Almanac

Tuesday, October 9, 1984 | *Published by the University of Pennsylvania* | *Volume 31, Number 7*

Music's Night at Glinka's Opera *. . . page 8*

IN BRIEF

Animal Research: Dr. Thomas Gennarelli's paper on head-injury research using animal subjects appears on pages 6-7, with a brief update on controversy over videotaped records.

October 11 Big-Screen Debate: All members of the University are invited to watch the Bush-Ferraro debate in big-screen video at 17 Logan Hall Thursday night, with NOW's former president, Eleanor Smeal, giving an 8:30 p.m. introduction before the 9 p.m. telecast. Ms. Smeal will also lead audience discussion afterwards. Women's Studies sponsors the evening.

Swedish Prize to Dr. Janzen

Dr. Daniel H. Janzen, professor of biology, is the winner of the $100,000 1984 Crafoord Prize in ecology given by the Royal Swedish Academy of the Sciences. In a ceremony in Stockholm on Wednesday, he was praised for "his imaginative and stimulating studies on co-evolution," involving the mutual adaptations that plant and animal species undergo while becoming interdependent. Among contributions cited were studies on certain tropical acacias that harbor ant colonies in bulblike structures on their twigs.

Author of *Costa Rican Natural History*, Dr. Janzen conducts much of his research in the Santa Rosa National Park, in the tropical rain forests of Costa Rica, where he spends about six months of the year. The Crafoord Prize, regarded as a complement to the Nobel Prizes, was established in 1980 and is awarded in mathematics, astronomy and the geological and biological sciences on a rotating basis.

Veterinary Medicine: Centennial Convocation

International scholars and U.S. leaders in the development of veterinary medicine will receive honorary degrees in the October 15 University Convocation celebrating the Centennial of Penn's School of Veterinary Medicine.

Dean Robert Marshak and the faculty of the School will march in full regalia in the University Museum from the North American Gallery to the 3 p.m. ceremony in Harrison Auditorium, where nine degrees will be conferred.

Dr. Mark W. Allam, dean of the School of Veterinary Medicine from 1952 to 1973, and Dr. E. J. Lawson Soulsby of Cambridge University, who was professor of parisitology here from 1964 to 1978, are among the five scholars who will receive the Sc.D. Dr. Allam, an alumnus of the School, was assistant vice president for health affairs from 1973 to 1977. Dr. Soulsby, who chaired Penn's department of pathobiology from 1965 to 1978, is now head of the department of clinical veterinary medicine at Cambridge.

Joining them will be Dr. Rudolf Fankhouser of Bern, Switzerland, who is *professor ordinarius ad personam* of the neuropathology of domestic animals at the University of Bern (where he has also served as *rector magnificus* and dean of veterinary medicine); Dr. Ainsley Iggo of Edinburgh, professor and head of the veterinary physiology department of the University of Edinburgh's Royal (Dick) School of Veterinary Studies and former dean of the Royal School's Faculty of Veterinary Medicine; and Dr. Susumu Ohno, the Ben Horowitz Distinguished Scientist in Reproductive Genetics and the City of Hope Research Institute in Duarte, California.

Penn Trustee F. Eugene Dixon, Jr., will receive an Ll.D., along with School Overseers Roger A. Caras and Margaret McGrath Rockefeller, and former Overseer Theodora Ayer Randolph.

Mr. Dixon, who chairs the Governors of the State System of Higher Education in the Commonwealth of Pennsylvania is a life trustee of the Philadelphia Free Library and a farmer.

Mr. Caras the author of numerous books on animals, including *A Celebration of Dogs* (1981), is noted for his commentaries on ABC, CBS, and NBC-radio over the past 15 years and ABC-TV as a special correspondent and guest host of the Dick Cavett Show.

Mrs. Rockefeller is a farmer and founder of America Farmland Trust, an organization of farmers, environmentalists, and others dedicated to protecting America's farmlands from conversion to nonagricultural uses and soil erosion, and to the promotion of farming opportunities.

Mrs. Randolph, president of the Upperville (Virginia) Colt and Horse Show, was on the School's Board of Overseers from 1977 to 1981 and chaired the National Advisory Committee

(continued on page 2)

Death of CHOP's Dr. Yuhas

Dr. John M. Yuhas, professor of radiation biology in radiation therapy at the School of Medicine, died following a heart attack September 30 at the age of 44. Recognized internationally for his work in cancer research, he came to Penn in 1980 to pursue his research interests at Children's Hospital, where he had his laboratory, with grants from the American Cancer Society and other institutions totaling over $500,000.

A 1962 graduate of the University of Scranton, Dr. Yuhas took his graduate degrees, in 1964 and 1966, from the University of Maryland. Starting as an associate staff scientist at Jackson Laboratories in Bar Harbor, he soon accepted an academic appointment as associate professor at the University of Florida. In 1969, he joined the staff of the National Laboratories at Oak Ridge and went on to the University of New Mexico in 1976 as professor in radiology and division chief of radiobiology in the School of Medicine. A member of the editorial staffs of two publications, *Cancer Research* and *Radio-Sensitization Newsletter*, he has authored over 100 scientific articles.

Dr. Yuhas is survived by his wife, Mary Ellen; two daughters, Katherine M. and Elizabeth S.; his mother, Sophie Gemza Yuhas; and two sisters. He recently expressed the wish that contributions be made to Children's Hospital in the event of his death.

INSIDE

SENATE

From the Chair

On Being Represented

The first high school civics class always began with a test to determine if you knew who were your representatives in the city, state and federal legislatures. The persistent widespread ignorance of those facts or indifference to them still dogs the American experiment in democratic government. At the University, the degree to which the Faculty Senate functions as a truly democratic or representative body is limited first by the degree to which the faculty informs itself on the issues and on the machinery of governance. Do you know your representative at the Senate Executive Committee? She or he meets once a month with the other representatives, deliberates and votes on matters of vital interest to the faculty. The constituency and at-large members of the SEC can be a valuable two-way communication link between you and the Senate leadership and the administration. If you spend your lunch hour wondering with your colleagues about events or grumbling about them, then unless ignorance and discontent have become perverse entertainments, you would do better to get hold of your SEC representative or anyone else on SEC and express your thoughts or questions to her or him. We listen.

