Recall Interviews**
 - **Safety Handling and Storage Guides**
 - **Drills**

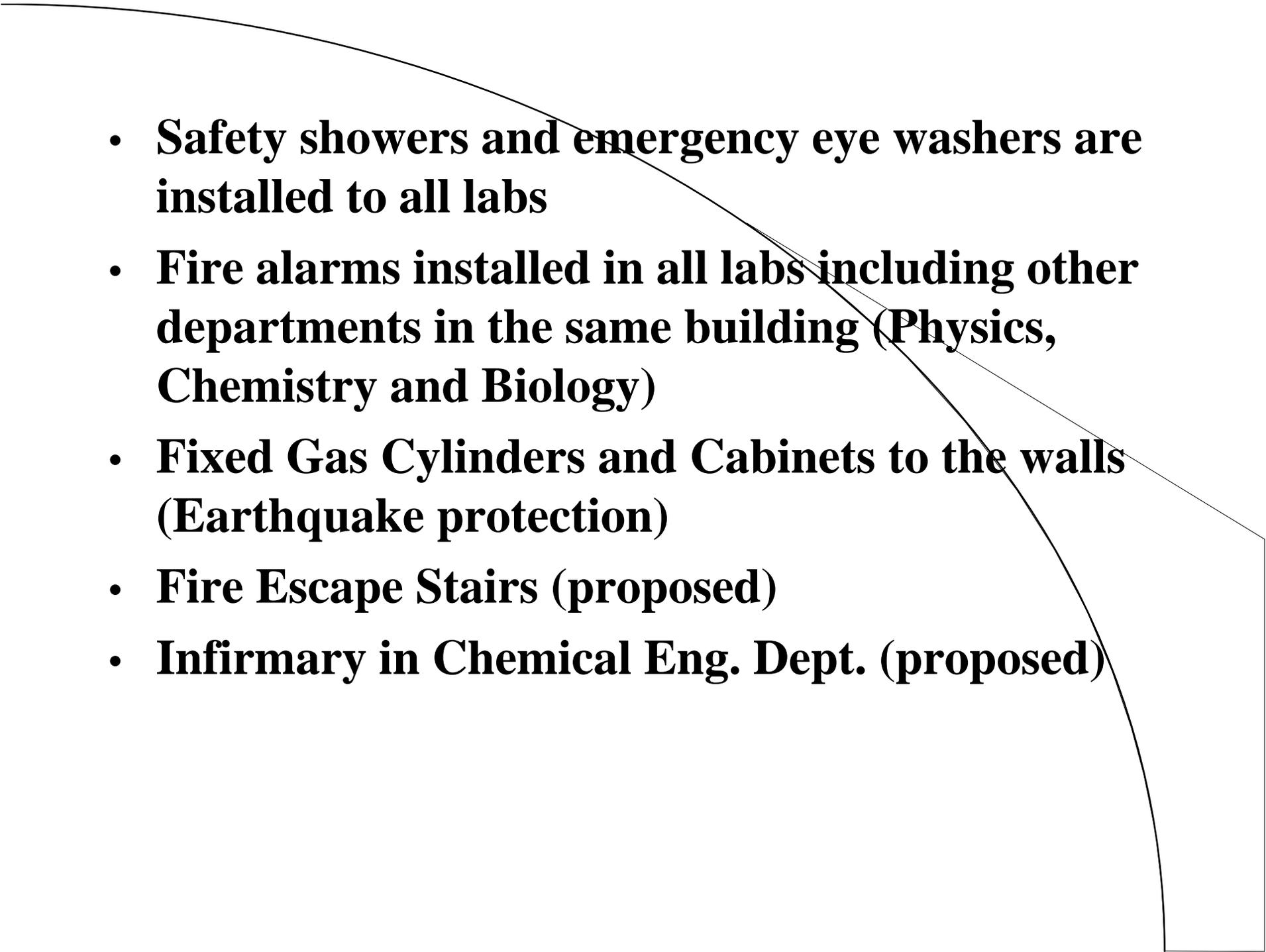
Academic Accomplishments

- ✓ **Proper Personal Protective Equipment (PPE) for students and staff**
- ✓ **Departmental Safety Manual**
- ✓ **Seminars on Safety practices for new students (each year)**
- ✓ **Short Courses on Safety to new teaching assistances (each semester)**
- ✓ **An HSE Team established**

- **Lab / Process Unit Health and Safety Information Binders for each experiment or research work**

Including:

