



**COMMISSION "WOMEN IN SCIENCE" OF THE INTERNATIONAL UNION  
OF HISTORY AND PHILOSOPHY OF SCIENCE/DIVISION OF HISTORY  
OF SCIENCE AND TECHNOLOGY**

**INTERNATIONAL CONFERENCE ON  
NETWORKING IN SCIENCE AND TECHNOLOGY:  
THE GENDER PERSPECTIVE**

**JULY 6-9, 2007  
ERMOUPOLIS, SYROS, GREECE**

**PROGRAM**

Organizers :

ANNETTE B. VOGT (Max Planck Institute for the History of Science)  
MARIA RENTETZI (National Technical University of Athens)

Contact info: [mrentetz@vt.edu](mailto:mrentetz@vt.edu)

# **NETWORKING IN SCIENCE AND TECHNOLOGY: THE GENDER PERSPECTIVE**

**JULY 6-9, 2007  
ERMOUPOLIS, SYROS, GREECE**

## **PROGRAM**

### **FRIDAY, JULY 6, 2007 OUR HISTORY OF NETWORKING**

- 17:00-17:15 Opening session-welcoming from  
**EFTHIMIOS NIKOLAIDIS**, Secretary General, IUHPS/DHS  
**ANNETTE B. VOGT**, President of the Commission WiS  
**MARIA RENTETZI**, Secretary of the Commission WiS
- CHAIR: EFTHIMIOS NIKOLAIDIS**
- 17:15-17:55 **MARGARET ROSSITER**, CORNELL UNIVERSITY  
A Commission of Our Own: A Founder's Account of the Formation  
of the International Commission on the History of Women in Science,  
Technology, and Medicine
- 17:55-18:40 **SALLY GREGORY KOHLSTEDT**, UNIVERSITY OF MINNESOTA  
Unstable Networks: The Case of Shyamala Rajender in the 1970s
- 18:40-19:20 **ANNETTE B. VOGT**, MAX PLANCK INSTITUTE FOR THE HISTORY OF  
SCIENCE  
The Commission "Women in Science"
- 20:00: Dinner at restaurant Thalami, Ermoupolis, Syros –Details to be announced

### **SATURDAY MORNING, JULY 7, 2007 NETWORKS CREATED BY WOMEN FOR WOMEN I**

#### **CHAIR: MARIA RENTETZI**

- 9:00-9:40 **CHRISTINE VON OERTZEN**, MAX PLANCK INSTITUTE FOR THE  
HISTORY OF SCIENCE  
A Women's World of Science and Academic Networking: The  
International Federation of University Women, 1917-1945
- 9:40-10:20 **MARGARET ROSSITER**, CORNELL UNIVERSITY  
Women's Caucuses in the United States, 1970-2000
- 10:20-11:00 Coffee break
- 11:00-11:40 **FELICITAS SEEBACHER**, UNIVERSITY OF KLAGENFURT  
"Give Us the Space, the Goal We Will Set Ourselves!" The  
'Association for Extended Women's Education in Vienna: a Network  
Model for the Entrance of Women to Medical Studies at the

- Universities of the Habsburg Monarchy  
 11:40-12:20 **IDA H. STAMHUIS**, FREE UNIVERSITY AMSTERDAM  
 Women in the Networks of Emerging Genetics Around 1930  
 12:20-13:00 **ANNETTE B. VOGT**, MAX PLANCK INSTITUTE FOR THE HISTORY OF  
 SCIENCE  
 Women's Networks in the Sciences and the Humanities in Germany  
 (1900-1933)

---

**SATURDAY AFTERNOON, JULY 7, 2007**  
**NETWORKS CREATED BY WOMEN FOR WOMEN II**

**CHAIR: POLI GIANAKOPOULOU**

- 17:00-17:40 **MINEKE BOSCH**, UNIVERSITY MAASTRICHT  
 Johanna Westerdijk's Liberating Laugh: The Spectacle of University  
 Women and the Performance of Gender and Science  
 17:40-18:20 **EVA VAMOS**, HUNGARIAN MUSEUM FOR SCIENCE AND TECHNOLOGY  
 The Hungarian Federation of University Women (International  
 Federation of University Women Affiliate) as an Organization for  
 Academic Networking  
 18:20-18:40 Coffee break  
 18:40-20:00 **ROUND TABLE DISCUSSION**

**SUNDAY MORNING, JULY 8, 2007**  
**INITIATING SCIENTIFIC NETWORKS: WOMEN SCIENTISTS IN THE 19<sup>TH</sup> AND 20<sup>TH</sup>**  
**CENTURIES (I)**

**CHAIR : LEONIDAS RADOS**

- 9:00-9:40 **JEAN-JACQUES DREIFUSS**, CENTRE MEDICAL UNIVERSITAIRE  
 Marie Anne Pierrette Paulze (1758-1836) - Antoine Lavoisier (1743-  
 1794) : Division of Labor and Complementary Networks  
 9:40-10:20 **KRISTINA ESPMARK**, UMEÅ UNIVERSITY  
 When Networking Goes Awry: Astrid Cleve von Euler's Failed  
 Career in Quaternary Geology  
 10:20-11:00 Coffee break  
 11:00-11:40 **POLI GIANNAKOPOULOU**, NATIONAL TECHNICAL UNIVERSITY OF  
 ATHENS  
 Nineteenth Century Women in Greece: Their Involvement in an  
 International Scientific and Sociopolitical Network  
 11:40-12:20 **NATALIA TIKHONOV**, ECOLE DES HAUTES ETUDES EN SCIENCES  
 SOCIALES  
 Lina Stern's Scientific Activity in the Soviet Union : Networking  
 Across Borders and Frontiers  
 12:20-12:40 Coffee break  
 12:40-13:20 **PNINA ABIR-AM**, BRANDEIS UNIVERSITY  
 Dorothy Hodgkin's Intersecting Networks in Science and Politics  
 13:20-14:00 **KAMLESH MOHAN**, PANJAB UNIVERSITY

Collaborating for Saving Bodies: Some Observations on Women  
Medical Missionaries in North India