At its October 3rd meeting, the Senate Executive Committee recommended approval of the creation of two Practice Professorships in the Law School which positions will be in the Associated Faculty and which will be eligible for renewable 5-year appointments. Senior Vice President, Helen O'Bannon, met with the Committee and outlined her reorganization and her objectives for the coming year. She also introduced Vice President for Finance, Dr. Marna Whittington, who was on campus for the day. The October 10th University Council meeting will deal with two matters which regrettably are of great significance, the Alcohol Use Policy and the Task Force Report on Conduct and Misconduct. Your views on these matters will be appreciated.

Jacob Abel

Veterinary Medicine

(continued from page 1)

of the C. Mahlon Kline Orthopedic and Rehabilitation Center at New Bolton Center, 1973-77.

The Convocation comes on the first day of the School's Centennial Scientific Conference where some 27 clinical and basic scientists will give invited papers. Some 600 faculty, students and visiting scientists are expected to attend.

On Representation

In his column at left, the Senate chair discusses faculty representation in Senate Executive Committee and University Council. Each year at midfall the Office of the Secretary of the University furnishes a complete list of *all* members of Council and of Council and University committees; this is made into a self-contained *Almanac* supplement that includes SEC and Senate committees as well. The supplement is expected in a few weeks, after the few remaining vacancies have been filled. In the meantime, members of the University may request names of representatives at the Senate Office, Ext. 6943 (faculty); or at the Office of the Secretary, Ext. 7005 (faculty, staff, administration, undergraduate and graduate students). —*Ed.*

Speaking Out

Aftermath: Thanks and Correction

I would like to thank the *Almanac* staff for their sensitive coverage [9/4/84] of our August 14, 1984, incident. The University of Pennsylvania Public Safety Department and Faculty/Staff Assistance Program were both very helpful to us during this crisis.

Since the information for your article was garnered from the news media and since there was a tremendous amount of confusion in the press as the story unfolded, your article contains certain inaccuracies which I would like to correct.

While Dr. Peter Brill and I hold clinical faculty appointments in the Department of Psychiatry, the Center for the Study of Adult Development is not currently affiliated with the University of Pennsylvania. Our past affiliation with the Department of Psychiatry, however, has meant the continuation of our institution on a number of University lists: hence the confusion.

I would also like to point out that Dr. Peter Brill is the Director of the Center for the Study of Adult Development, not I.

In responding so quickly to our distress, University offices went beyond their required duty and I feel they should be commended for acting without question. Our other friends and associates within the University, both faculty and staff, have also offered a multitude of expressions of caring and support. For all of this we are very thankful.

—James B. Congdon, M.D.
Director of Clinical Services
Center for the Study
of Adult Development

Irvine: Valuable Landmark

The University administration's proposal of converting Irvine Auditorium into a concert hall complex is not a renovation at all, but the destruction of one of Philadelphia's most cherished landmarks. Although I am sympathetic to the Music Department's needs, the Irvine proposal is not a solution to their problem, nor of how to save the building.

That the University administration could have allowed Irvine Auditorium to fall to its presently dilapidated state is deplorable. The building is the only facility on campus suitable for large capacity events. Various student groups have proven that Irvine could accommodate economically profitable events, such as concerts and films, in spite of outdated facilities. If the facilities were improved, more income-producing events could be attracted to campus. The use of a sports arena to hold major ceremonies and prestigious all-University lectures may be appropriate for a high school, but not for an institution as esteemed as the University. And where else could such events be held?

Irvine Auditorium is a valuable architectural landmark. Not only is its exterior worthy of preservation (as the current proposal favors), but its interior is as well. Of relevance to the interior is the fate of the Curtis Organ, which must be saved. The organ is representative of many similar concert organs built during the early part of this century. Through the decades, most instruments of this type have disappeared, either because of severe disrepair or renovations to the buildings they were in. This instrument is only one of a few such organs that have survived intact. Besides being an aesthetic monument reflecting past musical tastes, it is also a technological marvel. The University administration should exploit its usefulness rather than feel stuck with it. Despite any lack of significant funding by the administration toward restoring the Curtis Organ, interested students, alumni, and other individuals and organizations have successfully managed to carry out this difficult task; the organ is now almost fully restored to its original tonal and functional state.

A modification of the Curtis Organ, as you suggest, is synonymous with destroying it; its character would be lost upon scaling it down in size to fit into a smaller environment. To "give it away" would lead to a cost so prohibitive for a proper removal that the administration would, in the end, just "throw it away." This could make the University look quite bad, now that thousands of dollars in private donations, not to mention thousands of hours in volunteer effort, have gone into restoring the instrument.

As for the Music Department, why not finally make use of the lot at 34th and Walnut Streets? Or perhaps a new structure could be integrated with one of the parking lots. I have heard that the University owns the property containing the former seminary at 42nd and Spruce Sts. (and I stand corrected if wrong). Its chapel is a potentially excellent concert hall, and additional space could probably be found in the other buildings on the property as well.

Given the money and time, numerous possibilities could meet the Music Department's needs. Once Irvine Auditorium and the Curtis Organ are destroyed, nothing can replace them.

—Benjamin Epstein, CEAS-Gr. 82

Dr. Epstein, a member of the Microwave Technology Center at RCA Laboratories in Princeton, N.J., was active in Curtis Organ restoration.

SPEAKING OUT welcomes the contributions of readers. Almanac's *normal Tuesday deadlines for unsolicited material is extended to THURSDAY noon for short, timely letters on University issues. Advance notice of intent to submit is always appreciated.—Ed.*

Annual Report of the Steering Committee, 1983-84

This is the fifth annual report of the Steering Committee of the University Council, prepared in accordance with a requirement in the bylaws that: "The Steering Committee shall publish an annual report to the University community. This report, to be published early in the academic year, shall include a review of the previous year's Council deliberations (highlighting both significant discussions and the formal votes taken on matters of substance) and a survey of major issues to be taken up by Council during the coming year."

