The 'Eve' controversy

Computational analysis shows ultimate roots story still in the making

R

eports of her death are not greatly exaggerated. Eve, the hypothetical African mother of all modern humans, is officially dead, according to a genetic analysis by a Washington University biologist. Alan R. Templeton, Ph.D., has driven the last nail into her coffin in a March 1993 special issue of American Anthropologist, "A Current Controversy: Human Evolution," edited by his colleague, Robert Szumant, Ph.D., professor of anthropology. Templeton earlier had suggested Eve's demise in a brief 1992 Science journal article where he claimed that the computer analysis of genetic material used as proof of Eve's existence had been performed incorrectly. That 1987 analysis, done by a research group under the late Allan C. Wilson, Ph.D., University of California, Berkeley, examined mitochondrial DNA from more than 100 contemporary people worldwide. Mitochondrial DNA is found outside the nucleus of cells and is the only genetic material in cells that is strictly maternally inherited. Because mitochondrial DNA only has 37 genes that do not recombine with one another, compared with about 100,000 genes that do recombine in nuclear DNA, it is easier to trace the mutations, which give scientists a sort of molecular clock to interpret evolution.

There is no doubt that all mitochondrial DNA in humans today traces back to a single common female ancestor. However, the Wilson group concluded that this common female ancestor — Eve — lived in Africa between 140,000 and 280,000 years ago. The group includes Wilson, Rebecca L. Cann, Ph.D., University of Hawaii, Mark Stoneking, Ph.D., Pennsylvania State University, and Linda Vigilant, Ph.D., also of Penn State. Templeton's 1992 Science article disputed the claim of an African root, showing that the root's geographical location cannot distinctly be determined from the present data.

Out of Africa hype

Templeton's current article deals primarily with other claims of the Wilson group. They concluded not only that all modern human mitochondrial DNA descended from Eve, but also that all modern humans (including both their mitochondrial and nuclear genes) descended from the single African population to which Eve belonged. Humans from this one small population then expanded "Out of Africa," and replaced the less advanced Old World humans in Europe, Asia and Africa. The countertop to these views is that modern humans evolved more or less simultaneously throughout the Old World. The "Eve" and "Out of Africa" theories spawned a frenzy in the popular press, trying to follow the results of genetic trees. His novel computer program he devised that reveals the use of a high-tech fossil to reconstruct the past. His analysis is the first geographical examination of the data. And it shows that DNA, carefully analyzed, can be a sort of high-tech fossil to reconstruct the past. His analysis shows that both the Eve and Out of Africa theories are incompatible with the data," says Templeton, an evolutionary biologist widely known for his genetics work with endangered species. He also holds a master's degree in statistics. "The best we can say now is that the root is not known. However, Eve proponents probably won't accept the results of my analysis. So, the paper and the issue of American Anthropologist aren't really going to close the matter, just increase the debate."

A major point of my paper is that the geographical placement of the root is a

Public health expert to give Thomas Hall Lecture

Dorothy Porter, a historian of medicine, will give the Thomas Hall Lecture at 4 p.m. April 8 in Room 215 Reehorst Hall. Her talk, "A Brave, New, Healthy World: Social Medicine and Scientific Humanism in the 20th Century," is part of the Assembly Series and is free and open to the public.

Porter, Wellesley Research Lecturer in the History of Medicine at the University of London, is an expert on public health, particularly women's health in Britain in the 20th century, and the history of eugenics, especially as it is related to women. In 1990-91 she was a visiting lecturer in the Department of the History of Science at Harvard University and in 1989-90 a postdoctoral fellow in the Department for the History of Science at the University of California, San Francisco.

Porter, who received her doctorate in history in 1984 from University College London, has written and reviewed numerous articles in scientific journals and published several books: "History of Health and the Modern State: National Contexts Compared," an essay collection that she edited, is in press. Among her books in progress is a Political History of Public Health in Britain.

Her 1988 In Sickness and In Health: The British Experience, 1650-1830 and her 1989 Patient's Progress: The Dialectics of Doctoring in 18th-Century England were co-authored with Roy Porter.