---

**SUNDAY AFTERNOON, JULY 8, 2007**

**NETWORKING IN THE PHYSICAL AND MATHEMATICAL SCIENCES**

**CHAIR: OLGA PANTOULI**

- 17:00-17:40 **STAFFAN WENNERHOLM**, UPPSALA UNIVERSITY  
On the Outskirts of Physics: Eva von Bahrs Scientific Networks  
1909-1914
- 17:40-18:20 **KENJI ITO AND THE SOKENDAI ORAL HISTORY AND ARCHIVES  
PROJECT**, GRADUATE UNIVERSITY FOR ADVANCED STUDIES-  
SOKENDAI  
Women Network at KEK: Gender, Physics, and Wives of High-  
Energy Physicists in Japan
- 18:20-18:40 Coffee break
- 18:40-19:20 **MARIA RENTETZI**, NATIONAL TECHNICAL UNIVERSITY OF ATHENS  
The Community of Nuclear Science in Greece and its Gendered  
Networks in the 1970s
- 19:20-20:10 **ANNA CHRONAKI**, UNIVERSITY OF THESSALY  
Women as Writers in a Journal for School Mathematics: Working in a  
Network of Conflicting Values

**MONDAY MORNING, JULY 9, 2007**

**CONTEMPORARY NETWORKS IN SCIENCE AND ENGINEERING**

**CHAIR: GIANNIS ANTONIOU**

- 9:00-9:40 **AMY SLATON**, DREXEL UNIVERSITY  
The Individual and the Collective: Gender Ideologies in Professional  
Engineering Networks
- 9:40-10:20 **ANNE-SOPHIE GODFROY-GENIN**, ECOLE NORMALE SUPERIEURE DE  
CACHAN AND UNIVERSITE DE CRETEIL  
Gender Perspectives on Engineering & Technology Research  
Networks in Today Europe
- 10:20-11:00 Coffee break
- 11:00-11:40 **NADJA KANELLOPOULOU**, THE UNIVERSITY OF EDINBURGH  
Collaborative Networks in Biomedical Research and Policy: a UK  
Casestudy
- 11:40-12:20 **PAIGE MILLER AND WESLEY SHRUM**, LOUISIANA STATE UNIVERSITY  
Changes in Female Researcher's Internet Access and Scientific  
Careers Across Time: Evidence from Ghana, Kenya, and Kerala,  
India
- 12:20-13:00 **SOPHIA ECONOMIDES**, THE OPEN UNIVERSITY  
Network Participation: the European Experience in Britain

**NETWORKING IN SCIENCE AND TECHNOLOGY:  
THE GENDER PERSPECTIVE**

**JULY 6-9, 2007  
ERMOUPOLIS, SYROS, GREECE**

**ABSTRACTS**

**MARGARET W. ROSSITER**

**A Commission of Our Own: A Founder's Account of the Formation of the  
International Commission on the History of Women in Science, Technology, and  
Medicine**

Around 1980 Sally Gregory Kohlstedt of the U.S., then secretary of the History of Science Society, was appointed a delegate to the next international congress of the history of science, to be held in Bucharest, Roumania, in 1981, and I was appointed an alternate. As such we got large packets of the annual reports of the existing commissions of the International Union—Arabic thought, geography and other specialized topics. Meanwhile the BBC had made a series from Robert Reid's recent biography of Marie Curie, which was being shown on American television. I was very interested, as I was then working on the first volume of my history of women scientists in America (published in 1982). It occurred to me that the topic of women in science would make for another suitable commission--there had been women scientists in every country, but those who worked on them were pretty isolated, and we could gain a lot by encouraging historical work on them. With that in mind I began to set up a panel on the subject for the Bucharest congress and wrote many letters to possible speakers. These included women that I had met at previous congresses—Eva Vamos of Hungary, Eri Yagi of Japan, and Brigitte Hoppe of then West Germany. Our session grew to a full day.

But there were procedural problems. When the American delegation met before the congress, and the chair asked if we had any ideas for the agenda of the General Assembly meeting, Sally and I said we wanted a new commission established. The chairman (Thomas Hughes) said that as this had not been approved in advance, Thus it would have to come up under “new business.” Then our day-long

session attracted much attention—the Turkish ambassador sent us flowers, Madame Ceaucescu sponsored us, and we were featured on Romanian television. We cancelled the lunch break in order to fit in all the speakers, as there were unexpected last minute additions (as an Uzbeki woman who got her visa late). Then on the last day of the congress the General Assembly debated the issue. Opinion was divided—a Danish man spoke in favor as did a Pole (about Madame Curie), but the French and English (with five votes each) were adamantly opposed, stamping their feet. Finally the vote was taken and it won 35-25, the closest vote of the meeting. Thereupon several of us adjourned to the lobby of the nearby Intercontinental Hotel (the best lit place we could find) to try to figure out who should be on the new commission and what it might do.

**SALLY GREGORY KOHLSTEDT**

**Unstable Networks: The Case of Shyamala Rajender in the 1970s**

Third wave feminism of the 1960s and 1970s concentrated on issues of equal rights and opened multiple avenues for activism even as women found new ways of connecting with each other and using political and legal resources. The situation of chemist Shyamala Rajender reveals the fragility of those networks when confronted with institutional inertia and individual resistance. It also demonstrates the significance of stalwart support systems and the implications of courageous action. The Rajender Consent Decree of 1979 had significant impact on the University of Minnesota and reverberated throughout the United States as a potent example of what could happen to universities if the courts mandated financial compensation and procedural changes in hiring. Thus, while the outcome for the individual proved disappointing and limited, the impact of the case proved highly significant for the next generation of women who entered science and other areas of academe.

**CHRISTINE VON OERTZEN**

**A Women's World of Science and Academic Networking: The  
International Federation of University Women, 1917-1945**

The emergence of international educational politics and systematic, transnational educational networks with official support is a twentieth-century phenomenon. It dates back to World War I, when sciences and humanities joined the arsenal of war. International educational relations became a diplomatic tool, initially used against the Central Powers and transformed after the war to a key vehicle for international understanding.

The American Association of Collegiate Alumnae (founded in 1881) and the British Federation of Women Graduates (founded in 1907) played an important role in carving out a place for women on the newly opened terrain of educational diplomacy. By founding the International Federation of University Women (IFUW) in 1919, American and British university women shaped a field of action that quickly became of vital importance for women graduates from America, Europe, and beyond. The main objective of the IFUW was to foster academic networking, to organize international exchange for teachers and students, and to fund research opportunities for promising and outstanding female scholars and scientists abroad.