October Meeting

Vice Provost Bishop commented on the conference on conduct and misconduct that was held during the summer and the subsequent appointment of a task force to develop guidelines toward the avoidance of future incidents of harassment and misconduct and toward the creation of an atmosphere of trust and mutual respect at the University. After discussing possible means to strengthen student-faculty interaction, the Council adopted a resolution asking the Student Affairs Committee to report on the state of student-faculty relations across the University. The director of Career Planning and Placement discussed with the Council the report of the Student Career Development Task Force.

November 9 Meeting

Vice Provost Cooperman reviewed the goals to be set forth in the report of the Academic Computing Committee. Professor Robert Zemsky explained the origins and basic design of the Penn Plan for family-based financial aid. After discussing a proposal to change the wording of "The Red and Blue" to remove references to Harvard and Yale, the Council adopted a resolution recommending that the present wording be retained. The Council did not support a request by the Undergraduate Assembly (UA) that a task force be created to examine the structure of the Council, but it was receptive to an additional request by the UA that consideration be given to amending the bylaws to allow business to be placed on the agenda by petition (in addition to the existing routes through the Steering Committee or under new business at the end of a meeting).

November 30 Meeting

Proposed amendments to place issues on the agenda by written petition were discussed and carried over to the next meeting. Dr. Paul Zingg, chair of the Committee on Recreation and Intercollegiate Athletics, reported on the status of the five sports that were demoted from varsities to clubs in the spring of 1982. The report indicated that total student participation in the five clubs is about the same as in their last year as varsities and that all have active schedules of intercollegiate competition.

February Meeting

The January meeting was cancelled because of snow. In February, the Council was apprised of the opinion and decision rendered by Professor Leo Levin, the special hearing officer in the Alpha Tau Omega case. The first in a series of discussions was conducted on the major issues arising from the recommendations for revision of the student judicial system by the President's Commission on Judicial Procedures, the administration, and the UA. A sense was reached that faculty participation in the hearing panels would be desirable, with some preference expressed for a composition of two faculty members and three students. There was an initial discussion of the two-day break proposed by the Student Committee on Undergraduate Education (SCUE) to relieve student stress in the fall term. The proposed amendments to place matters on the agenda by petition failed to be adopted. The report of the Goal Team on the Freshman Year was discussed and favorably received.

March Meeting

A resolution recommending that a two-day break in the fall term be tried on an experimental basis in 1984-85 and its effect evaluated was adopted. In the second discussion of revision of the student judicial system, a sense developed that the person who presides over hearings should be a qualified judicial administrator who could be a faculty member and would have access to a faculty advisory committee, that advisors should come from the University community and may be attorneys, and that one system of procedures should apply to all cases.

April Meeting

In the third discussion of the major issues involved in revision of the student judicial system, a sense was reached that the option of a hearing by the vice provost for university life should be available if agreed to by both the respondent and complainant, that appeals should be handled by a review officer, that the dean of the respondent's school should be notified of a hearing and should have access to records, and that hearings should be open if agreed to by both the respondent and complainant. Provost Ehrlich made a progress report for the Faculty Council on Undergraduate Education, indicating that its mandates, drawn from "Choosing Penn's Future," are the involvement of faculty members in all schools in undergraduate education and the designing of a common academic experience to be shared by undergraduates across the University.

May Meeting

A draft of revised student judicial procedures, developed from discussions in the previous three meetings, was considered. Amendments to some sections were offered and acted upon, but there was insufficient time for full coverage of the document. President Hackney invited members to send written suggestions on the procedures to him so that they might be reflected in a new draft. Because of time constraints, the report by the Committee on Communications on *Almanac* and *Penn Paper* was only treated briefly. The president commented that, in seeking to improve communications, it had never been his intention to change or limit *Almanac* and that the report lent support to that position. The Council adopted a resolution that endorsed the report and urged that *Almanac* "be allocated the additional resources necessary to meet the goals outlined in the committee's report." Members were elected to the 1984-85 Steering Committee.

1984-85 Council Agenda

Issues which are seen by the Steering Committee as likely agenda items for this academic year are the work of the Task Force on Conduct and Misconduct, alcohol use policy, new student judicial procedures, student liaisons on Trustee committees, and evaluation of the fall break.

Summary of Resolutions and Recommendations And Administrative Actions Taken on Them, 1983-84

I. Recommendations not completely resolved by last year's first fall meeting of Council: None

II. Recommendations from the 1983-84 Academic Year

Student-Faculty Interaction (October 12, 1983): Council adopted a resolution asking the Student Affairs Committee to report on the state of student-faculty relations across the University.

Action: No administrative action required.

The Red and Blue (November 9, 1983): After discussing a proposal to change the wording of "The Red and Blue" to remove references to Harvard and Yale, Council adopted a resolution recommending that the present wording be retained.

Action: No administrative action required.

Fall Break (March 21, 1984): Council adopted a resolution recommending that a two-day break in the fall term be tried on an experimental basis in 1984-85.

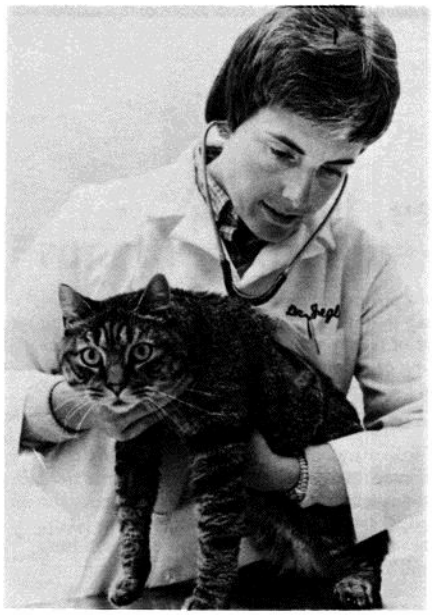
Action: The 1984-85 academic calendar was adjusted accordingly.

Student Judicial Procedures (May 2, 1984): After discussing over three sessions the major issues involved in recommendations which had been made for revision of the student judicial system, Council considered a draft of revised procedures and acted upon amendments to some sections; there was insufficient time for treatment of the full document.