- ✓ **Instructions of using the binder**
- ✓ **Standard operating procedures**
- ✓ **MSDS (Material Safety Data Sheets) for each chemical used**
- ✓ **Process and Instrumental Drawings**
- ✓ **Utility Drawings**
- ✓ **Inspections**
- ✓ **Hazard Labels**
- ✓ **Personal Protective Equipment**
- ✓ **Audits**
- ✓ **Manuals**
- ✓ **Calibration Charts**

- 
- A decorative curved line starts at the top left, arches over the text, and ends at the bottom right, forming a partial frame.
- **Safety showers and emergency eye washers are installed to all labs**
 - **Fire alarms installed in all labs including other departments in the same building (Physics, Chemistry and Biology)**
 - **Fixed Gas Cylinders and Cabinets to the walls (Earthquake protection)**
 - **Fire Escape Stairs (proposed)**
 - **Infirmary in Chemical Eng. Dept. (proposed)**

Training Technicians

- **Fire fighting training to departmental technicians at Istanbul Fire Department (Two weeks)**
- **First Aid Training to two technicians and lab assistances (One week)**
- **Earthquake preparedness seminar for all campus staff (Three weeks)**

Safety Inspections:

- **Weekly inspections for eye washers, safety showers, fume cupboards and gas cylinders**
- **Monthly inspections for fire extinguishers**
- **Quarterly Lab Tours**
- **Weekly Safety Checklist**

Safety Meetings:

- **Done with teaching assistants and research assistants monthly.**
- **Lab Safety Program Sheets**

Emergency Response Team

- Esmâ TOPRAK
- Belgin BALKAN
- Bilgi DEDEOGLU
- Nurettin BEKTAS
- Pinar PIR
- Defne KAYRAK

Campus Site Safety

- **HSE Committee (should have a member from each faculty)**
- **Safety Council (members of each department – including fire and medical)**
- **Emergency Response Teams (for each department)**
- **Evacuation Procedures and Charts for each Building**
- **Drills (for fire and earthquake emergencies)**
- **Hazardous Waste Committee**
Prof. Dr. Orhan YENIGUN, Prof. Dr. Turgut ONAY,
Prof. Dr. Nese BILGIN, Prof. Dr. Ilknur DOGAN,
Chem. Eng. Esma TOPRAK
- **Safety seminars to other departments**
- **Medical controls of employees and medical waste handling**

Series of seminars and training programs

- ✓ **Derimland Leather Processing**
- ✓ **Damlacan Leather Manufacturing**
- ✓ **Marshall Paint**
- ✓ **Akkim**
- ✓ **BASF**

Meetings Attended

- **COCI Meeting, September 14-16, 2000, Montreal – CANADA**
- **COCI Meeting, July 3, 2001, Brisbane, AUSTRALIA**
- **V. National Congress of Chemical Industries (November 1- 2, 2001 Ministry of Industry – Ankara, TURKEY**
- **COCI Meeting, June 8, 2002, Sundsvall, SWEDEN**
- **Review Meeting of V. National Congress of Chemical Industries (June 5, 2003 Ministry of Industry - Ankara, TURKEY, Work on the sub-committee of education, research and development**

Topics Covered

- **Responsible Care, HSME ,**
- **Safety on transportation of hazardous chemicals,**
- **Emergency response teams and stations,**
- **Hazardous waste regulations (Turkey has 2.5 Million tons of hazardous waste per year), Recycle,**
- **Location of chemical industries,**
- **Accreditation of laboratories (EU standards)**