My paper is divided in three parts. Firstly, I will focus on the founding and the agenda of the IFUW and its protagonists, mainly female scientists and scholars from the United States and Britain. Secondly, I will show how – and how successful – funding was raised to realize the ambitious goals of the organization. Thirdly, I will turn to individual biographies of some scholars and scientists funded by the IFUW, especially between 1933 and 1945, when the IFUW operated as an Atlantic, later global, network for female academic refugee aid from German persecution, largely unknown by historians of emigration, science, and gender.



**MARGARET W. ROSSITER**

**Women's Caucuses in the United States, 1970-2000**

Although some organizations of women scientists were formed before 1970, more than fifty have come into existence since then and are now celebrating their thirtieth anniversaries. They vary in size and structure from committees of national scientific associations to offices at the society's headquarters to separate organizations with thousands of members a host of chapters nationwide.) Many have websites and put out newsletters, collect statistics on the participation of women in the field, nominate qualified women for office, and make awards. Some maintain a roster of curriculum vitae, run a speakers' bureau, hold occasional conferences, and administer travel grants. A few have published a job manual or mentoring guide, made site visits, run field trips, and set up educational foundations. Some have ventured into politics by endorsing the ratification of the Equal Rights Amendment (1977-82), testifying before Congress, and even lobbying Congress for the passage of the Women and Science Bill of 1980. One (the Association for Women in Science) even sued the federal government in the early 1970s (and won!) in order to have more women appointed to the grant selection panels of the National Institutes of Health, the largest supporter of medical research in the U.S. The caucuses have attracted the energies of a generation of women (and a few men) scientists and have been instrumental in making many positive changes in the scientific profession over the last thirty years. But they have been reticent on the basic structural problems facing women in science--as the tenure system, the funding of science, the use of adjunct faculty, the fate of post-doctoral fellows, or the unionization of graduate students.

**“Give Us the Space, the Goal We Will Set Ourselves”**

**The ‘Association for Extended Women’s Education in Vienna’: a  
Network Model for the Entrance of Women to Medical Studies at the  
Universities of the Habsburg Monarchy**

The State Constitution of 1867 assured all citizens of the Habsburg Monarchy the same educational opportunities. However, in regards to women, the civil right to a free choice of study and a career was simply excluded. Women were considered strangers "in the temple of knowledge". The attempts by women to gain access to this “temple”, which was determined by strict hierarchies and formed with masculine ideas, were prevented deliberately. “The inner circles of the emerging scientific community“ stayed exclusively for men, as stated by the sociologist Harriet Zuckerman. Most medical professors were against women studying. Only a few, such as the anatomist Carl Bernhard Brühl, allowed women as guest-listeners at their lectures at the University of Vienna.

On 28 October 1888, the ‘Association for Extended Women’s Education in Vienna’ was formed. Leading personalities of the middle to upper classes joined as members and increased the efficiency of the association through their participation. A local area network with a large Jewish and nobility participation arose. Representatives of the association gave speeches at International Congresses in Paris and London. In the first year of its existence, the association already had 211 members who fought for a girls’ grammar school in Vienna and the legal admission of women to philosophical and medical studies. Publications of medical professors and lectures from graduates of the medical faculties in Switzerland, who practised in Austria and Germany as female physicians, brought the positive experiences to the ‘Association for Extended Women’s Education in Vienna’. According to the historian Natalia Tikhonov, Switzerland was regarded as a forerunner for higher coeducation in Europe. The integration of foreign female students activated the knowledge-transfer between Swiss universities and universities abroad.

The Viennese ‘Association for Extended Women’s Education’ networked with the ‘Association of Female Students’ in Zurich, the association ‘Reform’ in Weimar,

the 'General German Women's Association' in Leipzig and the women's association 'Minerva' in Prague. It built relations to the representatives of all the universities from the Habsburg Monarchy Crown lands. By dissociating themselves consciously from the radical wing of the Austrian women's associations, it found sufficient open-minded, 'modern' citizens as mentors. In 1892, the first private German-speaking girls' grammar school was opened in Vienna by the 'Association for Extended Women's Education'.

In 1895 the avant-garde of the civil feminist movement of the Habsburg Monarchy presented a petition to the Ministry of Education. The government was put under pressure and asked professors at the Viennese University for their opinion about women studying. Negative reports, made by the Viennese General Medical Council and the Academic Senates of Austrian universities, delayed the approval of women being admitted to medical studies once more. Additional petitions finally resulted that in the winter term of 1895/96, a 'ladies' academy' was opened as part of the Medical Faculty at the University of Vienna. It was not an academic course, but a type of college, where they could attend some of the lectures. It was not until September 1900, when women were finally able to matriculate legally and graduate from the Medical Faculty of Vienna University.

The aim of this paper is to show that the legalization of medical studies for women in the Habsburg Monarchy required a higher participation of the educated classes and more national and international networks than in other European countries. Also, it will try to find out to what extent the 'Association for Extended Women's Education in Vienna' influenced the social and intellectual emancipation of the first female physicians in Austria and those, who wanted to study medicine.

**IDA H. STAMHUIS**

**Women in the networks of emerging genetics around 1930.**

The first decades of the twentieth century saw the emergence of the discipline of genetics. Relatively many women contributed to the new field. How did they participate in the genetics community? Did they communicate with each other? We know that Elisabeth Schiemann and Tine Tammes corresponded and visited each other. The International Federation of University Women with its national departments was an important place to meet. Were the women however also successful in participating in the networks where the males belonged to? The 1927 International Conference of Genetics in Berlin, in which Elisabeth Schiemann played an important organizational role, will be used to study the role of women in the networks of emerging genetics.

**ANNETTE VOGT**

**Women's Networks in the Sciences and the Humanities in Germany  
(1900-1933)**

Studying the history of women scientists and women scholars in Germany, and compared with the development in other European countries, one finds out several singular facts and some paradoxical elements. Women scientists and women scholars entered the world of academia in Germany relatively late compared with other European countries. But then, before 1933, they got relatively high academic positions, and they got them earlier than their academic sisters in other European countries. In the first three decades of the 20th century the total numbers of women scientists and women scholars in academic positions were more or less equal. But the degree of their acceptance and the acknowledgement by their colleagues in the different scientific communities were different. The strategies of women scientists and women scholars in getting acceptance and acknowledgement was also different. And - last but not least - making networks, creating them and using them, was different too.