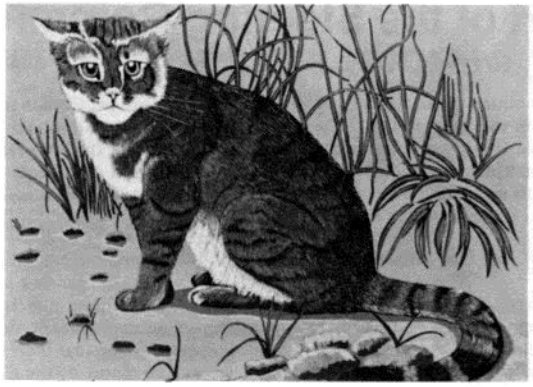
Action: The revised procedures were redrafted and placed in effect by publication in the 9/4/84 *Almanac;* Council will be asked to review the efficacy of the procedures in April or May of 1985.

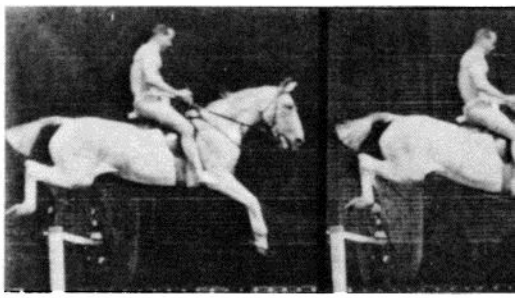
Communications (May 2, 1984): Council endorsed a report on *Almanac* and *Penn Paper* by the Committee on Communications and urged that *Almanac* "be allocated the additional resources necessary to meet the goals outlined in the committee's report."

Action: *Almanac* continued in its present form and *Penn Paper* made a biweekly newspaper.



Tabby is tame in the arms of Dr. Ann Jeglum, who checks her heartbeat at the Small Animal Clinic. In the acrylic painting done by Stephen Oliver for the Museum show, the domestic shorthair's probable ancestor is Felis sylvestris libyca*—the African wild cat.*

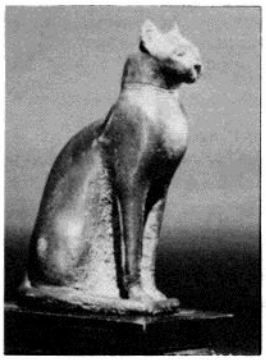




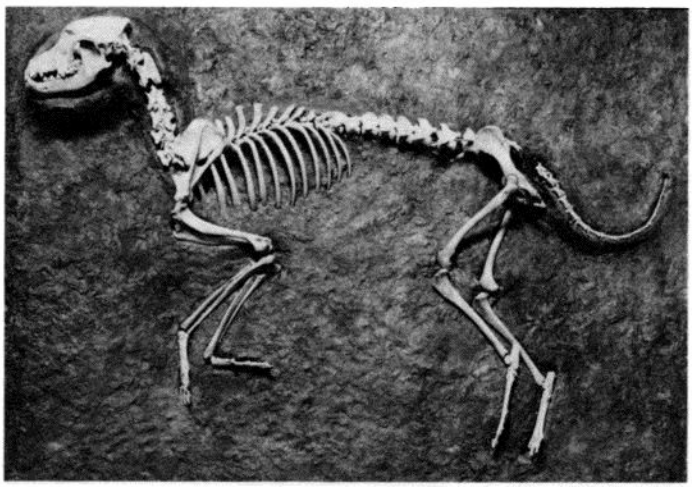
Man and Animals: Living

As the University Museum's tribute to the School of Veterinary Medicine opened in Pepper Gallery last week, Museum Director Robert H. Dyson, Jr., called the exhibition a centerpiece for year-long celebrations to come. The School marks its hundredth birthday this year, and the Museum takes that occasion to trace the emergence of four domestic animals—the cat, the dog, the cow and the horse—in the art, religion and survival of ancient cultures. It was a team effort, co-directed by Dr. Dyson and Dean Marshak, and calling on the knowledge of present-day anatomy and genetics specialists as well as the curatorial skills of Museum staff who turned up pottery, figurines, sculptures, drawings, and even the skeletons and mummies of the four domestic animals. "The exhibition has proved to be an extremely interesting venture for our two institutions," said Dr. Dyson. "We have a common ground in the history of domesticated animals and the nature of biological change. Our approaches, however, are quite different, and this has given a special opportunity for learning to those who have been deeply involved in the creation of the exhibition."

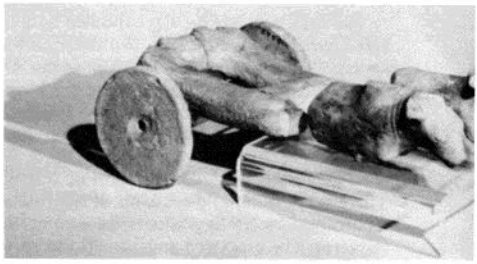
Among the many events the Museum will stage in connection with the exhibition are family films in its Saturday series—including *Born Free* October 27 at 10:30 a.m. as part of a Halloween weekend where moviegoers are invited to come in animal masks and costumes—and/or visit the face-painting demonstration in Kress Gallery and "become an instant animal" after a Gallery Tour on *Animal Spirits* at



An Egyptian bronze from the latter half of the first milleneum B.C. shows the domestic cat with a beaded collar, probably indicating a votive image to Bastet, the cat-goddess. Bastet, also in bronze, holds a sistrum, representative of her association with music, dance and relaxation.