The lecture is co-sponsored by the Department of the History of Science. For more information, call 935-4620.
Blacks’ high lung cancer death rate blamed on social factors

Lung cancer, the nation’s leading cause of cancer deaths, takes a disproportionately high toll on black Americans. Some say blacks are more likely to get lung cancer, and they die of it more often and more quickly. This racial gap probably is not due to biological differences, concludes a recent multicenter study by an investigator at Washington University’s Mallinckrodt Institute of Radiology.

The study holds important implications for future research and for public health efforts aimed at closing the racial gap, says the investigator, Mary Graham, M.D., instructor of radiology at the School of Medicine and the study’s lead author.

“This study can be seen as one piece of data that suggests there are not biological differences but that we should be looking toward social or environmental factors to account for these differences in outcome between the races,” Graham says. The findings were published in Vol. 84 of the Journal of the National Cancer Institute.

In a retrospective study, Graham evaluated data from 1,701 patients who had been treated for inoperable non-small-cell lung cancer at multiple medical institutions. All the patients were treated for their cancer as participants in four national clinical trials conducted by the Radiation Therapy Oncology Group (RTOG) from April 1983 to May 1989. RTOG is a division of the American College of Radiology that overserves studies dealing with cancer treatment. Graham looked at several factors, including age, sex, weight loss, stage of disease and survival time to determine whether any differences existed between blacks and whites.

In addition, Graham aligned medical procedures and similarly prescribed therapy under the auspices of a national control trial setting. Recently, he was unable to detect any differences in survival between black and white patients, he adds. The investigators wrote in their study conclusion, “In other words, when blacks and whites receive the same level and quality of medical care, the racial gap in survival for lung cancer is not apparent, Graham explains.

Median survival time was nine months for blacks and 10 months for whites. One-year survival rates were 40 percent for whites and 44 percent for blacks; two-year survival rates were 17 percent in whites and 15 percent in black patients. But the only significant difference between the races was in the amount of weight loss: 24 percent of black subjects began the clinical trial with weight loss of more than 10 percent, compared with 13 percent of white subjects. Other factors were found to predict survival included weight loss, age, sex and stage of disease. But these results differ from other reports of prognostic factors for patients with lung cancer.

Racial differences regarding lung cancer have been found in many previous studies, Graham says. Black men have higher incidence rates, and black women have lower five-year survival rate than do whites, she says. Incidence of the disease has increased dramatically since 1950, and it is highest among black males. Although survival rates have improved for white populations, they have not improved for blacks. In fact, the death rate from lung cancer for black men is 45 percent higher than for non-minority men.

The gap is not limited to lung cancer. When all cancers are considered together, black Americans have a 12 percent lower five-year survival rate and an 11 percent higher incidence rate compared with whites, Graham’s study shows. Several factors have been suggested to account for these disparities, she says. They include poor diet, occupational exposure to hazards such as asbestos, high-risk behaviors such as smoking and alcohol consumption, and deficient access to health education and to health care resources. Many of these factors are related to low socioeconomic status, she notes. Because race and socioeconomic status are interrelated in this country, it has not been clear whether blacks’ relatively poor outcomes result from environmental factors or from biological differences, she explains. This study attempted to even out some of the environmental variables by studying people who all received similar treatments, she says. I think the study shows very clearly that we need to address social factors. For example, there evidence that tobacco companies target people who have less education and therefore less ability to understand the ramifications of smoking. So I think we need to ask whether we are meeting the needs of a particular population in terms of teaching them about the risks of lung cancer.” — Mary Graham

Mary Graham, M.D., radiation oncologist at the School of Medicine, says that social factors need to be studied to find out why blacks are more likely than whites to get lung cancer and die of it more often and more quickly.

Wayne State University, Detroit; Radiological Associates of Sacramento; and the University of Texas M.D. Anderson Cancer Center, Houston.

Lung cancer is the leading cause of cancer deaths in the United States, according to the American Cancer Society. The ACS estimates that in 1992 lung cancer caused 146,000 deaths in this country and that 168,000 new cases occurred. The disease surpassed breast cancer in 1987 as the leading cause of death in American women. — Juli Lester

Kahn to direct medical informatics division

Michael G. Kahn, M.D., Ph.D., assistant professor of medicine, has been named director of the Division of Medical Informatics at the School of Medicine.