The paper describes first some of the elements of the role women scientists and women scholars had in the field of academia in Germany until 1933. Second, the paper discusses the various strategies of women scientists and women scholars to create their own networks. Third, because of the deep break of the development of women scientists in Germany in 1933, the paper describes the influence of the Nazi regime on the situation of women scientists and women scholars and their networks, in Germany as well as in exile.

**MINEKE BOSCH**

**Johanna Westerdijk's Liberating Laugh: The spectacle of university  
women and the performance of gender and science**

The first woman professor in the Netherlands, Johanna Westerdijk (1883-1961), who created an almost all female laboratory in plant disease and fungi research in Baarn, always denied being a feminist. Yet, when on tour in the US in 1915, she criticized the way in which women colleagues were restricted in their professional activities. Throughout her career she was clearly very much interested in encouraging women students and in promoting women scientists, and enthusiastically took up the presidency of the IFUW (1931-1936). The question is therefore not so much whether she was a feminist but how she was, or what her gender politics in networking were. In my paper I will focus on Westerdijk's unique use of comical theatre and play to criticise dominant gender relations in science and society and build a collective identity of women scientists.

**ÉVA VÁMOS**

**The Hungarian Federation of University Women (International Federation of University Women Affiliate) as an Organization for Academic Networking**

The International Federation of University Women (IFUW) was founded in 1918 in order to “help prevent another catastrophe such as the recent war in Europe”. The first IFUW conference assembled in London in 1920. There were delegates representing the national Federations of University Women of Canada, Czechoslovakia, France, Great Britain, Italy, the Netherlands, Spain and the United States as well as representatives of Belgium, Denmark, India, Norway, South Africa and Sweden.

The Hungarian Federation of University Women (HFUW) was founded in 1924. The different national federations had different attitudes and roles. Some were more concentrating on work for peace and mutual understanding of university women, others were more interdisciplinary scientific associations of women researchers. HFUW was of the latter type, giving a forum for women researchers to present their research results to researchers of other branches of science, and helping them to build their international contacts within their own branches and with women researchers of other disciplines. Their periodical, the “Hungarian Women’s Review” founded in 1943 formulated this attitude as follows: “Although university women of different countries in a very real sense all speak a common language, we fully realize that linguistic limitations make the understanding of our isolated language impossible, therefore we intend to publish in each issue an article illustrative of our own interests and activities in a foreign language more commonly understood. ... May this review be a new link in building up real understanding.” HFUW as a network of female scientists helps women researchers in establishing and keeping up contacts with each other till today. However, its activities were suspended twice: first by fascism before World War II, then – after its post-war re-establishment – by the communist regime in 1949. It took up its activities again in 1993/94. It also helped women researchers’ networking by organizing a meeting of University Women in Europe (UWE) in Budapest, in March 2004.

IFUW supports the scientific research and scientific network building of women by national and international fellowships for women. HFUW does not have

grants of its own but supports its members to get grants from IFUW. The first Hungarian woman, who achieved lasting results helped by an IFUW grant, was algologist Erzsébet Kol (1897-1980). She thus had the opportunity of studying the life of algae living on snow and ice in Alaska, at a branch institution of Smithsonian's. The algae strains then collected are still alive and form a worldwide known collection at the Hungarian Museum of Natural History in Budapest. Her experience was described in her book (in German language) on the biology and limnology of snow and ice. A member on the board of HFUW was mineralogist Mária Vendl (1890-1945), the first appointed Hungarian university "docent". Her scientific networks were partly built through IFUW.

The paper is going to give an analysis of the scientific value of the papers published in the journal of HFUW re-started in 2004 and the scientific networking significance of the organization.



**Marie Anne Pierrette Paulze (1758-1836) - Antoine Lavoisier (1743-1794):  
Division of Labour and Complementary Networks**

Antoine Lavoisier, the rich and influent economist and banker who served three French kings, is best known for his scientific achievements in chemistry, and also because, together with several other tax agents of the former kingdom – including his father in law Jacques Paulze - he was sentenced to death by a revolutionary court in 1794 and decapitated. Marie Anne Paulze, his wife and later widow, was closely associated to Antoine's scientific and social endeavours following their wedding at the end of 1771. Her part in the enduring fame of the Father of the Chemical Revolution, is due, in part, to her publishing the last scientific articles and drafts of Lavoisier (and Seguin), remained unfinished because of the turmoil caused by the Revolution of 1789. The following arguments plead for Marie Anne's participation in Antoine Lavoisier's experiments and writings.

In contrast to Antoine, she read and spoke English, an important asset at a time when English and American scientists and visitors travelling to Paris played an important role in scientific exchange and communication. Indeed, many of them were entertained at the home of the Lavoisier while travelling to France. The preserved correspondence of Antoine, but also of Marie Anne, with French and foreign scientists supports this view and its analysis should shed light on the complementary roles played by either.

Most of the scientific work took place in their private, well equipped laboratory, located since the mid-1770ies in their premises at the Arsenal. There is a pictorial evidence that Marie Anne worked in this laboratory. She got some training in chemistry and was a talented artist and a student of Jacques-Louis David, painter who executed the well known portrait of Lavoisier (1788) now at the New York Metropolitan Museum. Two drawings of Anne Marie from the same period show her assisting Antoine and his young colleague Seguin, during the famous experiments on human respiration. Antoine takes the measures of the gas volume and content, Seguin is doing the breathing and the physical work, while Marie Anne sits at a small table and writes down the data obtained. Marie Anne also authored the thirteen engravings which illustrate Lavoisier's *Traité élémentaire de Chimie*, in which Lavoisier

introduces the new chemical nomenclature, one which is essentially still in use nowadays

Neither Antoine, nor Marie Anne were full time scientists : their other duties claimed most of the day and experiments were usually done early in the morning, after supper in the evening, or on Saturdays. Their obvious *entente cordiale* and effective collaboration differs thus from that of more recent wife-husband teams, such as those of the Curie-Sklodowska, the Joliot-Curie and the Cori-Radnitz, to cite those which shared a Nobel Prize in science during the first half of the 20<sup>th</sup> century.

**When Networking Goes Awry:  
Astrid Cleve von Euler's Failed Career in Quaternary Geology**

I suggest a paper studying women's scientific careers from the networking point of view as exemplified by Astrid Cleve von Euler's (1875–1968) attempt at a career within quaternary geology.