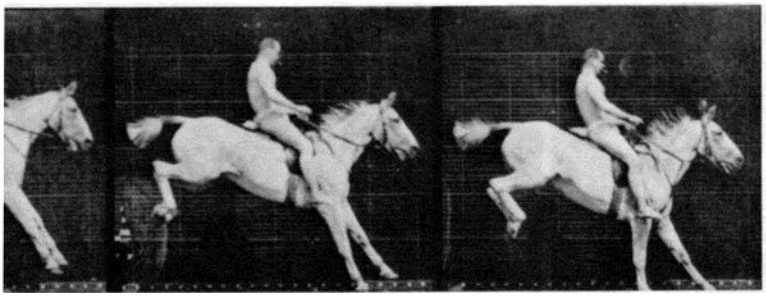


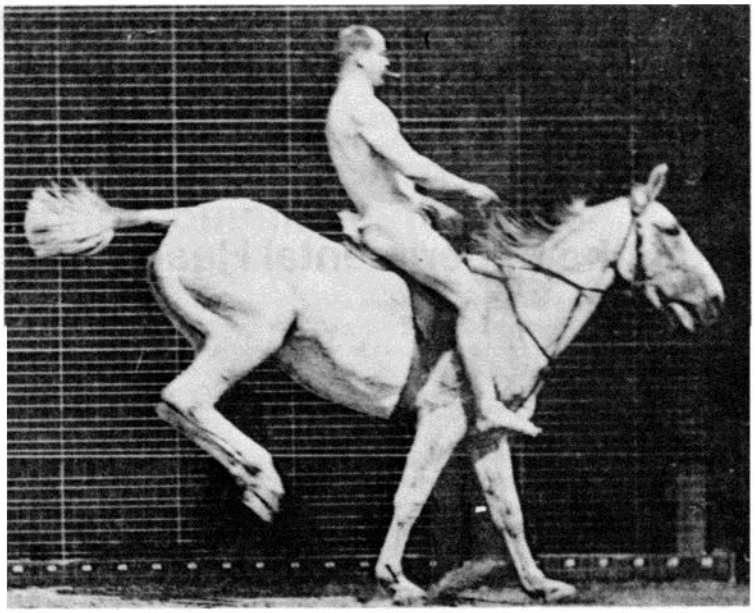
At Hasanlu (Iran) in a grave site ca. 1450-1150 B.C., the dog skeleton found on the same level of excavation as a human one is taken as evidence of dogs' value to people in the Iron Age. In addition to this skeleton from antiquity, the Museum shows varied breeds in the collection of Dr. Charles R. Stockard. Indian drawings and Eskimo carvings (not shown) depict the dog performing a variety of tasks, including heavy haulage.



The legendary Paris who ran away with Helen and started the Trojan War was a king's son who grew up among herdsmen and became a shepherd. On this red-figure jug from the 4th Century B.C., his attentive sheep dog is by his side.

In Ur, ca. 2100 B.C., a dog walked across a clay brick before it had dried in the sun, leaving footprints alongside the inscription recording that "Ur-Nammu, the king of Ur, has built his temple for Nanna, his Lord . . ."





Dr. Huidekoper

Working and Changing Together

12:30 or 1:15. Sunday the tour is repeated at 1:15, and face-painting continues 1:30-3:30, while a 2 p.m. animal cartoon festival invites the audience to cheer the hero and boo the villain. A major event this fall will be the American Kennel Club's own 100th anniversary celebration November 9, concentrating on the dog in art, artifacts and literature in the 17th to 20th centuries, in cooperation with New York's Dog Museum of America. Later in November, the behavior of people and their pets emerges as a symposium, and in December there will be an animal carving workshop.

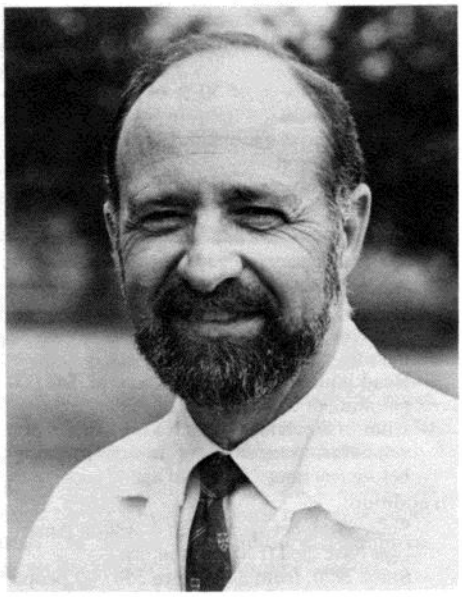
Among those contributing to the year's preparation and mounting of *Man and Animals* were, from the School of Veterinary Medicine, Drs. Donald F. Patterson, chief of medical genetics; Dr. Peter Dodson of anatomy, and Dr. John E. Martin, special assistant to the dean and an expert in the history of the School. From the Museum contributors included Associate Director Gregory Possehl, Dr. David O'Connor of the Egyptian Section, Maude de Schauensee and Mary Voight of the Near Eastern Section, and Pamela Hearne of the American Section; Dr. Pamela Crabtree of MASCA, specializing in plant and animal analysis; Virginia Greene and associate Christine Del Re, in restoration and conservation; Exhibits Designer John T. Murray and assistants George Bucher and Stephen Oliver; and graphics/publications contributors Barbara Murray, Martha Phillips, Jennifer Quick, and Raymond Rorke.

Ceramic figurines from Chanhu daro (Pakistan) ca. 2250 B.C. are on loan from the Boston Museum of Fine Arts. A photograph by George Dales shows zebus outfitted for oxcart races in Mohenjo Daro in present-day Pakistan.

When the University's School of Veterinary Medicine opened its doors October 2, 1884, its home was a $16,900 building at 36th and Pine, furnished for $350. It has 13 faculty members, an entering class of 29, and a daring dean who stripped to a loin cloth to take his hunter, Pandora, through her paces for photographer Eadweard Muybridge, whose famed motion studies (forerunners of the motion picture) were being conducted in a wooden shack where Maloney now stands. A lot happened over the next hundred years—much of it very recent. Even in 1932, the annual budget was only $100,000, and research was funded at $500. Until 1952, the entire school was in one building. There are now two campuses, the urban one in Philadelphia with three contiguous buildings—one of them the 1981 Small Animal Hospital, built for $17 million—and the rural campus at New Bolton Center with more than seventy buildings on 1000 acres.

Nor do recent deans much emulate Founder Rush Shippen Huidekoper in startling the camera's eye. Emeritus Dean Mark W. Allam—one of the nine honorary degree recipients in the October 15 convocation—always dressed to the nines when taking guests for rides at New Bolton in the Center's famous collection of antique carriages; and today's Dean Robert Marshak tends toward the lab coat as he pursues his work in bovine leukemia and leads a School whose 1984 vital statistics include a faculty of 200, 109 students, research at $7 million and an annual operating budget of nearly $30 million.

