

AAAS seminar: Women and development

The status of women in Third World countries may not automatically improve with development, as is commonly believed, says Irene Tinker, director of the Office of International Science of the American Association for the Advancement of Science. Unless the early benefits of improved education and a monetary economy are shared evenly between the sexes—an infrequent occurrence, she says—the position of women in society may decline sharply.

Reporting on a AAAS-sponsored seminar held in conjunction with the United Nations International Women's Year Conference last month in Mexico City, Tinker told a press briefing in Washington last week that women in many countries are being forced out of their traditional occupations as farmers and small-scale entrepreneurs by the sweep of Western-style development. More than half of the world's food is still grown by women, for example, but when new farm equipment is brought into a developing country, often only the men are trained to use it.

In another common scenario, men may leave their families altogether, quitting the countryside in favor of new urban industrial jobs, which are also often reserved for males. This creates a situation similar to that in some African countries, Tinker says, in which three-quarters of the rural poor may be women, who are turning in increasing numbers to prostitution in order to provide for their children.

Overall, "a majority of women are playing more restricted economic roles today than in the pre-developed economy," says Tinker. Although the press treated the Conference as a whole like "a bridge party where people were squabbling," and though it did, at times, seem like "a political jungle," she is optimistic about the effect—"the educational process should not be underestimated."

Specifically, Tinker feels the seminar she organized drew attention to a little-recognized problem and offered some concrete proposals toward its solution:

- That "small technology" be used to reduce women's labor, but not remove farming from women entirely, while farmers' cooperatives and a Women's Development Bank help to integrate women more fully in the economy.
- That since the majority of the world's nonliterates are women, and since literacy is strongly correlated with the practice of birth control as well as access to better jobs and political equality, new efforts should be undertaken to educate women.
- That maternal and child health services receive special priority where resources are scarce, and that women migrants be provided urban jobs and living facilities to aid their adjustment.
- That women should be admitted into decision-making occupations, including



Tinker: Women can no longer be ignored.

development planning: "bank management rather than basket-weaving."

A political scientist by training, Tinker says that development, in its initial stages, usually worsens the lot of the bottom 40 percent of an underdeveloped country's people, both in terms of actual income and relative position in society. The top 40 percent usually better its position, she says, while the middle 20 percent begins to move up only when they have reached a minimum threshold of income—usually

around \$100 a year.

But such statistics, particularly as they apply to women, can be misleading, she cautions. Often, women and their work are not even counted when statistics are gathered. The Bureau of Labor Statistics, for example, counts only 5 percent of African women as working, while the Economic Commission of Africa says women work more hours than men do. All that is certain is that women are among the poorest identifiable groups, in income, though they head about one quarter of the world's families.

Some of the major development agencies, such as the World Bank, are beginning to take new cognizance of women's roles: About half the developers "understand immediately what you're saying," Tinker estimates, but "they've been so beguiled by theory that they just forgot to ask the questions [about women]." To help overcome this lack, the Iranian government has offered a million dollars toward establishing an International Center of Women's Studies in Teheran, Tinker says. Also, in this country, Sen. Charles Percy (R-Ill.) has been pushing for equal rights provisions in the development plans of multilateral agencies that receive U.S. funds.

Concludes Tinker: Leaders can "no longer ignore women in planning." □

Biogenesis: Powered by rain and bubbles?

The bride of Frankenstein and the primordial ooze of the prehistoric earth had at least one important thing in common: The systems wouldn't go without energy input.

Things work simply in Hollywood. Filmmakers merely captured a fiery bolt from a Transylvanian electrical storm and sent it crackling through Tesla coils and Van de Graaf generators to the lifeless form of Elsa Lanchester. With that spark—and the instantaneous silvering of some runaway tendrils—her monster life began.

Things were less organized three or four billion years ago when life was sparked into the prebiotic chemical soup. The atmosphere was mostly methane, ammonia, nitrogen and hydrogen, and the grandeur that was later to be the heron's wing and the maple leaf merely a collection of organic compounds—a sort of early chemistry set. What was needed, clearly, was an efficient energy jolt to organize those compounds into coacervate droplets and then early cells. There was plenty of lightning around—but wait—no Tesla coils or Hollywood producers in sight.

Chemists and physicists have pondered for decades (since the work of Oparin and Urey) the possible energy sources that may have sparked organization into those prebiotic chemicals. Sunlight, the thermal energy of volcanoes, cosmic rays, radioactivity, shock waves and electrical dis-

charges have all been considered possible sources. Electrical discharges have seemed to many the most likely sources of the necessary energy. But how was the arc of a prehistoric lightning bolt passed in an orderly, incremental way to the bonds of invisible organic molecules? A British physicist, John Latham of the University of Manchester Institute of Science and Technology, reports an experimental answer in the July 3 NATURE.

It has been suggested by Latham and others that corona emission from pointed objects could have delivered the electrical discharges. Those pointed objects, he says, could have been, in the charged atmosphere of a thunderstorm, the tiny pointed water jets from raindrops splashing into the ocean or colliding in mid-air, or sea surface bubbles bursting into tiny water towers. Latham designed an experimental bubble chamber to test whether bubbles would pop and emit coronas at the surface voltages approximating those found during thunderstorms, around 200 kilovolts per meter. He found that, indeed, in fields down to 260 kilovolts per meter, bubble coronas were emitted.

Although more experimental work must be completed on corona discharge from colliding and splashing raindrops and bursting bubbles, it seems probable, Latham says, that one or more of them "could have been primarily responsible for biogenesis." □