Plans for the Future

Workshop on Safety in Chemical production

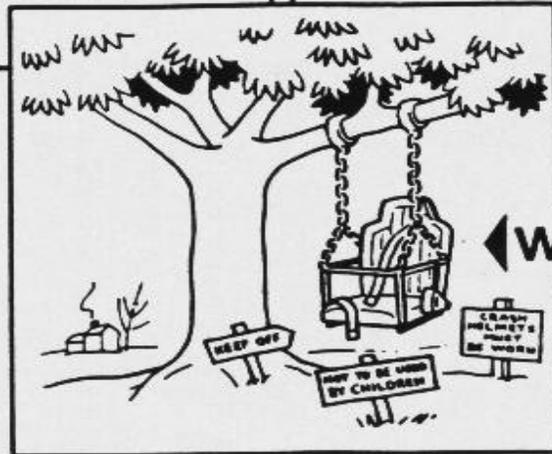
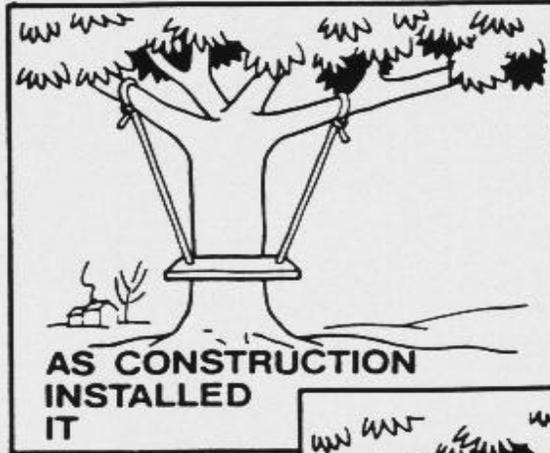
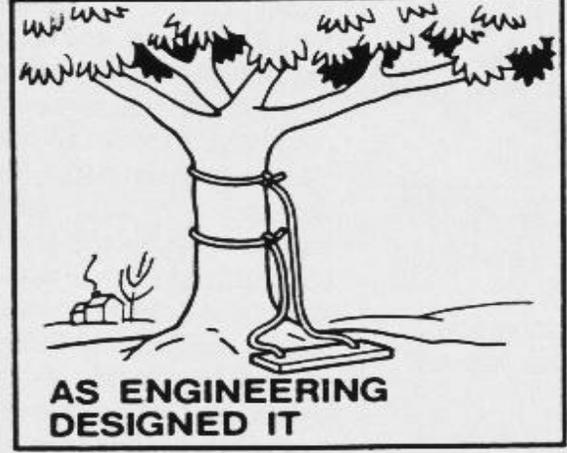
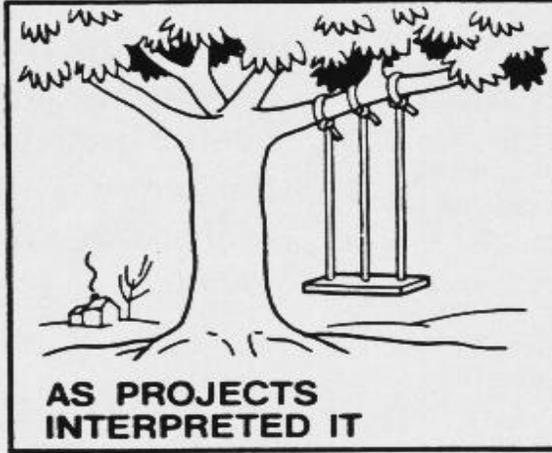
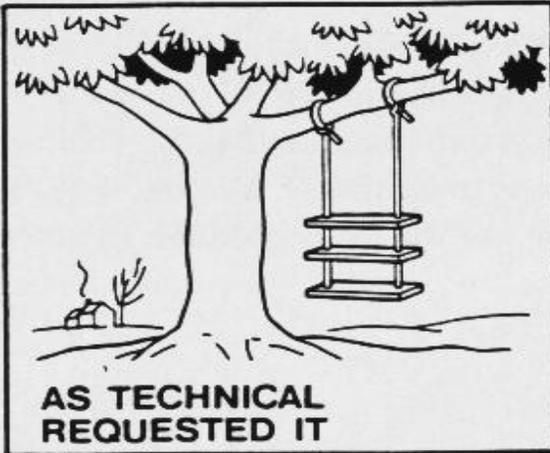
Title: Social Contributions of Chemistry – Safety & Toxicology)

Sponsor: UNESCO

Date: 2004

Conclusions:

- Safety regulations are developed in Turkey since 2000
- Interest among industry in implementing safe practices is increasing
- Disseminating safety practices to industry by giving safety seminars are becoming more popular





"I don't care if it is the
Factory Inspector - he shouldn't
be in there without his goggles."