Dr. Allam and Mrs. Allam



Dr. Marshak

Discussion

From the Experimental Head Injury Laboratory *by Thomas Gennarelli*

The Experimental Head Injury Laboratory at the University of Pennsylvania has been conducting research into the nature of serious, often fatal, brain injury. Although the research is done in a number of ways, including the use of computer and mechanical brain models, it has been necessary to conduct experiments on primates. What follows is an explanation and description of that research, including answers to the most frequently asked questions about it.

Why were the experiments performed?

The primate experiments were performed to develop a better understanding of the complex problems that are associated with brain injury. This is necessary because brain injuries are a major health problem in the United States today. The problem of head injuries is widespread and involves injuries caused by automobile accidents and falls.

Statistics obtained from the National Safety Council and other sources are given below and demonstrate the magnitude and seriousness of head injuries in the United States today.

Each year in the United States:

—There are more than 1.9 million people with head injuries
—400,000 people are hospitalized because of head injuries
—40,000 to 60,000 people die from head injuries
—Head injuries account for 1 to 2% of all deaths
—Head injuries are the leading cause of epilepsy
—1/4 to 1/3 of all trauma deaths are from head injuries
—Head injuries cause 50 to 60% of vehicular trauma deaths
—Head injuries require 3.5 million days of hospitalization
—35,500 man-years of work are lost because of head injuries
—Head injuries cost $25,000,000,000

Stated another way:

—A head injury occurs every 16 seconds in the United States
—Someone dies of a head injury every 12 minutes
—Head injuries cost $800 per second, $48,000 per min., or $2,880,000 per hour
—1 out of 80 children born today will die of a vehicular induced head injury, probably before reaching 25 years of age

In addition:

—Since 1900, between 2 and 4 million Americans have died from head injuries
—Since 1970, from 350,000 to 550,000 people have died from head injuries
—In comparison, Americans have suffered 653,000 battle deaths in *all* the wars that we have fought
—Trauma is the leading cause of death from age 1 to age 45 and in children, it causes more deaths than all diseases combined
—The leading causes of death in 1900 have now been reduced by 99% while the death rate from vehicular injury has *increased* by 7 times

Trauma and head injuries are therefore extremely important unsolved medical problems in the United States. They are the fourth leading cause of death, but because they affect so many young people, they are the most important cause of loss to the American society, in terms of dollar cost, loss of productivitiy, and loss of the potential of our youth.

Methods to solve the problems of brain injuries

Because the problem of brain injuries is so large, because the brain is so complex, and because there are many different kinds of brain injuries, the solutions to the problem of head injuries are very complex. No single method will achieve all of the answers necessary for solving the problems. In general, two major efforts are necessary: we must 1) prevent head injuries from occurring and 2) improve the treatment of head injuries after they occur.

Head Injury Prevention

To prevent head injuries, we must first know the various types of injuries and then concentrate on the ones that cause death and disability. An understanding of what causes each of the important injuries is required, and this means that we must define the dose of trauma and the mechanism of injury for each of the many types of head injuries. Then, once the mechanism of the injury is known, steps can be taken to prevent that injury. It is this piece of the puzzle that cannot be fully answered by studying humans. From human patients we can determine the general types of events that cause brain injuries such as falls and car crashes. However, it is impossible to get the specific detail that is necessary to prevent them.

One of the purposes of primate head injury research is to define the specific types of injury forces that cause the different kinds of head injuries and to determine the amount of trauma necessary to cause injury. Then, it will be possible to prevent the trauma from reaching the person or to reduce the dose of trauma that reaches the person so that it is within tolerable levels.

Improving Head Injury Treatment

The treatment of head injuries has been a subject of interest to neurosurgeons for many many years and has evolved to a highly specialized science. Advances in diagnosis, surgical techniques, and treatment have allowed many patients to survive who otherwise would have died. Because there are still approximately 50,000 people who die from head injuries each year, more advances are necessary to improve treatment further. Some of these advances will include better emergency medical systems so that diagnosis and treatment can begin as rapidly as possible. However, this is not the total answer. New treatments must be developed, and the treatments must be both safe and effective.

Some treatments can be tried directly on human patients, but because of the complexity of the brain and the brain's reaction to injury, it often cannot be determined whether a treatment is working or not. Furthermore, what may appear to work in one patient may be totally ineffective in another patient. Finally, some treatments cannot be used first on humans because they may cause more problems than they cure.

For these reasons, models of head injuries are necessary. The models must involve a brain that is similar to the brain of a human and the brain must be injured. Since primates are man's closest animal relatives, the primate brain is closest to the human brain in its structure and function.

To summarize, the animal experiments at the Experimental Head Injury Laboratory are performed to further the scientific understanding of brain injuries, a serious health problem in the United States. The experiments are necessary because certain types of information cannot be obtained from human beings and primates are utilized because their brain structure is closest to that of man. The purpose of the experiments is to determine the specific mechanisms of injury and to determine the amount of trauma necessary to cause injury; these factors relate to the prevention of head injuries in humans. Other aspects of the experiments involve developing better treatments. For this, a living brain, as close to the human brain as possible, is necessary. This allows the brain to be studied in ways that cannot be used in human patients and allows treatment trials to be made to determine the effectiveness and safety of new treatments.

How were the experiments performed?

There are two basic ways that the brain is injured after trauma. The brain can be injured as a direct result of something striking the head or the brain can be injured by the manner in which the head moves during the injury. The first mechanism is called contact injury and results in one group of head injuries such as skull fracture and bruises. An entirely different type of brain injury is caused by the second injury mechanism, namely the way the head moves during injury. This category of injuries is called acceleration-deceleration injuries and consists of such injuries as cerebral concussion, subdural hematoma, and prolonged traumatic coma. It has been established that the last two head injuries are the most important causes of death and disability, and consequently, these have been the focus of our experimental head injury investigations. However, cerebral concussion, although it causes few deaths, is an important cause of loss of work and disability since more than 2 million people a year suffer post-concussion symptoms.

Since the injuries of greatest interest (concussion, subdural hematoma and prolonged coma) are all caused by acceleration and not by something striking the head, the experimental conditions used in this laboratory have been developed to avoid any objects striking the head. There is no hammer-like effect that strikes the head; rather, the head is moved rapidly in a very precise manner and amount so that acceleration and deceleration forces are applied without impact.