Kahn came to Washington University in 1988 as an instructor of medicine and became an assistant professor in 1989. His research focuses on developing ways to use computer- and bio-mechanical information to solve problems in medical research and patient care.

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Michael G. Kahn

Kahn’s current projects involve using computer databases to provide clinical decision support in areas such as quality assurance and infection control.

He also is one of several teachers for the Training Program in Medical Informatics, whose graduates receive either an M.S. or Ph.D. in computer science or a related discipline. The program is administered through the Institute for Biomedical Computing, a joint department of the School of Medicine and the School of Engineering.

Kahn serves on the quality assurance committee of the Department of Internal Medicine, as well as the quality assurance executive committee of Barnes Hospital. He is a member of several professional organizations and serves on the advisory editorial board of the Journal of Artificial Intelligence in Medicine. Kahn received his medical degree from the University of California, San Diego, in 1979 and served his internship and residency in internal medicine at St. Mary Medical Center in Long Beach, Calif. He completed his fellowship in medical informatics at the University of California, San Francisco (UCSF). While a doctoral candidate there, he was also a visiting research scholar at the Medical Computer Science Group at Stanford University’s Knowledge Systems Laboratory, a Robert Wood Johnson Clinical Scholar at UCSF, and a postdoctoral fellow for the National Library of Medicine and a staff physician at two San Francisco-area hospitals.

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Washington University Record
Turner's switches network vision of reality

Turner's vision blossomed after he came to Washington University as assistant professor in 1983. He began working in conjunction with Jerome R. Cox, D.Sc., then chair of computer science, and Pierre Costa, senior researcher associating in computer science, among others, in designing multipurpose hardware and parallel processing circuits. Over his 10 years at Washington University, Turner collaborated with a host of corporate sponsors ranging from SouthernBell, NEC, Lucent, Bell Technology Resources Inc., to Sympexes and Acorn Timopes, to name a few of the many companies and institutions. During that time he steadily improved the Washington University ATM switch, and his colleagues — industry, faculty and students alike — all contributed to the success. The system is unique among approximately 12 others worldwide because of Turner's pioneering switch architecture and his use of special integrated circuits that improve the basic functions in efficient ways.

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## Exhibitions

Master of Fine Arts Thesis Exhibition I. Opening: 5-7 p.m. April 9. Exhibit continues through April 18. Gallery of Art, upper gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-6597.

First Friday Master of Fine Arts Exhibition. Opening: 6-8 p.m. April 9. Exhibit continues through April 18. Piez Arrow Bldg., 4814 Washington Ave., second floor. Hours: 10 a.m.-5 p.m. Saturdays, 2-5 p.m. Sundays. For more info., call 935-6590.

School of Fine Arts Junior Exhibit. Opening: 5-7 p.m. April 2. Exhibit continues through April 18. Shulich Hall. Hours: 10 a.m.-4 p.m., weekdays; 1-5 p.m. weekends. For more info., call 935-6545.

"Washingtone University Art Collections 19th- and 20th-century European and American Artists." Through May. Gallery of Art, lower gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.

"Bodies, Bones and Belligerence: China Perceived by Westerners, 1914-1941." Through May. Clopton Aud., seventh floor, School of Medicine Library. Hours: 8 a.m.-10 p.m. weekdays; 9 a.m.-5 p.m. weekends. For more info., call 935-4549.

Godesses, Queens and Women of Achievement on Coins and Medallions From the Wulff and Bicly Collections. Through July. 3 Gallery of Art, lower gallery, Steinberg Hall. Hours: 10 a.m.-5 p.m. weekdays; 1-5 p.m. weekends. For more info., call 935-4523.

Translations and Literatures Japanese Film. Ridgley Hall. 7 p.m. Dept. of Asian and Near Eastern Languages and Literatures Thursday, April 1

Monday, April 5

April 3, same time, and April 4, 9:30 p.m. Room 100 Brown Hall. Cost: $7.

Midnight Filmboard Midnight Series presents "Betty Blue" (French with English subtitles). (Also April 10, same time, and April 11, 7 p.m. Room 100 Brown Hall. Cost: $7.