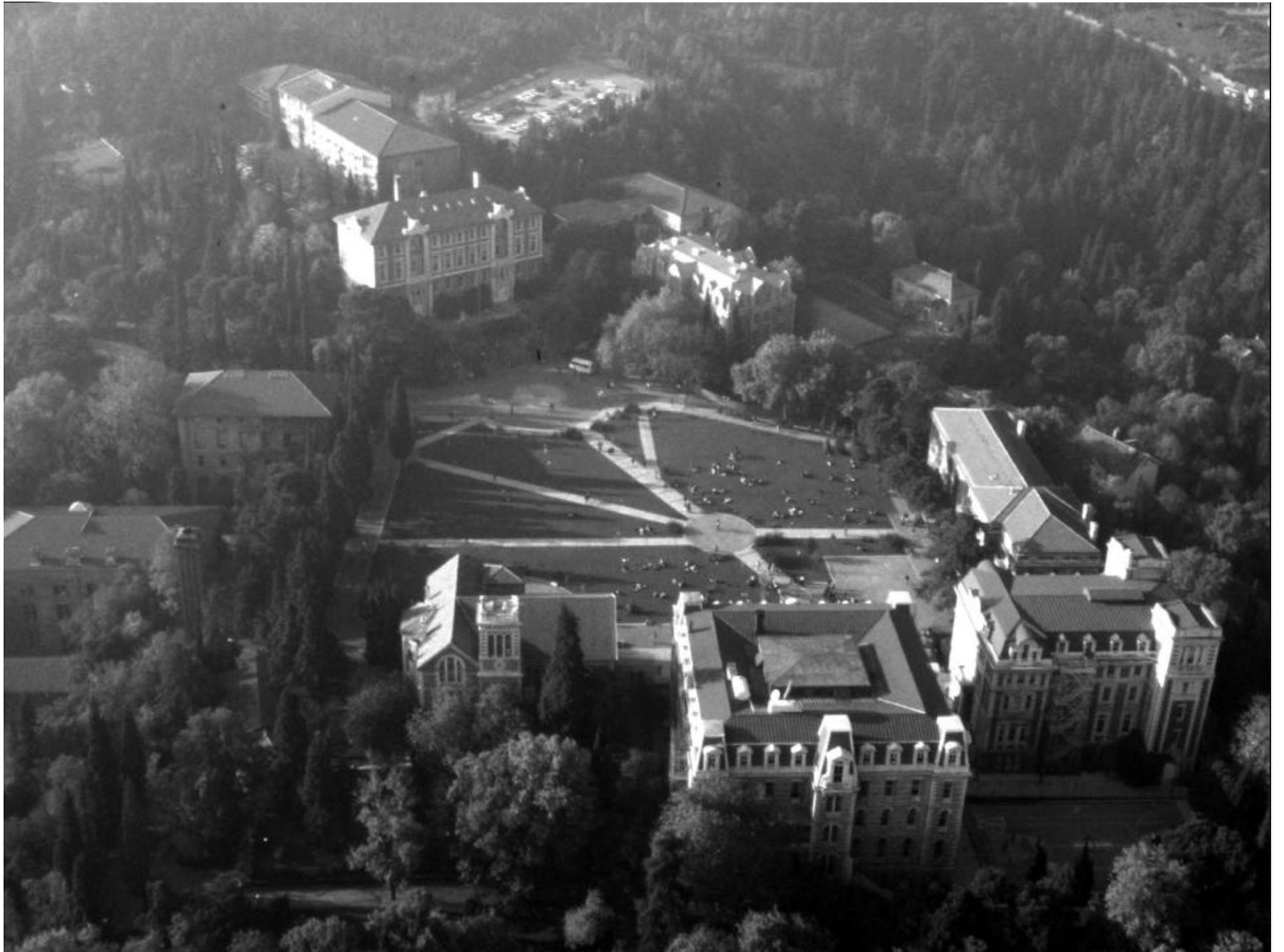
1863

BOGAZIÇI UNIVERSITY



2003







FROM ROBERT COLLEGE....

- Robert College, founded in Istanbul by Dr. Cyrus Hamlin and Mr. Christopher Rheinlander Robert in 1863, was the first American institution of higher learning outside the United States.
- Bogaziçi University, the official successor to Robert College, was inaugurated on the same campus in 1971.





... TO BOGAZIÇI UNIVERSITY

- Faculty of Arts and Sciences,
- Faculty of Economics and Administrative Sciences,
- Faculty of Education,
- Faculty of Engineering,
- 6 graduate Institutes,
- School of Foreign Languages,
- School of Applied Disciplines.

Highest Standards

- **In 1998 the Faculty of Engineering and related departments of the Faculty of Arts and Sciences went through the accreditation process of the American Board for Engineering Technology (ABET).**
- **The university submitted in early 1999 its procedures of governance to the institutional evaluation of the European Association of Universities (CRE).**

Academic Staff

As of May 2002, the academic staff of 1189 were distributed by rank as follows:

- Full Professors 176
- Associate Professors 74
- Assistant Professors 117
- Instructors 72
- Teaching and Research Assistants 396
- Specialists 55
- Lecturers 90
- Part-time Instructors 209
- TOTAL 1189