Geology was institutionalised in Sweden with the foundation of the Swedish Geological Survey in 1858, but was reserved for a relatively small group of men until the founding of the Geological Society of Stockholm and, from 1872, its journal *Geologiska Föreningens i Stockholm Förhandlingar* (Transactions of the Geological Society of Stockholm, *GFF*), which opened the field to a wider range of practitioners.

Educated in botany and chemistry, Cleve gained a foothold in quaternary geology via her father, P. T. Cleve, who was a member of the Society in its early years and conducted diatom analyses for quaternary geologists. When her father died in 1906, Cleve continued his work, published her first paper in *GFF* in 1911 and became the fourteenth female member of the Society in 1920.

Having formally accessed the most important geological network in Sweden of this time, Cleve initiated a dedicated attempt to be accepted as a quaternary geology researcher by that very network. Her contribution to the Society and its journal during the following years was unprecedented by any woman, but access did not automatically mean acceptance. Her controversial interpretation of the Scandinavian land elevation after the latest ice age was printed in *GFF* in 1923 and the subsequent debate led to her leaving the Society in 1927.

Cleve continued to work with quaternary geology, and partly due to scattered personal contacts managed to get several papers published, but she did not live to see her theories recognised by the scientific community.

In terms of networking, this is no success story. Nevertheless, Cleve's story illustrates the importance of the role of scientific networks in women's career building. Looking at her story helps us better understand the relationship between science, networks and gender.

**Nineteenth century women in Greece:  
Their involvement in a global scientific and socio-political network**

This paper explores the role of women in the scientific community of the young Greek state from the second half of 19<sup>th</sup> to the beginning of the 20<sup>th</sup> century. During this period due to particular prevailing circumstances in the Greek community, the position of women is redefined, especially in Athens, where such changes are more detectable.

The paper aims to show women's attempts to be informed and exchange information about scientific matters; they translated scientific articles from foreign newspapers in their effort to do so. At that time women sought to take part in a worldwide women's network. This network took place in the form of women's meetings in several countries all around the world, not just Europe. Major problems were discussed, such as lack of education, vocational training, few academic prospects and political rights. Their involvement in this network helped mark their presence in science, communicate and escape from isolation.

This activity can also be viewed in a number of ways during the late 19<sup>th</sup> century Greek society. Sometimes women act covertly, through a supportive role by translating scientific articles anonymously. Other times they take action more openly by encouraging and rewarding other women's academic distinctions in a scientific sphere which was mainly a male preserve.

Finally, this paper shows that, in a particularly ominous social reality where women had to fight for their rights, especially these of access to higher education and job security, there were female pioneers who dared to take their place in the scientific community, communicate through networks and give an outline of their aims.

My research is based on two eminent newspapers of that period. The "Ephimeris ton Kyrion" (=Ladies' Newspaper), which was a widely read weekly paper written exclusively by women and addressed to a female audience and also "Estia" (Hestia), written largely by men and a minimum number of women, who often didn't reveal their identity.

**Lina Stern's scientific activity in the Soviet Union : networking across borders and frontiers**

The aim of this paper is to explore certain aspects of networks established by Lina Stern, biochemist and physiologist who was first active in Switzerland (1898-1925) and then in the Soviet Union (1925-1968), where she moved in response to the offer of full physiology chair at Moscow State University. It is part of a wider project looking at her scientific biography, academic production and historical context, which I am currently conducting in collaboration with Professor Jean-Jacques Dreifuss.

My presentation will focus on Lina Stern's networking activity during the Soviet period, which is interesting in more than one respect. Founder of Physiology Institute at the Soviet Academy of Sciences (1929) and of the journal "Bulletin of the experimental biology and medicine" (1935), she succeeded to establish collaboration with numerous foreign colleagues, to invite a certain number of them to carry out research projects at her institute, to publish their papers in the journal she was editing and to secure an important funding from Rockefeller Foundation (1932). Needless to say that such a wide range of international collaborations, crossing national borders and ideological frontiers, were rather uncommon in the context of the Stalinist Russia and contributed to make Stern research strategies different from those used by most of her Soviet colleagues. My analysis of Lina Stern's networking choices will be based on the materials related to the work of Physiology Institute, included in Lina Stern's papers kept at the Russian Academy of Science archives, which I had a chance to explore in 2006.

To conclude, the overview of professional networks maintained or developed by Lina Stern after her move to the Soviet Union will allow us to answer the question whether gender played a role in the networking strategies of this outstanding scientist.

### **Dorothy Hodgkin's Intersecting Networks in Science and Politics**

This paper explores the role of both interlocking and compartmentalized networks in the career of Dorothy Hodgkin, (1910-1994) a sole Nobel Laureate in chemistry, (1964) President of Pugwash, (1975-1985) and a leading figure in both science and international politics.

In science, the main networks explored are those of protein X-ray crystallographers, "small molecule" chemical crystallographers, natural product chemists, 2nd World scientists, (mainly Chinese, esp. the Beijing Insulin Structure Project) 3<sup>rd</sup> World scientists, (mainly Indians) women scientists, women students, and Nobel Laureates.

In politics, the main networks explored are those of British Empire Civil Servant Families; Quakers, (Society of Friends) British intellectual aristocracy; Oxford University dons; Somerville College (female) dons; British scientific organizations; British political activists. ( socialists, communists, fellow-travellers, pacifists, supporters of Perestroika, etc.).

This paper seeks to clarify the role of social networks in propelling women scientists to leadership in world, national or regional science; as well as relegating them to marginal positions in the scientific power structure, and the power structure of world politics. This is examined not only during their lives as historical actors but also via the cultural memory generated after their demise. The paper also examines the role of gender, political ideology, and cultural tradition in precipitating images and memories of women scientists that differ across the First, Second, and Third Worlds. Thus, women scientists are the only ones who recall Hodgkin primarily as a scientist, and hence provide subtle details of her scientific accomplishments. (E.g. the discovery of formerly unknown chemical rings in vitamin B-12; unexpected difficulties with the structure of insulin; the solving multiple key structures incl. the above, but also sex hormones, and penicillin)

The paper concludes with a discussion of visual representations of Hodgkin and her networks, (casual photos to paintings in the National Portraits Gallery) as signifiers of the tension surrounding the shifting role of women in science, as well as in society, at large.

