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W.U. RECORD



Peter H. Zimmerman

"If it were not for a rainy day . . . the number of authors and writers would dwindle away . . ." (Jonathan Swift, *A Tale of a Tub*.)

GIE Is Awarded Two Major Grants

The Graduate Institute of Education (GIE) at WU has been awarded more than \$245,000 by the National Institute of Education for two major projects on current issues in education: teacher strikes and the relationship between the allocation of resources for schools and student achievement.

The principal WU researchers are Professor Barry Anderson, director of GIE, and Professor David Colton, director of the Center for the Study of Law in Education.

Recognizing that the two major problems facing schools today are the decline of students' basic skills and the proper allocation of educational resources within the context of reduced revenues,

Anderson and his coinvestigators will study the relationship between resource allocation and student achievement. Using data on some 90,000 St. Louis students, their teachers and their schools, the study will identify and measure a number of educational costs, such as teacher salaries and experience, student-teacher classroom ratios, teacher-administrator ratios, library resources and the condition of facilities, all in relation to student achievement. The investigators will study data from the past eight years to determine the educational consequences of various levels of support.

Earlier research by Anderson indicates that many St. Louis school districts have increased their provisions for many of these factors over the last several years. Several hypotheses of the study question the effectiveness of such allocation.

The NIE grant totals \$84,989 and supports the study for one year. Coinvestigator of the project is Jonathan H. Mark, assistant professor of economics, University of British Columbia, Vancouver, Canada.

Colton and his associates will conduct comparative field studies and surveys of past and current teacher labor disputes involving anti-strike injunctions. Although a number of situations will be studied, the project will analyze in particular the use and consequences of the "irreparable harm standard," a legal argument (that strikes cause irreparable harm to students) used in seeking injunctions. This issue and other arguments will be examined in their various judicial, legisla-

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Effect of Federal Funding at WU Is Evaluated by Danforth In Annual Report

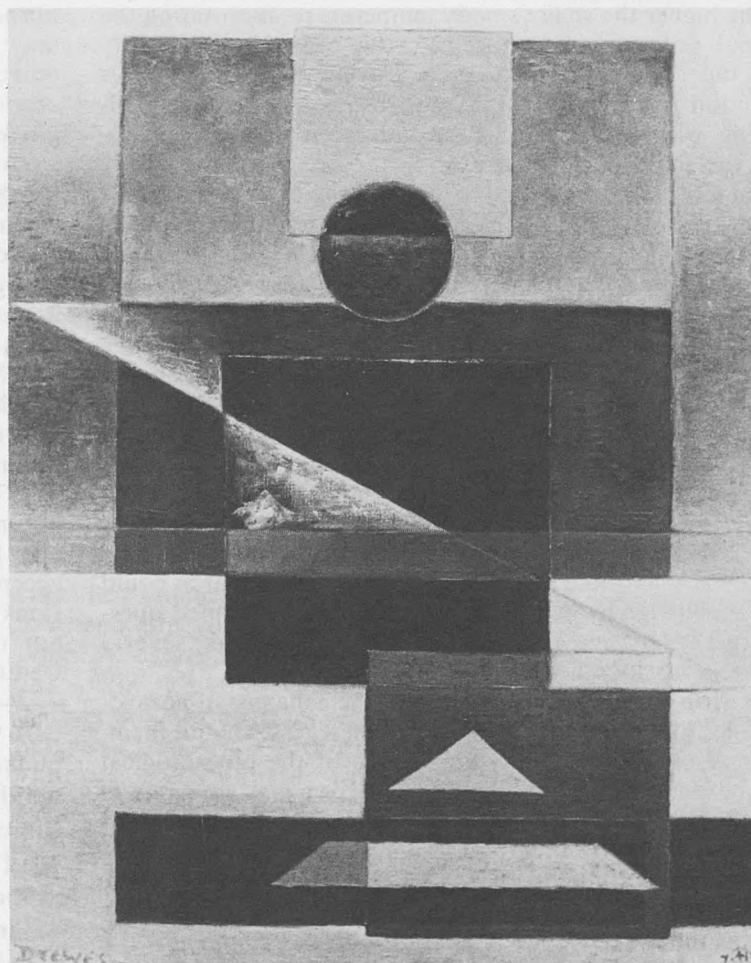
Federal support of quality research, according to Chancellor William H. Danforth, has made American science the envy of the world, with 50 per cent of the Nobel Prizes given since 1943 going to scientists from the United States.