4 p.m. Dept. of Anatomy and Neurobiology "Neurons of Taste Buds: Roughness From Thalamic to Somatosensory Cortex," Maddox; prof. of neurobiology and assoc. prof. of physiology, WU School of Medicine. Room 203 McDonnell Medical Science Bldg.


4 p.m. Microbial Pathogenesis Seminar, "Pathogenicity and Immunity of CNS Viral Infections — What Have Rhesus Taught Us?" Kenneth L. Tyler, Dept. of Neurology, Medicine and Microbiology-Immunology, U. of Colorado Health Science Center.

5 p.m. Filmboard Midnight Series presents "Red Sorghum" (English subtitles). (Also April 10, same time, and April 11, 7 p.m. Room 100 Brown Hall. Cost: $7.

7 and 9 p.m. Filmboard Classic Series "Romance: 5-7:30 p.m. "The Fourth Dimension (the European Avant-Garde)" Michael Heit, urogynecology fellow, Rush. 3 a.m.

7:30 p.m. Dept. of Obstetrics and Gynecology Lecture Series, "The Genetics of Premature Birth," James W. Haddow, chief, maternal-fetal medicine, Boston. 3918 South Bldg.


Friday, April 2

7 p.m. Dept. of Asian and Near Eastern Languages and Literatures Japanese Film Series presents "Woman in the Dunes (English subtitles). Room 219 South Ridgley Hall.

Friday, April 3


Monday, April 5

4:30 p.m. Dept. of Biology colloquium, "Dynamics of the Cell Division," Peter D. Golub, prof., Dept. of Biology, WU. 3918 South Bldg.

Tuesday, April 6


4 p.m. Dept. of Biochemistry and Molecular Biophysics seminar, "Role of Protein Conformational Changes, Surface Catalysis and Protein Folding in Haemaccelerated Antithrombin-proteinase Reactions," Steven T. Olson, Division of Biochemical Research, Henry Ford Hospital, Detroit. 2918 South Bldg.


4:30 p.m. Dept. of Chemistry colloquium, "Peptides and Small Molecules: Control of Timing and Spatial Organization of the Cell Cycle in Mammals," Lucy Rothman, A. Ernest and Jane G. Stein Professor of Developmental Biology, WU School of Medicine; and director, Division of Preclinical Training, WU School of Medicine. 3918 South Bldg.

5:30 p.m. Dept. of Women's Studies, "The Role of Women in the Law: A Symposium on Law and Policy," Carolyn Owen, law student, WU. Room 100 Brown Hall.

Wednesday, April 7


4 p.m. Dept. of Biochemistry and Molecular Biophysics seminar, "Role of Protein Conformational Changes, Surface Catalysis and Protein Folding in Haemaccelerated Antithrombin-proteinase Reactions," Steven T. Olson, Division of Biochemical Research, Henry Ford Hospital, Detroit. 2918 South Bldg.

7:30 p.m. School of Fine Arts and St. Louis School of Fine Arts Student exhibit, "Bodies, Bones and Belligerence: China Perceived by Westerners, 1914-1941." Through May. Gallery of Art, Clopton Aud., 4950 Children's Place.

Thursday, April 8

8 p.m. Dept. of Music presents a voice recital with Roland Jaquio, baritone. Graham Chapel.

## Calendar guidelines

Events sponsored by the University — its departments, schools, centers, organizations and its recognized student organizations — are published in the Calendar. All events are free and open to the public, unless otherwise noted.

Calendar submissions should state time, place, topic, sponsor, title of event, name of speaker, admission fee and admission cost. Quality promotional photographs with designer logo exclusively. Send three to Maria Doss at Box 1070 or via fax 935-8533. An embargo runs until April 8.

The deadline for all entries is noon Tuesday one week prior to the date of occurrence. Late entries will not be printed. The Record is printed every Thursday. Deadline for Saturday events is one week except holidays, and monthly during the summer. If you are uncertain about a deadline, holiday schedule, or any other information, please call 935-6597.
Friday, April 2

11 a.m. Thirteen is sponsoring a "Shuff-A-Volkswagen" contest for student residence halls. The residence halls' Unrathskellar. For more info., call 721-7190.