**KAMLESH MOHAN**

**Collaborating for Saving Bodies: Some Observations on Women Medical Missionaries in North India**

My paper explores the dynamics of the medical movement for ending exclusionist thrust of knowledge about diseases and human bodies which made Indian women relevant to the emerging discourses and practices of colonial medicine . It shall try to locate the three-fold linkages and interplay between feminist aspirations, religious commitments and professional demands through a thick description of the medical work by Christian women. In order to provide health-care for Indian women, these medical missionaries played multiple roles as founders, administrators , fundraisers of hospitals, dispensaries, medical and nursing schools. As carriers of Western medical knowledge and as ‘agents of change’, these unordained women facilitated a radical change in an essentially male-oriented therapeutics. It led to relocation of social hierarchies and spaces. A remarkable aspect of their work was their many-sided collaboration at professional level despite tensions and rifts among male missionaries who decided policies, areas and fields of medical work and other forms of social service.

Among the notable female medical missionaries are included Edith Brown, Francis Newton, Elizabeth Bielby , Clara Swain and Jessica Carleton. Their success depended upon a number of variables such as the denominational identity, financial resources and attitudes of the home-based officials, its internal politics and leading personalities of these missions as well as nature and response of the host society.

**On the Outskirts of Physics:  
Eva von Bahrs Scientific Networks 1909-1914**

The Swedish physicist Eva von Bahr (1874-1962) was scientifically successful. After her dissertation (1909) she became the first woman to be hired as an assistant at the Physics Department at Uppsala University. In 1913 she went to Berlin and collaborated with German physicists. She also became close friends with Lise Meitner. In 1914, she, in her own words, “said goodbye” to science and took up work as a teacher in a rural folk school in Sweden. Von Bahr suffered under the Swedish constitution, which prohibited women from holding academic positions (this writing was abolished in 1925). She applied for professorship twice, but her applications were not taken under consideration.

The first argument in this paper is that scientific networks were important in giving von Bahr opportunities to do work as a physicist despite the legal obstacles. I will discuss the importance of the Uppsala Physics department and professor Knut Ångström who hired her as an assistant. I will also discuss the fruitful network in Berlin that von Bahr benefited from.

The second main argument in this paper is that von Bahrs position in the scientific networks was gendered and paradoxical: it made her an insider and outsider at the same time. She was part of important scientific communities and worked in highly esteemed environments. But in her own memories and letters she claims to never have wanted a scientific career, and she quit her work even though she could have continued doing it. Her collaborations with scientific elites coexisted with a position and self perception as an outsider, mainly because she was a woman. The overall argument in this paper is that network theories will be richer if we add a gender perspective and an analysis of the power structures. This can be achieved by starting at the outskirts of scientific communities where people like Eva von Bahr lived their scientific lives.



**Women Network at KEK: Gender, Physics, and Wives of  
High-Energy Physicists in Japan**

Women's roles in science are often made invisible because some female contributors to science did not have scientist status. As Londa Schiebinger shows, sometimes wives of scientists played important role in science, yet their presence is neglected because of their non-scientist status. This paper aims to show hidden networks of women in Japanese high-energy physics and show their relevance to physics. It is a result of the collaborative work by the Oral History and Archives Project at the Graduate University for Advanced Studies (Sokendai), and various individuals contributed to the idea and empirical data of this paper. This project aims to collect Sokendai's affiliated national laboratories in Japan, including KEK (National Laboratory for High Energy Physics), one of the largest high-energy laboratories in the world. As Sharon Traweek shows, high-energy physics in Japan is a highly male dominant community, in which women are hardly visible. Most high-energy physicists we interviewed are indeed male. Yet, through interviews, we have begun to think that behind the apparent façade of male dominance, there are various and active networking of women, including wives of physicists, secretaries and other support staff, and women scientists. Based on oral history interviews and surveys, this paper will make visible such hidden networks of women in high-energy physics. Then, the paper will argue that such networks of wives of physicists and other women at and around KEK are relevant to physics. Because of highly and massively collaborative nature of high-energy physics, such networks are important in order to run daily operations of the laboratory, maintain community relations, start a collaboration, and carry out a large-scale experiment.

### **The Community of Nuclear Science in Greece and its Gendered Networks**

“I would like to address friendly greetings to the Greek Nation in the occasion of the ‘Atoms for Peace’ exhibit. We do not forget that it was your predecessors who coined the word ‘atom’ first. We do believe that the Greek people have an important role to play in the struggle for the peaceful use of atomic energy.” This is how Dwight D. Eisenhower promoted his project ‘Atoms for Peace’ in Greece on the occasion of an interesting exhibit. On August 1, 1955 King Paul and queen Frederika, the entire Greek government, the U.S.A. ambassador Cavendish Cannon, and several important Greek physicists attended the opening of a remarkable exhibit at the Zapion Palace, right in the center of the city in the extension of the National Garden. The exhibit titled ‘Atomic Energy for Peace’ was the outcome of a well planned initiative of the US Central Intelligence Agency in Athens and the Greek palace. It worked as a showcase for the triumph of atomic energy in peaceful endeavors and the scientific achievements in nuclear physics.

By the end of Eisenhower’s presidency (1953-1961), the Greeks had indeed succeeded to add their own vision on the peaceful use of atomic energy by establishing, *Demokritos*, the first and only nuclear research center in the country. As an institute under the support and surveillance of the US administration from the very beginning, *Demokritos* established a close collaboration to the CERN and some of the biggest high energy physics laboratories in the US. Given the close connections to the west, Greek scientists were able to get involved in the international network of experimental physicists. However, in their majority those scientists were men. Theodoros Kougioumzelis, one of the leading physicists who played a major role in the center’s establishment, traveled several times to US and Europe not only in order to decide on the kind of research facilities the center was going to purchase but also in order to recruit young Greek scientists—obviously male—who were willing to build Greece’s first nuclear research institute. To the women there was a different role assigned: that of scanning girls in the group of high energy physics research or low paid technicians in radioisotopes laboratories. The old-boys network left little space for only a few women scientists to advance in nuclear research.