In order to accomplish this very specific type of injury mechanism, the injury-producing system has evolved considerably over the past several years. The following represents a capsule of our *current* process.

Animals are purchased from a conventional primate supply facility, Primate Imports, Inc. They are shipped to the University, where they are examined and quarantined and cared for by the veterinary staff of the Division of Laboratory Animal Medicine headed by Dr. Moshe Shalev. On the day of the experiment the animals are anesthetized with a general anesthetic agent, sernalyn. This anesthetic is called a dissociative anesthetic because it renders the animals incapable of feeling pain but does not render them comatose as other anesthetics do. This is necessary so that observations of the neurological state of the animal can be made even though the animal is anesthetized. Thus the animals will be able to move their arms and legs and will have their eyes open and look as if they are dazed. They are, however, unable to feel pain.

A breathing tube is placed in the animal's trachea to assure adequate respiration and ventilation. The animal is then temporarily rendered comatose by deep anesthesia with nitrous oxide so that it does not move when placed into the injury apparatus. This very deep anesthesia prevents movements as the head of the animal is coupled to the head accelerating device with a plaster-of-paris-like material. Early in the experiments, the skin would stick to the plaster of paris and had to be separated from it by chipping the plaster of paris away with a hammer and chisel. While this procedure caused no harm to the animal, new methods have been developed in the past year to prevent the head from sticking to the plaster of paris.

After the plaster of paris solidifies, the injury machine is programmed to deliver a specific dose of trauma, and the head is placed within the machine so that it moves in exactly the path that is desired. The machine is designed to limit the head motion to approximately three inches and does not cause any neck injuries. In all of the experiments performed, including those that go back more than ten years, no neck injury has ever occurred.

The injury itself is caused by moving the head very rapidly, in approximately 1/100th of a second. The head is moved without striking or impacting it. This is done in a manner that is most like grabbing the head with both hands and rapidly thrusting it three inches. There, nothing strikes the head, but the head nonetheless is moved quite rapidly. This maneuver causes instantaneous coma, a condition where no pain can be felt, and thus even if no anesthesia were used, the animal would be incapable of feeling pain.

These experimental procedures, their scientific merit and the manner of animal care have been reviewed and monitored repeatedly by scientists within and outside of the University. Reviewers have found that the experiments are appropriately performed, humane, and of great scientific and medical importance. The National Institute of Health (NINCDS) has therefore funded this work as the only laboratory in the country to study acceleration head injury in the primate.

Most of our current experiments involve studies that terminate the animal shortly after injury, while it is still comatose and incapable of responding to pain. The animals are terminated by re-anesthetizing them into a deep level of anesthesia, even though they are incapable of feeling pain while comatose, and then giving them medications which stop the heart beat suddenly.

Update: The Videotapes

Last Tuesday in the Philadelphia *Inquirer*, coverage of Provost Thomas Ehrlich's public challenge to PETA (People for the Humane Treatment of Animals) to turn over 60 hours of videotaped research records was carried alongside reports that the group would furnish copies to the federal government for review. But NIH gave no indications by week's end of the receipt of tapes.

Also on Tuesday, PETA held its press conference at the Hilton, showing some 25 minutes of footage from the tapes stolen in a Memorial day raid on the Penn head-injury research lab, for which the Animal Liberation Front (ALF) claims responsibility. Afterward, PETA's chair Alex Pacheco and seven others were served with subpoenas and were scheduled to appear Wednesday before a Philadelphia grand jury investigating both the May break-in at Medicine and a July burglary at the Vet School. The hearing has reportedly been postponed to October 17.

In some experiments it is necessary to keep animals alive for several hours or days. These animals are cared for in exactly the manner as our human head-injured patients. An animal intensive care unit has been developed specifically for this purpose and is staffed by a team of personnel representing the following medical specialities: neurosurgery, anesthesiology, critical care nursing, physical medicine and rehabilitation, physical therapy, and nutrition. That the animals can survive while comatose for prolonged periods of time is a tribute to the dedication of this team and to the high quality care delivered to the animals. This staff is highly dedicated to this project, to the care of these animals and to their humane treatment. Statements, taken out of context, may sometimes make it appear otherwise, but *careful* review of the past year will demonstrate that the current members of the team conduct themselves in the most serious professional manner possible. That any necessary operating procedures have been performed in a sanitary fashion is noted by the absence of any surgical infections in the animals.

Why use animals at all?

Some animal rights protagonists have argued that these and other similar experiments are absolutely unnecessary since all information could be obtained from humans. This proposition reflects a scientific naivete. Head injuries have been around for a long time and the solution to them has been sought for many centuries. Although some information can be gained from studying humans, both from brain injured patients and autopsies, there is much information that cannot be gained from these types of studies. For example, it is vital to be able to observe the exact cause of an injury and the subject's condition immediately afterwards. Even if researchers accompanied ambulances to crash scenes, they would still be too late to gather this kind of information.

The Head Injury Center at the University of Pennsylvania is actively involved in other investigative work in trying to solve the problem of head injuries. Clearly neither human studies nor animal studies can provide the total solution to this very comlex problem. We have therefore undertaken other types of models of head injury using gelatin models of the brain and other species of animals including frog, squid, crayfish, and rat. We employ mathematical and computer models of the brain injury situation as well. A portion of this non-primate work is funded by the National Highway Safety Traffic Administration.

Each of these activities plays a role in trying better to develop an understanding of how the brain is injured and how it can be treated after injury. No single piece of this complex puzzle, in itself, will provide us with all of the answers. It is only by using all of the facilities available and many models that we can hope to achieve our goal of reducing the tragedy of head injuries in this country.

Dr. Gennarelli is associate professor of neurosurgery and director of the Head Injury Research Laboratory.

A Night at the Opera

The night is Monday, October 29, and the opera is Glinka's 1836 *A Life for the Czar*—seldom heard in this country though it is the most frequently staged opera in Russia even today (under its post-Czarist title *Ivan Susanin*).

When Penn's Friends of Music go to the opera, they will start with a 6 p.m. dinner in the Hershey Hotel, where Russian emigré composer David Finko—formerly of the Leningrad Conservatory, now visiting lecturer here—will give an introduction to the historically-based opera known as the seminal work in Russian art music. They will walk to the nearby Academy of Music for the production by the inovative Opera Orchestra of New York, featuring the Finnish bass Martti Talvela, described by music's chair Dr. Thomas H. Connolly as the greatest bass living today.