Noon. The Women's Club of WU mini-luncheon and program, "Join the Kids on the Block!" presented by Margret Israel. Women's Bldg. Lounge. Cost: $5 for members and guests. Reservation deadline: April 5. For more info. and reservations, call Annette Kinelman at 991-1281 or Jan Kardos at 863-0523.

9 p.m. Thomasson's Bookmark Society is presenting a panel discussion, "The Art of American Fashion." Presented by Fashion Department, Food: Wells, downtown; University, Elaine Viets, columnist, St. Louis Post-Dist. 무. community relations, public relations women's Bldg. Lounge. For more info., call 935-5400.

Saturday, April 3

10 a.m.-3 p.m. Paintinarket benefit for WU Gallery of Art with art prints for sale. (Also April 4, noon-4:30 p.m.) Art gallery, upper gallery, College. Cost: $5 for the general public; $2 for students. For more info. and reservations, call 935-4323.

Monday, April 5

7:30 p.m. Department of German Languages and Literature, European Studies Program and Goethe Institute of St. Louis present the University's German Film Festival. The event is free and open to the public. Call 334-6367 for more info.

Tuesday, April 6

Performing Arts Dept. presents the Universal Latin Band concert, directed by Chris Becher. The Gargarey, Mallinckrodt Center. Cost: $5 for the general public; $5 for students. For more info. and reservations, call 935-6543.
Templetton’s analysis shows that all modern humans are one. From page 1

very trivial issue, really. The more fundamental issue is: when is a gene a tree and how do you infer whether a gene has been influenced by population processes? This affects all of molecular biology and all the disciplines it involves. Gene trees and population trees are not necessarily the same thing. A gene tree reflects the evolutionary history of a particular piece of DNA. A population tree, on the other hand, reflects the movement of entire groups of individuals. All the gene trees group simultaneously. The conclusion that all human mitochondrial DNA traces back to Eve does not necessarily imply that all humans today are descended only from the population in which Eve lived. Templeton stresses.

"For example, my recent ancestors came from Scotland, Ireland, Germany and the Netherlands," he explains. "My recent genetic roots are spread out over several countries and are not limited to one geographical location. Yet any particular gene I have will trace back to only one of these countries. For example, my mitochondrial DNA definitely comes from Germany, the origin of my maternal grandmother’s mother. However, my Y chromosome (maternal mitochondrial DNA) comes from Scotland where my paternal grandfather lived. Hence, different genes can have different geographical origins. This is why gene trees and population trees are not necessarily the same thing. The Wilson group automatically assumed their tree was a population tree, when it was in fact a gene tree."

"You have to do the really hard work of rigorous data analysis to see if a gene tree does have a population level encoded into it. If, out of this controversy, we can all understand that and the importance of rigorous data analysis, we will have benefited," he says. According to Sussman, the special issue of American Anthropologist is part of what the journal calls its Contemporary Issues Forum. The forum is designed to open up the journal calls its Contemporary Issues Forum. The forum is designed to open up the journal’s readership to a wider audience.

Robert E. Thach, Ph.D., professor of biology, has been elected to the rank of fellow by the American Association for the Advancement of Science (AAAS). The association bestows the honor to members whose "efforts on behalf of the advancement of science or its applications are scientifically or socially distinguished." The honor began in 1883 and is acknowledged with a certificate and a rosette.

Thach was named fellow for his studies in the regulation of translation, a genetic process and the messages encoded in the cell’s DNA. Thach has made key contributions to the understanding of how the cell regulates this process, which has provided new insights on looking at day’s human diseases as well as some cancers. Thach graduated summa cum laude from Princeton University with a bachelor’s degree in chemistry in 1961 and received his Ph.D. in biochemistry from Harvard University in 1964. Before coming to Washington University as associate professor of biology in 1970, he was associate professor of biochemistry and molecular biology at Harvard University. Since 1984, Thach has held the position of professor of biological chemistry at the School of Medicine as well as faculty member of the Washington University Department of Biology. He was named professor of biology in 1977.

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Professor Gertrude Knelleken dies at 70

Gertrude Knelleken, an associate professor emeritus of physical education who had a 35-year association with Washington University, died March 19 of cancer at her home in Bloomington, Ind. She was 70.