**Women as writers in a journal for school mathematics: working in a network of conflicting values**

Recent theories of learning, such as situated cognition, problematise contemporary notions of ‘learning’, ‘knowledge’ and ‘development’ and propose that ‘mind’ and ‘cognition’ are products of socially situated activities. Especially, the work of Jean Lave introduces the concept of ‘practice’ and ‘communities of practice’ as a way to emphasize how people organize themselves in complex networks through working experiences where active participation in collective endeavours is paramount for ‘informal’ learning development and for the completion of the activity per se. However, we know little about how these ‘networks’ work in ‘communities of practice’ and what values people –and especially women- have to negotiate and in what costs. Taking the above in mind, the present paper tries to explore issues of ‘participation’, ‘negotiation of values’, ‘power’ as factors that involve learning and activity in a community of practice, through the example of Euclid A -a school mathematics journal for pupils. Euclid A has been developed as an attempt to attack the formalist mathematics discourse of mathematics textbooks in Greece in the late 70s. It was conceived, by its participants, as a ‘progressive’ movement in the context of Greek mathematics education. Within this context, a small number of maths teachers act as writers and editors in a community of practice that reflects a network of conflicting values.

**AMY SLATON**

**“The Individual and the Collective: Gender Ideologies in Professional Engineering Networks”**

A top engineering executive at General Motors recently spoke before female students at an American engineering college. Invited to speak by the school’s chapter of the Society of Women Engineers, she offered such advice as, “Remember: there is no glass ceiling for the truly competent woman,” and “Pick a mentor, then get out of the way when she falls.” Finally, she advised the students to “Play your ‘woman card,’ but not too often.” This paper considers what such recommendations tell us about the social nature of professional networks in U.S. technical occupations. The speaker seemed to be promoting a delicate interplay of individual self-promotion and strategic professional connections, but also a distinct ideology about sexuality in the workplace. What sense of self, and what sense of shared purpose or social identity, would lead someone to endorse these particular strategies to her listeners? What might the executive’s words tell us about notions of collectivity in technical disciplines, more generally? Finally, what understandings of gender—feminine and masculine-- was the executive hoping to instill in the aspiring engineers before her?

To study this executive’s priorities may tell us a great deal about the conditions under which women achieve status in engineering. Her strategies struck a few of the older women in the audience as likely to reassert customs that have historically privileged men; one critic accused the speaker of having based her personal success on the intentional reproduction of cultural biases about women. Intentions aside, there is no question that the executive had chosen behaviors that suited the politically conservative values of the system that employed her. Notably, teamwork may be common in engineering classrooms and workplaces, but the field has historically based its rewards, for students and professionals, on individual achievement. Course grades, jobs, salaries and promotions go to individuals, not to teams or groups. Professional networks do play a tremendous role in the development of university engineering departments, trade and accreditation bodies, and entire industries, in all of which technical experts rely on social connections for communication and patronage. The Society of Women Engineers supports the creation of just such affiliations among female engineers. However, as this paper will

show, much about these collective experiences reinforces the individualized political character of engineering. As the GM executive's favored tactics imply, women engineers should acknowledge and exploit their gender commonality, but not by cultivating any awareness of historic structural inequities that have limited many women's mobility in technical disciplines. In this schema, a few women may succeed in engineering while the majority of women gain little ground and social reforms remain limited.

We may ask why this very limited sort of inclusion is acceptable to many men and women in the profession. This paper will lay such priorities against a backdrop of increasing social conservatism in the United States in recent decades. Contemporary deployments of diversity by American corporations reflect this trend. These very superficial commitments to democratic reform celebrate differences in conduct or lifestyle between men and women, but suppress discussion of genuine and ongoing gender-based inequities. The basic relations of technical employment remain unchanged.

**Gender perspectives on engineering & technology research networks in today Europe**

The paper is based on PROMETEA project results. PROMETEA is a European research project funded by the European Commission under FP6 from 2005 to 2007. It involves twelve different European countries plus Chile. PROMETEA combines existing knowledge with new in-depth pilot studies on women engineers career progression linked to qualitative research work on the experiences of both women and men working in engineering and technology research, using cross-comparison as a research strategy. It brings new perspectives on gender in engineering and technology research in itself, with a focus on gender dynamics of male and female careers, comparisons between different fields of engineering and their interrelations, recruitment, full-time and part-time, survival curves and tenure, vertical segregation, pay gap, school to work transitions, work-life balance, double careers patterns, the differential effect of organisational cultures on male and female careers, the recognition of excellence in engineering and technology research, its impact on female and male careers: the gate-keepers and gate-keeping in research funding committees, women's and men's success rates in research funding, analysis of scientific publishing and publicity, patents, experiences of "excellent women" at the top of technological research, prizes and awards in technology and engineering. Finally, it identifies some good practice or good policies and evaluates their impact.

From PROMETEA results, the paper will focus on existing networks in engineering & Technology research: what kind of formal and informal networks do we observe? Who is member among men and women, what are the benefits of networks for researchers? Are the benefits similar for men and women? How do men and women describe networks and what do they expect from them?

In a second part, the paper will explore the role networks play in the construction of scientific excellence, and the impact on women careers of the poor representation of women in networks.

**NADJA KANELLOPOULOU**

**Collaborative Networks in Biomedical Research and Policy:  
a UK casestudy**

The ESRC Genomics Policy and Research Forum at the University of Edinburgh is generously funded by the UK Economic and Social Research Council (ESRC) to encourage and promote interdisciplinary collaborations between researchers, policy, business, clinicians, patients, stakeholders, civil society and different publics involved in biotechnology and health governance. The Forum forms part of the ESRC Genomics Network, a UK-wide structure where the role of collaborative networks, professional connections and hierarchical academic research and policy structures is pivotal in facilitating interactions in advancing science and technology research and development. This event will provide a genuine opportunity to compare experience on the impact of interdisciplinary studies and sociological, historical and philosophical understandings of women's positioning in science and technology research. These include studies on the role of gender in establishing and maintaining science and technology networks but also humanities research, with particular focus in biotechnology and health. The work draws on case studies in the regulation of human egg donation for research in the UK and comparative perspectives on the role of public engagement in biomedical research more broadly.