The WU Annual Report for the fiscal year ending June 30, 1978, reported that the University received \$44.2 million from the federal government. Of that amount, \$37.4 million was for research grants or contracts.

These federal monies have helped WU become a better institution, with a more varied and multitalented faculty and student body, enabling the University to serve society better with research and education, Danforth said.

But this boon can lead to a major difficulty, the Chancellor said. The challenge is "to keep the massiveness and power of the federal government from overwhelming the independence of the separate institutions and from depressing the individual creativity and sense of responsibility which is so beneficial to the entire endeavor."

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"Shifting Stability," a 1976 oil on canvas by Werner Drewes, WU professor emeritus of art, will be among the works displayed in the annual WU Faculty Art Show at the Gallery of Art, Steinberg, Nov. 19-Jan. 7.

Peregrinations of Black Rat Snake Are Tracked with Radio Transmitter

On top of everything else, now they're following snakes around at Tyson. Richard Coles, director of WU's Tyson Research Center, and three seniors at WU, Andrew Mancall, Mark Pollins and Tucker Woodson, each taking Cole's fall Physiological Ecology of the Vertebrates course, are keeping track of the cold-weather peregrinations of a black rat snake that has been specially equipped with a radio transmitter.

Besides training students in physiological ecology, this research is, according to Coles, a basic scientific inquiry into how cold-blooded animals use their behavior to regulate their body temperature.

People, unlike the cold-blooded snake, Coles says, have an internal furnace, their high metabolism. They also have a thermostat that causes them to shiver in the cold, thus using their metabolism to generate heat internally and keep their body temperature as close as possible to 98.6 degrees F.

As the weather turns colder in the fall, and without any automatic internal furnace, a snake must depend on its instinctual behavior to seek warm spots where it can absorb heat. A snake will crawl out onto a log to sun itself or onto highway pavement, which stays warm for a while after the sun sets.

According to Coles, however, not everything about how the black rat snake uses its behavior to stay warm is known. Also unknown is the temperature range the snake can tolerate or the temperatures at which the snake seeks warmth or hibernates. These are some of the questions the research at Tyson is designed to answer.

Because temperature is so important to this research, the radio transmitter used is a little different than most. It transmits pulsed signals that correspond to the snake's body temperature rather than simply a constant signal: the faster the beeps, the higher the snake's body temperature. By rotating the directional antenna on a receiver, the researchers can determine the direction the snake is traveling because that is the direction from which the loudest beeps will come. By triangulating with the help of a second receiver, they can determine the snake's exact location.

When Coles and his students opened the black rat snake's cage, it headed straight for a hollow tree and remained there for several days. Coles says they purposely released the snake within four or five feet of where it had been captured, and even though the snake had been out of its natural habitat for several weeks, it knew exactly where it was.

According to Coles, this particular species has a home range, the territory over which the snake will travel after it leaves its familiar surroundings, of one-half to one mile in any direction. Within 20 yards of the black rat snake's hollow tree is a fallen log, under an opening in the forest canopy, on which the snake can sun itself and get plenty of food. There is even a rock outcrop perfect for hibernating.

Coles says that, like any basic research, this research could lead to knowledge for which we haven't even developed questions, and that, in addition, this research has several immediately obvious benefits.

First, with more exact knowledge of the behavior of hazardous reptiles, like poisonous snakes, we can learn to avoid them, and second, with more exact knowledge of the physiological state of hibernating cold-blooded animals, we may someday in the far future better be able to confront the immense reaches of future space travel by imitating that hibernation.

Coles and his students are taking turns tracking the black rat snake for 24 hours a day and are graphing the air temperature versus the snake's body temperature to determine how the temperatures correspond. Coles says the same technique will be used in the future to study the behavior of other animals inhabiting Tyson Research Center.

(Nick Ingala)



Peter H. Zimmerman

WU students Mark Pollins (left) and Tucker Woodson (center) hold the black rat snake while Richard Coles, director of Tyson, photographs where the radio transmitter was implanted before the snake's release.