Knelleken began her tenure at Washington University in 1951, when she became assistant professor of education in the graduate and undergraduate programs. She served as St. Louis University's first female professor at Eastern Oregon College in La Grande, Ore.

In addition to her instructional duties, Knelleken also served as the university's assistant dean of women from 1961-67, as director of the women's division of physical education from 1971-76, and as chair of the department of physical education from 1976-79. In 1979, she was promoted to associate professor of physical education. She retired in 1986.

"Gertrude Knelleken was a true professional in physical education," said Lynn Blockman Ingersoll, assistant director of athletics. "She sincerely cared about both the students and the faculty members with whom she interacted. Gertrude was always available to offer suggestions to improve instruction and to provide the best possible experience for students."

Knelleken received a bachelor's degree in education from Indiana University in 1944, and a master's degree in the same field from the University of Iowa in 1946. In 1981 she received the University Monley Award for Service to the profession from the Missouri Association of Health, Physical Education, Recreation and Dance. For many years, she was on the board of the Campus Recreation Foundation.

A funeral service was held March 22 at Second Presbyterian Church for Kathleen Winters, M.D., assistant professor of clinical pediatrics, who died March 16 of lung cancer at her home in University City. She was 66.

Winters joined the School of Medicine in 1959 as a clinical instructor of pediatrics after completing her residency at St. Louis Children's Hospital. That same year, she was also appointed a pediatrician at the Central Institute for the Deaf and began her private practice.

Winters was a member of several professional organizations, including the American Medical Society, the American Academy of Pediatrics and the St. Louis Pediatric Society. She also co-authored professional articles.
The following is a list of positions available at the University of Missouri.

**Class trains future architects to produce accessible buildings**

Rather than simply adding a ramp to an entranceway with stairs, an architect would like to design a building that accommodates people of all abilities.

"Installing a ramp next to the step that provides stairs may do it harm," says Lazarus, "but of understanding the requirements with disabilities and then thinking about how to make that integral to your design." In Lazarus’ view, an empathic architect, "Lazarus. In the semester students will pick an element of hilltop campus building, such as a door, a toilet or lighting, and create a design proposal incorporating it with the ADA and principles of universal design. The course is called Lazarus' interest in the ADA. While on maternity leave in 1992, she realized the ADA and thought it would be an interesting topic to research. Her HOK knowledge of all aspects of molecular biology; prefer individual with practical experience in molecular PCR and DNA sequencing.

**Secretary II**

93061-R. Botany and Biochemical Science. Requirements: High school graduate/equivalent. Experience with word processing and be familiar with general office equipment; must be reliable; flexible enough to work varied hours; ability to deal with Washington University faculty, staff, donors and the public; typing 50 wpm.

**Librarian**

930158. School of Fine Arts. Requirements: High school graduate, bachelor's degree preferred; ability to deal with multiple priorities, ability to work effectively with, among others, members of the faculty, staff and trainees; ability to plan and have the ability to deal with multiple priorities with attention to detail; ability to persuasively with prospects; able to deal with multiple priorities; be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

**Medical Research Technician**

930636-R. Allergy and Immunology. Schedule: Three-hour advanced course next semester; must be licensed in the state of Missouri; prefer experience in neurology/immunology; have good communication skills; should be highly organized and have good communication skills; must be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

**Analyst for Program and Planning**

93066-R. Psychiatric. Requirements: Bachelor's degree, must have theoretical knowledge of all aspects of molecular biology; prefer individual with practical experience in molecular PCR and DNA sequencing.

**Secretary I**

930157. School of Business. Requirements: High school graduate, bachelor's degree preferred; ability to assist with, among others, members of the faculty, staff and trainees; ability to plan and have the ability to deal with multiple priorities; be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

**Benefits Accounting Clerk III**

930125-R. Accounting Services. Requirements: High school graduate, bachelor's degree preferred; ability to assist with, among others, members of the faculty, staff and trainees; ability to plan and have the ability to deal with multiple priorities; be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

**Coordinator**

930116. Biology. Requirements: Bachelor's degree; excellent oral communications and interpersonal skills; ability to prioritize and function effectively with minimal supervision; able to plan and work with attention to detail; ability to pleasantly overcome obstacles and be effectively persuasive with prospects; able to work effectively with volunteers, donors and prospects, and University staff; able to deal with multiple priorities with minimal supervision; knowledge of University systems and personnel helpful; knowledge of five minutes of experience in university or high-level industry service are helpful; ability to keep filing; familiarity with word processing techniques; ability to particularize and/or automated systems; ability to work well in public service position; clerical tests and three letters of recommendation required.