**PAIGE MILLER AND WESLEY SHRUM**

**Changes in Female Researcher's Internet Access and Scientific Careers**

**Across Time:**

**Evidence from Ghana, Kenya, and Kerala, India**

Much excitement has surrounded the potential of the Internet to connect researchers, particularly female researchers, located in less developed areas with those in the developed world, altering their network structure in significant ways. Some, moreover, hypothesize that the potential change in network structure associated with Internet use will have a further impact on women's career outcomes such as increasing productivity and creating an environment that is, in general, more favorable to the research endeavor. The minimal evidence available, however, has presented a mixed picture regarding the validity of these claims. While email and Internet access are indeed increasing in many less developed areas for both men and women, the outcome of this trend in terms of professional network structure and productivity are not unequivocally in the direction hypothesized. Much of the previous research, however, has examined these questions at one point in time, capturing Internet access and use and network structure at a single moment. Because of the dynamic nature of social networks and because Internet dispersion is still in progress, a more appropriate approach to these questions is the one proposed here. We propose to examine the changes in female scientists' access to the Internet in Ghana, Kenya, and Kerala, India using panel data. By examining shifts in women's Internet access and use, network composition, and professional outcomes over time, we address the weaknesses of previous research and provide a more nuanced account of the career changes of scientists in less developed areas.



**Network participation: the European experience in Britain**

There is a high level of mobility, especially amongst younger engineers and scientists within the European Union. The importance of participation in networks for job acquisition, promotion and retention has been well documented. A large proportion of women participating in formal women's engineering/ science networks in Britain appear to be nationals of other EU states or of a British minority ethnic background.

This paper explores the effect of participation of European female engineers and scientists in British professional networks by tracing the experience of professionals via a case-study approach. It also examines how previous experience of participation in networks in one's country of origin / previous host country affects participation in British networks and what adaptations are expected from the participants. It looks at the effect on individuals of the difference in the perceived social status of an engineering/ science career in Britain and in other EU countries and how this shapes their networking experience.

Locating the findings within existing literature, the paper examines the efficacy of current British networking schemes to support women participants and looks at how these findings may be useful within the support networks of other EU countries.

## LIST OF PARTICIPANTS

<b>NAME</b>	<b>EMAIL</b>
<b>ABIR-AM, PNINA</b> Brandeis University	<a href="mailto:pninaga@brandeis.edu">pninaga@brandeis.edu</a>
<b>ANTONIOU, GIANNIS</b> National Technical University of Athens	<a href="mailto:antonjia@central.ntua.gr">antonjia@central.ntua.gr</a>
<b>BOSCH, MINEKE</b> University Maastricht	<a href="mailto:M.Bosch@CGD.unimaas.nl">M.Bosch@CGD.unimaas.nl</a>
<b>CHRONAKI, ANNA</b> University of Thessaly	<a href="mailto:chronaki@uth.gr">chronaki@uth.gr</a>
<b>DREIFUSS, JEAN-JACQUES</b> Centre Médical Universitaire	<a href="mailto:jeanjacques.dreifuss@medecine.unige.ch">jeanjacques.dreifuss@medecine.unige.ch</a>
<b>ECONOMIDES, SOPHIA</b> THE OPEN UNIVERSITY	<a href="mailto:sophia@sapience.freeseve.co.uk">sophia@sapience.freeseve.co.uk</a>
<b>ESPMARK, KRISTINA</b> Umeå University	<a href="mailto:kristina.espmark@histstud.umu.se">kristina.espmark@histstud.umu.se</a>
<b>GIANNAKOPOULOU, POLI</b> National Technical University of Athens	<a href="mailto:polgiannak@yahoo.gr">polgiannak@yahoo.gr</a>
<b>GODFROY-GENIN, ANNE-SOPHIE</b> Ecole Normale Supérieure de Cachan and Université de Créteil	<a href="mailto:agenin@stef.ens-cachan.fr">agenin@stef.ens-cachan.fr</a>
<b>ITO, KENJI</b> Graduate University for Advanced Studies- Sokendai	<a href="mailto:kenjiito@post.harvard.edu">kenjiito@post.harvard.edu</a>
<b>KANELLOPOULOU, NADJA</b> The University of Edinburgh	<a href="mailto:nadja.kanellopoulou@ed.ac.uk">nadja.kanellopoulou@ed.ac.uk</a>
<b>KOHLSTEDT, SALLY GREGORY</b> University of Minnesota	<a href="mailto:sgk@umn.edu">sgk@umn.edu</a>
<b>LEONIDAS RADOS</b> National Research Foundation	<a href="mailto:eorados@yahoo.com">eorados@yahoo.com</a>
<b>MILLER, PAIGE</b> Louisiana State University	<a href="mailto:bmil23@lsu.edu">bmil23@lsu.edu</a>

**MOHAN, KAMLESH** [kamleshmohan14@yahoo.com](mailto:kamleshmohan14@yahoo.com)  
Panjab University

**PANTOULI, OLGA** [pantouli@edlit.auth.gr](mailto:pantouli@edlit.auth.gr)  
Aristotelian University of Thessaloniki

**RENTETZI, MARIA** [mrentetz@vt.edu](mailto:mrentetz@vt.edu)  
National Technical University of Athens

**ROSSITER, MARGARET** [mwr4@cornell.edu](mailto:mwr4@cornell.edu)  
Cornell University

**SEEBACHER, FELICITAS** [felicitas.seebacher@uni-klu.ac.at](mailto:felicitas.seebacher@uni-klu.ac.at)  
University of Klagenfurt  
[fsee@aon.at](mailto:fsee@aon.at)

**SLATON, AMY** [slatonae@drexel.edu](mailto:slatonae@drexel.edu)  
Drexel University

**STAMHUIS, H. IDA** [stamhuis@few.vu.nl](mailto:stamhuis@few.vu.nl)  
Free University Amsterdam

**TIKHONOV, NATALIA** [natalia.tikhonov@histec.unige.ch](mailto:natalia.tikhonov@histec.unige.ch)  
Ecole des hautes études en sciences  
sociales

**VAMOS, EVA** [vamos.eva@chello.hu](mailto:vamos.eva@chello.hu)  
Hungarian Museum for Science and  
Technology

**VOGT, B. ANNETTE** [vogt@mpiwg-berlin.mpg.de](mailto:vogt@mpiwg-berlin.mpg.de)  
Max Planck Institute for the History of  
Science

**VON OERTZEN, CHRISTINE** [oertzen@mpiwg-berlin.mpg.de](mailto:oertzen@mpiwg-berlin.mpg.de)  
Max Planck Institute for the History of  
Science

**WENNERHOLM, STAFFAN** [staffan.wennerholm@gender.uu.se](mailto:staffan.wennerholm@gender.uu.se)  
Uppsala university