Federal Funding

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He singled out four aspects of the federal-university relationship as most important:

First, the University has the fiduciary responsibilities of keeping track of federal funds and making sure they are spent for the purposes for which they are given.

Second, institutions of higher education are expected to share the costs of government projects. Arbitrarily imposed limits on federal overhead payments for research projects could cost WU and other universities millions of dollars. In addition, pressures to share the costs of federal grants can be used to force universities to divert scarce free funds to governmental purposes.

Third, the federal government uses the funds it gives for one purpose as leverage to achieve other purposes. For example, it may use occupational safety and health regulations to force universities to commit limited funds to projects the government thinks are more important than those for which the universities have earmarked the same funds.

And, fourth, because it is easier, the federal government is tempted to lean on universities with medical schools, like WU, whenever it wants to change the nation's health care system. For example, Congress has used the threat of withholding certain grant money from medical schools to pressure them into accepting transfer students from foreign medical schools who might not meet the schools' usual criteria for admission.

"We are proud to be a major research university and would not have it any other way. The problems and strains listed above can be viewed as the result of success, not as the result of failure," Danforth said.

"The cumulative pressures on Washington University's autonomy and financial strengths, however, are real. We want also to preserve our freedom of action. We must be able to accept or reject federal programs, to determine our own admissions policies, to put into effect our own curricula, to adhere to our own systems of internal governance and to protect the traditional academic freedoms," he said.

A MEETING on the application of computers to ophthalmic patient care and clinical research will be held April 5-6, 1979, at the WU School of Medicine. Sessions dealing with data bases, automated patient testing, artificial intelligence and image processing are being planned.

Authors are urged to submit abstracts on any work involving patient care or clinical research in ophthalmology, even if it does not fall into one of the session categories mentioned above. Camera-ready abstracts are due by December 29. For further information write Dr. Robert Greenfield, Box 8090.

Visiting Musician Alan Lumsden To Perform Antique Brass Nov. 26

While his childhood contemporaries were collecting stamps and butterflies, Alan Lumsden, visiting artist-in-residence in music at WU, was collecting instruments; not penny whistles or toy drums, but old brass instruments, many of them unknown and unheard by modern audiences. Over the years, Lumsden's collection has grown to include a wide variety of original instruments and reproductions, some with such graphic names as "the serpent" and others with histories imbued with ritual and mystery.

As an adult, Lumsden plays the instruments in his collection. He is one of the few musicians who play some of these instruments. In England, Lumsden is the "first call" performer for many of the rare horns and has performed with most of England's early music ensembles as well as appearing frequently on the modern trombone.

Lumsden will demonstrate and talk about his unusual collection in a recital at 8 p.m., Sun., Nov. 26, in Edison Theatre. The concert is free and open to the public.

Oddly enough, one of his rarest possessions is not an original, but a reproduction. The slide trumpet was extremely popular in the early 15th century, but by 1450, it was totally ignored by composers and performers. Today, none of the original slide trumpets exist.

"Most reproductions today," Lumsden explained, "are made with sophisticated X-ray techniques from original instruments, which are in a number of famous collections around the world. Our knowledge of how the slide trumpet looked, however, came solely from paintings and prints of the period, where it is most often shown in the hands of angels."

Using the length of the angels' heads for scale, Lumsden and an instrument-maker friend were able to reconstruct the trumpet. Written sources say that the slide trumpets were made in two keys, C and D. Lumsden's instrument plays between the two, indicating a very close replication of the original instrument.

Another instrument that he plays is the ophicleide, invented in 1817 and extremely popular for about fifty years, until it was eclipsed by the development and refinement of the tuba.

"At one time during the ophicleide's popularity, there were more ophicleide instructors at the Paris Conservatory than of any other instrument," Lumsden said.

Other instruments which Lumsden will play at the recital are the cowhorn, the tenor cornet, the sackbut, or Renaissance trombone, and the euphonium.

During his residency at WU, Lumsden is leading the Collegium Musicum, a graduate-level early-music performance practice class with which he will perform on Sun., Dec. 10. Lumsden's residency and concert are sponsored by the WU Department of Music. (Charlotte Boman)



Alan Lumsden, visiting artist-in-residence, plays "the serpent," one of the unusual instruments in his collection.