The evening is a benefit—the ticket price is $75 for the dinner, talk, and a best-in-the-house seat at what is otherwise Chestnut Hill College's night at the Academy—but it is also being staged to invite new members to join the Friends of Music.

The Friends of Music of the University of Pennsylvania have long funded scholarships for needy students for private lessons, and helped purchase instruments and equipment. Now, Dr. Connolly said, the Friends are turning their attention to the building of a concert hall on campus. "However one feels about the Irvine proposal, all seem to recognize what a concert hall can mean to Penn, and the advantages of replacing the present wretched facilities we have for rehearsal and practice."

Tickets for the October 29 event can be ordered on credit cards (call Ext. 7544 for details) or by check to the Friends of Music, c/o Music Department, 201 S. 34th Street/D8. Those who join the Friends of Music at Life Friend level ($1000) attend without charge as the membership includes all special events and public functions in perpetuity; and those joining as Patron Friends ($300 a year) have two complimentary tickets to this and other special events, visiting artist series and department concerts. (Benefactors, at $150 receive tickets to visiting artist series and reserved seats at department concerts; Regular Friends at $50 have reserved seats at the latter series.)

The departmental series uses halls on or near campus for seven evening events this year, including the President's and Provost's Concert by the University Symphony Orchestra on November 16, and a *Messiah* sing-in November 20, where visitors can bring or buy a score and sight-read under William Parberry of the University Choir.

There are also eight dates set for spring, plus the periodic Saturday afternoon Gallery Concerts of the Collegium Musicum at the Museum. (Watch the *On Campus* pull-out calendars for details.)

Our Health—Who is Responsible?

A two-day colloquium sponsored by New Directions in Health Care, a group of graduate medical students, is scheduled for October 12-13 in the Bodek Lounge of Houston Hall. *Our Health—Who is Responsible?: A Conference on Ethics, Policy, and Humanism in Medicine* will bring together national medical experts to debate topics such as health care for the poor, health policy and planning, and patient autonomy.

Dr. Diane McGivern, associate dean of the School of Nursing, moderates Friday's panel discussion from 7-10 p.m., starting with a 6 p.m. buffet reception, on ethical aspects of health care planning. Saturday's discussion, moderated by Renee Fox, Annenberg professor of social sciences, starts soon after a light breakfast at 10:30 a.m. and continues until 1:30 p.m. with a review of patient autonomy and humanism. A film—on the overseas marketing of pharmaceuticals banned or restricted for use in countries where they are produced—will be shown that afternoon at 3 p.m., with discussion following.

Admission is free. For further information: 387-5238 or 472-5957.

Jobs: Foreign Markets

International and Foreign Language Jobs are surveyed in the October 15 Graduate Student Career Seminar open to all. Dr. Diane de Terra, consultant in international development and founding partner of CIG, Ltd. tells how to land international jobs and those in translation and interpretation. Sign-up is at Ext. 7530.

Update

OCTOBER ON CAMPUS

CONFERENCE

13 *The Islamic City: Foundation, Development, and Change:* Baghdad, Cairo, Isfahan, and Istanbul; with Professors Talat Halman, Renata Holod and Basim Musallam; 9 a.m.-5 p.m., University Museum. Registration/information: Ext. 6335 (Middle East Center, Delaware Valley Faculty Exchange).

FILM

10 *Manos A La Obra: The Story of Operation Bootstrap,* examines the economic history of Puerto Rico from the 1930's through the '80's; 7:30 p.m., International House; also *October 11* at 7:30 p.m. (Neighborhood Film Project of International House) Admission $3.

FITNESS/LEARNING

9 *Free Self-Defense Clinic;* limited enrollment; 7-9 p.m. *October 10 & 11,* 5:30-7:30 p.m. 2nd floor, Weightman Hall. Registration: Ext. 4481 or 6600 (Department of Public Safety).

MUSIC

12 *Penn Composer's Guild:* a concert of new music by its members, as well as music by Chinary Ung, a new composer on Penn's faculty, and John Cage, a contemporary composer, featuring a number of premiere performances, such as Christian Hertzog's *Clean Slate* and Melinda Wagner's *Tremor Cordis;* 8 p.m., Harold Prince Theatre, Annenberg Center (Music Department). Admission free.

TALKS

9 *Islamic Education;* Dr. Dan Wagner, Graduate School of Education; 1 p.m. Room 102, Williams Hall (Middle East Center Brown Bag Series).

10 *Critical Care Nursing Grand Rounds;* Linda P. Schoenberg, head nurse, coordinator, Cyclosporine Research Division of Organ Transplantation, University of Texas Medical School at Houston; noon-1 p.m., Grice Orthopedic Conference Room, Dulles , HUP (The Critical Care Department of Nursing).

Drama and the Battle of Sexes: Strindberg, Weininger, Witkiewicz; Lech Sokol, Polish Academy of Sciences; 4 p.m., West Lounge, 4th floor, Williams Hall (Theatre Arts, Department of Slavic Languages, and Program in Comparative Literature).

15 *Interaction of Alpha and Beta-Receptors in Insulin Release from the Pancreas;* Dr. Bruce D. Cherksey, New York University Medical Center; noon, Seminar Rooms 100-101, Mezzanine, Medical Laboratories Building (Department of Pharmacology).

The weekly update deadline for calendar entries is at noon on Tuesday, a week before the date of publication. The deadline for the November pullout calendar is Tuesday, October 16, at noon. The address is 3601 Locust Walk/C8 (second floor of the CA).

The United Way's new way of showing how far along the campus UW/Donor Option campaign has come (above) registers 55% as of October 8, with $104,254 in hand. "What doesn't show," said Coordinator Jim Robinson, "is that only 12% of the pledge cards have been returned. One thing we really want to see is that participation figure moving up; it's part of Penn's message of caring about those around us."

Almanac

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The University of Pennsylvania's journal of record and opinion is published Tuesdays during the academic year and as needed during summer and holiday breaks. Guidelines for readers and contributors are available on request.

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