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But Pilgrim, like all students of evolution in his day, believed that the best way to judge how closely species were related was to consider *all* their physical similarities. This view changed during the 1960s, when West Germany's Willi Hennig argued that only similarities that linked species to a common ancestor—"shared derived" characteristics—mattered. Horses, zebras, and rhinoceroses all belong to the order *Perissodactyla* because they have fewer than five toes. But one-toed horses and zebras are more closely related than either is to the three-toed rhino; therefore, horses and zebras may be a "clade," species with a common ancestor.

Who belongs in the same clade with humans? Men, great apes, and Old World monkeys (baboons, macaques) are in a clade because they have narrow noses, large brains, and 32 teeth. Men and great apes form a smaller clade because both have elbow joints and large premolar teeth. But two species of great apes, chimpanzees and gorillas, both have arms designed for "knuckle walking"—thick skin pads on the fingers and wrists that can "lock into position" somewhat like human knees. Because humans do not have these features, Martin concludes that the great apes form their own clade, making them "first cousins" to each other and "second cousins" to man. Thus, Martin says, Darwin guessed right: "Man must look to both the gorillas and the chimpanzees to uphold his family dignity."

Feminist Science?

"Caring New World: Feminism and Science" by
Margarita Levin, in *The American Scholar*
(Winter 1988), 1811 Q St. N.W., Washington,
D.C. 20036.

In recent years, a growing number of feminist scholars have argued that science in the West is inherently biased against women.

These feminists contend that women have been "systematically excluded" from science. Even the words scientists use—physicists who describe forces "acting on" objects, or biologists who describe the "competition" between animals to survive—are said to reveal rampant male supremacism. Male-dominated science, asserts philosopher Sandra Harding, author of *The Science Question in Feminism* (1986), produces "sexist, racist, homophobic, and classist projects."

Levin, a philosopher at Yeshiva University, believes that women who differentiate between "male" and "female" science are mistaken: "The whole idea of a 'masculine' theory or problem is extremely dubious."

Personal preferences do play a role in determining what research projects are initiated. But, Levin notes, the scientific method, with its emphasis on free discussion and replicable experiments, ensures that unprovable theories are swiftly discredited. If, as feminists charge, men are able to perceive only "hierarchical and uni-directional relationships," how did male scientists discover such examples of cooperation as symbiosis, catalysis, and biofeedback?

Feminists have failed to show how "female" science would differ from existing practice. Proposed language changes seem pointless: To say that nature is "bounteous" rather than "parsimonious," for example, simply substitutes a "caring" for a "dominating" word without providing new information. Moreover, some feminists, in their zeal to find hidden mascu-

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line bias, fail to demonstrate why "male science" is faulty. Feminist theoretician Alison Jaggar, for instance, accuses Copernicus (1473-1543) of replacing "the female (earth)-centered universe with a male (sun)-centered universe," but cannot prove that the sun orbits the Earth.

Levin warns that feminist pressures could lead to unwarranted demands in universities for special women's science courses as well as less money for research deemed "masculinist." The feminist pursuit of arbitrary distinctions between men and women, she concludes, merely reinforces the old canard "that women's thinking is best confined to the practical while men should be off exploring the abstract and fundamental."

Spawning Specialists

"National Styles in Science: Genetics in Germany and the United States between the World Wars" by Jonathan Harwood, in *Isis* (Sept. 1987), Univ. of Pa., 215 South 34th St., Philadelphia, Pa. 19104-6303.

Do different nations have different "styles" of conducting scientific research? Harwood, a historian at Britain's University of Manchester, believes that "national styles" emerged long ago. His case in point: a comparison of German and American geneticists.

Characteristically, Harwood says, they used the 1900 rediscovery of the papers of botanist Gregor Mendel (1822-1884) in different ways. Focusing on narrow technical issues, Americans, led by Columbia's Nobel laureate T. H. Morgan (1866-1945), extended Mendel's work by analyzing how chromosomes transmit genetic material. By contrast, such German geneticists as Alfred Kühn and Richard Goldschmidt aimed experiments primarily at broad theoretical questions, such as the role that evolution plays in the transfer of genetic material between generations.

American geneticists had more money and more "institutional niches" in which to work. U.S. universities, hungry for students, funds, and prestige, swiftly responded to demands for new departments and courses in specialties such as genetics. In addition, private foundations and the U.S. Department of Agriculture financed genetic research.

German universities had less room for specialists. The small number of professors who headed the typical faculty kept a tight rein over junior scholars, and actually liked to teach general introductory courses. (These increased the "capitation" fees that determined their pay.) To become a professor, a young German scholar had to have wide interests to qualify for a limited number of academic positions. Thus, junior geneticists, rather than pursuing uncharted ideas, tended to work "upon the classic problems of older disciplines" (such as evolution) that would enable them to become professors of botany or zoology.

Many German geneticists chose to immigrate to America or other nations rather than continue to teach in low-paid jobs. Geneticist Kurt Belar, for example, moved from the Kaiser Wilhelm Institute to Columbia University during the Depression, because Columbia doubled Belar's salary and offered a lighter teaching load.