The **WU Record** is published weekly during the academic year by the Information Office. Editor, Janet Kelley; calendar editor, Charlotte Boman. Address communications to Box 1142.



Herbert Weitman

Provost Merle Kling was the honored guest at a recent Stix House tasting party where he and members of the Woman's Club of WU sampled dishes made from recipes in the club's new book, *Cooking by Degrees, II*. Editor Marcia Bernstein (Mrs. Neil) (left) and Lily (Mrs. Steven S.) Schwarzschild, president of the club, presented him with a copy for the University. The cookbook sells for \$6.95 and may be purchased at the WU bookstore or at Paul's Books, 6691 Delmar. It may also be ordered by mail from the club at Box 111, WU, 63130. Add \$1 for postage and handling and enclose a check payable to the club.

TWO DRAWINGS by Barry R. Schactman, professor and associate dean of the School of Fine Arts at WU, are among 80 works of art by contemporary artists selected from some 1000 entries for inclusion in the annual Hassam Purchase Fund Exhibition in New York City. Schactman's drawings selected for this unusual honor are: "Dance of Death," charcoal, 1978, and "Holo-caust," ink, wash and charcoal, 1978. This show, from Nov. 21 to Dec. 30, will go on view at the American Academy and Institute of Arts and Letters. From this exhibition, the Academy-Institute will purchase paintings and drawings up to the amount of \$60,000 and present them to museums throughout the country.

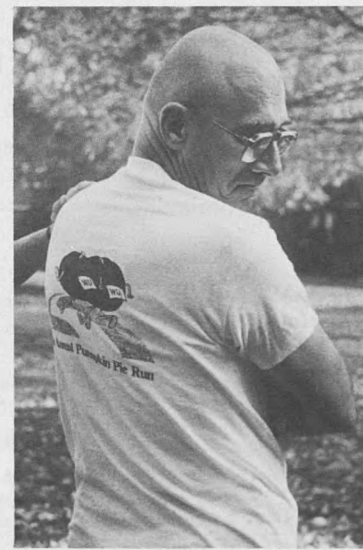
FACULTY MEMBERS, who have questions about the copyright law that went into effect last January, are invited to attend a meeting on Tues., Nov. 28, at 4 p.m. in Room 252, Olin Library. Charles Churchwell, dean of Library Services, and Peter Ruger, general counsel for the University, will be present to answer questions.

A LIMITED NUMBER of NATO advanced research fellowships will be offered for 1979-80 to candidates from member states. Deadline is January 5. For information, call Ext. 5958.

GIE (continued from page 1) tive and historical contexts.

The information and analysis generated by this study is intended for use by legislators, school administrators, teacher-organization leaders and others who are concerned with the judicial role in labor disputes and the development of policy mechanisms for their control.

Colton's grant award of \$160,185 will fund the study for 18 months. Assisting Colton with the study are Edith Graber, assistant professor of sociology, Susan Appleton, assistant professor of law, and Merton Bernstein, Walter D. Coles Professor of Law, all of WU.



Dean Richard Batt models a T-shirt made for the Pumpkin Pie Run at WU on Nov. 19. All participants will receive a T-shirt. (See Calendar for details.)

Calendar November 17-30

FRIDAY, NOVEMBER 17

10 a.m. Campus Y International Bazaar. 10 a.m.-8 p.m., Fri., Nov. 17, and 10 a.m.-1 p.m., Sat., Nov. 18. Women's Bldg. Lounge. Lunch will be served from 11 a.m.-1 p.m., Fri., Nov. 17, at the Campus Y, Umrath.

2 p.m. Department of Germanic Languages and Literatures Lecture, "Poeta doctus: The Renaissance of a Poetic Ideal in German Literature of the 20th Century," Wilfried Barner, prof. of German, Universitat Tubingen. 320 Ridgley.

2 p.m. Department of Technology and Human Affairs Seminar, "Policy Analysis: Some Strengths and Limitations of an Engineering Perspective," M. Granger Morgan, chairman, Department of Engineering and Public Policy, Carnegie-Mellon U. 100 Cupples II.

4 p.m. Division of Hematology Seminar, with Dr. John C. Hoak, U. of Iowa Medical School. 775 McDonnell Science Bldg., 4750 McKinley.