**Editorial Assistant**

930164. Anthropology. Requirements: Bachelor's degree, preferably in anthropology or with courses in anthropology; editorial and office management experience essential. The editorial assistant should also be computer literate enough to use Windows software, like word processing and spread sheets, fluently. The assistant should be familiar with familiar with facsimile machines and photoduplicators; typing with accuracy required. Clerical tests and three letters of recommendation required.

**Research Technician**

930173. Biology. Requirements: Bachelor's degree in biological sciences. The successful candidate will be responsible for conducting research at the bench and computer. The assistant should be entrusted with note keeping and management of lab records and strain collections. Experience should be conscientious, meticulous, careful and trustworthy required.

**Receptionist**

930174. Health Service. Requirements: High school graduate; cooperative attitude essential; must be dependable, conscientious, cheerful, pleasant and eager to assist students on first encounter with Health Service; some knowledge of medical terms helpful; typing 30 wpm with accuracy. Clerical tests and three letters of recommendation required.

**Lab Aide - Part-time**

930175. Biology. Requirements: High school graduate, able to handle a variety of biobehavioral wages. Duties: glassware pickup and processing; housekeeping; mechanical; typing the word-processing experience. The successful candidate will have excellent communication and analytical skills, creativity and resourcefulness. Position requires experience with microcomputers.

**Medical Research Technician**

930534-R. Neurology. Requirements: High school graduate/equivalent. Must have experience in psychiatric and/or medical epidemiology.

**Programmer Analyst II**

930607-R. Ob/Gyn. Requirements: Bachelor's degree, knowledge of all aspects of molecular biology; prefer individual with practical experience in molecular PCR and DNA sequencing.

**Assistant to the Dean of the College**

930126. Biology. Requirements: Bachelor's degree, must have theoretical knowledge of all aspects of molecular biology; prefer individual with practical experience in molecular PCR and DNA sequencing.

**Secretary II**

930621. Rad. Phlebology. Schedule: Part-time, 30 hours a week — hours will vary depending on workload. Requirements: High school graduate/equivalent, two years college preferred. Desire individual with two to five years experience with word processing and be familiar with general office equipment; must be reliable; flexible enough to work varied hours; ability to deal with Washington University faculty, staff, donors and the public; typing 50 wpm.

**Medical Research Technician**

930666-R. Neurological Surgery. Requirements: BSN, additional graduate work preferred; must be licensed in the state of Missouri; prefer experience in neurology/neurosurgical nursing.

**Librarian**

930157. School of Business. Requirements: Very high degree of college course work; ability to deal with multiple priorities; ability to work effectively with, among others, members of the faculty, staff and trainees; ability to plan and have the ability to deal with multiple priorities; be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

**Benefits Accounting Clerk III**

930125-R. Accounting Services. Requirements: High school graduate, bachelor's degree preferred; ability to assist with, among others, members of the faculty, staff and trainees; ability to plan and have the ability to deal with multiple priorities; be personable and able to relate well with faculty, staff and trainees; typing 60 wpm.

**Coordinator**

930116. Biology. Requirements: Bachelor's degree; excellent oral communications and interpersonal skills; ability to prioritize and function effectively with minimal supervision; able to plan and work with attention to detail; ability to pleasantly overcome obstacles and be effectively persuasive with prospects; able to work effectively with volunteers, donors and prospects, and University staff; able to deal with multiple priorities with minimal supervision; knowledge of University systems and personnel helpful; knowledge of five minutes of experience in university or high-level industry service are helpful; ability to keep filing; familiarity with word processing techniques; ability to particularize and/or automated systems; ability to work well in public service position; clerical tests and three letters of recommendation required.

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**Assistant to the Dean of the College**

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