SATURDAY, NOVEMBER 18
9 a.m. School of Dental Medicine Course, "Clinical Genetics for the General Practitioner," Dr. Gerald H. Prescott, U. of Ore. School of Medicine. WU School of Dental Medicine, 4559 Scott. To register, call 454-0387.

SUNDAY, NOVEMBER 19
10 a.m. Annual Three-Mile Pumpkin Pie Run. Francis Field. Entry fee \$4.50. Registration deadline 5 p.m., Sat., Nov. 18. Race packets should be picked up from 10 a.m.-5 p.m., Sat., Nov. 18, in Room 100, S. Brookings Hall, WU, or from 8:30-9:30 a.m., Sun., Nov. 19, Francis Field. To register, call 889-6710. Open to all ages. Sponsored by the WU School of Continuing Education.

MONDAY, NOVEMBER 20
11 a.m. Department of Civil Engineering 125th Anniversary Seminar, "The Future of Tall Buildings," Lynn S. Beedle, Lehigh U., Bethlehem, Pa. 100 Cupples II.

12 noon. Biomedical Engineering Program Seminar, "Medical Information Systems," Richard A. Dammkoehler, WU assoc. prof. of computer science. 215 Cupples II.

4 p.m. Department of Biology Lecture, "Growth Control by Cell-Cell Interactions," Dr. Luis Glaser, WU prof. of biological chemistry. 322 Rebstock.

4 p.m. Department of Chemistry Seminar, "Fluorescence Studies of Carcinogens in Cells," Charles G. Wade, prof. of chemistry, U. Texas. 311 McMillen Lab.

4:30 p.m. Department of Mathematics Colloquium, "Measurement Error in Polynomial Regression," Fred Dorey, prof. of mathematics, U. of Calif., L.A. 199 Cupples I.

TUESDAY, NOVEMBER 21
4 p.m. Division of Evolutionary Biology and Ecology Lecture, "A Behavioral Basis for Rare Male Mating Advantage in *Drosophila*," Dr. Elliot Spiess, prof. of biological sciences, U. of Ill., Chicago. 322 Rebstock.

8 p.m. Department of Electrical Engineering Lecture, "Airborne Radar Technology for Present and Future Weapon Systems," Richard Brueggemann, staff engineer, McDonnell Aircraft Co. 100 Cupples II.

MONDAY, NOVEMBER 27
11 a.m. Department of Civil Engineering Seminar, "Time Integration Schemes for Second Order Equations of Motion," P. K. Basu, WU research associate. 100 Cupples II.

TUESDAY, NOVEMBER 28
2 p.m. Black Studies Seminar, "Characterizations of Black Women in American Literature," Marcela Howell, instr. in black studies. Black Studies Conf. Room, (349 McMillan).

8 p.m. Department of English Lecture, "As The Wind Sits: A Lecture on *King Lear*," Theodore Weiss, Visiting Hurst Prof. Women's Bldg. Lounge.

8:30 p.m. School of Architecture Slide Lecture, "Criteria in the Design Process and their Appraisal," Jean-Claude Steinegger, WU visiting prof. of architecture and practicing architect, Switzerland. Steinberg Auditorium.

WEDNESDAY, NOVEMBER 29
11 a.m. "Quest for Equality" Series, "Racial Preferences and Scarce Resources: Implications of the Bakke Case," The Honorable Erwin Griswold, former Solicitor General of the U.S. Graham.

4 p.m. Department of Physics Colloquium, "The g-Factor of the Electron," Ralph Z. Roskies, prof. of physics, U. of Pittsburgh. 201 Crow.

THURSDAY, NOVEMBER 30
11 a.m. Asian Art Society Slide

Lecture, "The T'ao-t'ieh, the Makara and the Ch'ih-wei; The Beginning, the Middle and the End: A Christmas Carol," Nelson Wu, Edward Mallinckrodt Distinguished University Professor of Art and Chinese, WU. Steinberg Aud.

4 p.m. Department of Chemistry Seminar, "New Methods of Fluorination Suitable for Use with Fluorine-18," Timothy J. Tewson, WU asst. prof. of radiation sciences in radiology. 311 McMillen Lab.

4 p.m. Department of Earth and Planetary Sciences Seminar, "Experimental Rock Deformation: Applications for the Crust," Jan Tullis, prof. of geological science, Brown U., Providence, RI. 104 Wilson.

7:30 p.m. W.E.B. DuBois Lecture Series, "The Black Family: Prospects for the Eighties," Andrew Billingsley, president, Morgan State University. Lambert Lounge (303 Mallinckrodt).

Music

FRIDAY, NOVEMBER 17
8 p.m. Department of Music Graduate Choral Conducting Recital, with Raymond Jones, conductor. Graham Chapel.

SATURDAY, NOVEMBER 18
8 p.m. Department of Music Faculty Voice Recital, with Irene Gubrud, soprano and WU artist-in-residence, and Edmund LeRoy, baritone and WU instructor-of voice. Graham.

SUNDAY, NOVEMBER 19
3 p.m. Galant Ensemble Concert, directed by Peter Chow. Works by Suppe, Mozart, Bizet and Sugiyama. Graham Chapel.

8 p.m. Department of Music Faculty Piano Recital, with Franco Agostini, WU artist-in-residence, soloist. Graham.

MONDAY, NOVEMBER 20
4 p.m. Department of Music Student Recital. Graham.

8 p.m. Woodwind Quartet Recital, with Soni Ventorum, an ensemble comprised of flute, clarinet, oboe, and bassoon. Women's Bldg. Lounge.

SUNDAY, NOVEMBER 26
8 p.m. Department of Music Lecture Recital, with Alan Lumsden, visiting artist-in-residence. Edison Theatre.

Exhibitions

"Evarts Graham, 1883-1957." WU School of Medicine, Library Annex, 615 S. Taylor. 8:30 a.m.-5 p.m., weekdays. Through Nov. 30.

"Washington University Annual Faculty Art Show." featuring works in all media. WU Gallery of Art, Steinberg Hall. 9 a.m.-5 p.m., Mon.-Fri.; 1-5 p.m. Sat., Sun. Nov. 19-Jan. 7.

"Sixteen Years of Collection Building: Notable Gifts and Purchases, 1962-1978." Olin Library, level five. 8:30 a.m.-5 p.m., weekdays. Through Dec.

"ACCA Draw the Figure," an exhibit of figure drawings by members of the Area Coordinating Council for the Arts. **"Ceramics by Students in the WU School of Fine Arts."** Bixby Gallery, Bixby Hall. 9 a.m.-5 p.m., weekdays. Through Nov. 20.

Performing Arts

FRIDAY, NOVEMBER 17
8 p.m. Edison Theatre Production, "Gilbert and Sullivan a la Carte," performing best-loved numbers from favorite operettas. Edison Theatre. Admission \$4.80; \$3.75 for WU faculty and staff and area students; \$2 for WU students. Tickets available at Edison Theatre Box Office. (Also Sat., Nov. 18, 8 p.m., Edison.)

Films

FRIDAY, NOVEMBER 17
8 and 9:30 p.m. WU Filmboard Series, "The Last Remake of Beau Geste." Brown. Admission \$1.50. (Also Sat., Nov. 18, same times, Brown; and Sun., Nov. 19, 8 p.m., Wohl Center.)

12 midnight. WU Filmboard Series, "A Shot in the Dark." Brown. Admission \$1. (Also Sat., Nov. 18, midnight, Brown.)

SATURDAY, NOVEMBER 18
8 p.m. Office of Student Activities American Cinema Series, "Love Crazy" and **"The Palm Beach Story."** Rebstock Aud. \$1.50.

MONDAY, NOVEMBER 20

7:30 and 9:30 p.m. WU Filmboard Series, "I Will I Will For Now." Brown. Admission \$1.50 (Also Tues., Nov. 21, same times, Brown.)

MONDAY, NOVEMBER 27
7:30 and 9:45 p.m. WU Filmboard Series, "Citizen Kane." Brown. \$1.50. (Also Tues., Nov. 28, same times, Brown.)

WEDNESDAY, NOVEMBER 29
5:30 p.m. WU Crafts Guild Film Series, five short films for children. Wohl Lounge.

7:30 and 9:30 p.m. WU Filmboard Series, "Spider's Stratagem." Brown. \$1.50. (Also Thurs., Nov. 30, same times, Brown.)