States will be most constructive when we learn that other nations need our knowledge and skills, not our foods and food habits.

ROBERT S. HARRIS
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

NATIONAL ARCHEOLOGICAL RESOURCES

RESOLUTION CONCERNING THE CONSERVATION OF NATIONAL ARCHEOLOGICAL RESOURCES IN THE RIVER VALLEYS OF THE UNITED STATES

1. WHEREAS: There are now under consideration plans for the establishment of river valley authorities, comparable to the Tennessee Valley Authority, as well as other flood control and reclamation projects, in several if not all of the major drainage systems of the United States.

2. WHEREAS: Eighty per cent. of all archeological remains in the United States are concentrated in approximately 2 per cent. of its area—namely, the banks of its great rivers and tributary streams—due to the fact that early man, like his modern successors, lived, hunted, farmed, built his temples and buried his dead along these fertile river margins.

3. WHEREAS: It is obvious, therefore, that the damming and flooding of considerable stretches of these river systems would irretrievably cover or destroy vast and important archeological deposits in all such areas.

4. WHEREAS: These archeological remains consist of prehistoric settlements, temple or other mounds, burial places and human cultural deposits accumulated during many thousands of otherwise unrecorded years. Only by careful, scientific excavation can such archeological remains provide their widely ramifying and extremely important historical, scientific, economic and artistic contributions concerning the earliest settlements of man in America, the history of the development of basic American agriculture, the incidence and range of human pathology native to America, as well as a wealth of material specimens and facts to be derived from them. Such contributions are not only scientifically and artistically valuable, but also of perpetual interest and educational value to the present-day citizens of the United States.

5. WHEREAS: The potential scientific, educational and cultural value of the archeological record still buried in the river banks of the United States represents an important asset belonging to the entire nation. It is, moreover, an utterly unique American historical record and such parts of it as are destroyed unrecorded can *never* be replaced. Three hundred years of effort may re-create a burned forest but once a part of the human prehistoric record is flooded or carelessly dug up and thus destroyed, prior to scientific study, it is lost forever.

6. WHEREAS: In those areas where it is deemed advisable to create river valley authorities or similar projects involving flooding and concurrent alterations, it is quite possible to attain reasonably adequate conservation and utilization of archeological resources at a cost representing a very small fraction of the total expenditures involved in such operations.

7. *Therefore, be it resolved.*

That there should be incorporated in the organic law creating or perpetuating any and all river valley authorities or similar projects involving the flooding or alteration of areas including Federal lands, river, harbor and all other areas subject to Federal control, as well as areas including sections of more than one state, now, and in the future, explicit provisions for adequate conservation of archeological resources; and, further, that the term "adequate conservation of archeological resources" be defined in correct legal terminology to include all the following items (a–e):

(a) Archeologists selected for such employment must meet the Civil Service Commission's requirements for such positions and have the approval of the Bureau of American Ethnology, Smithsonian Institution.

(b) Prior to such alterations or flooding, such archeologists must be provided adequate facilities and time for the complete archeological mapping and test-pitting or sampling of the area concerned.

(c) Prior to such alterations or flooding, adequate time and facilities must be made available to the archeologists for the complete excavation of selected key sites in the area. If coordinated with the early plans this will not hold up schedules.

(d) Laboratory facilities must be made available for the processing and study, as well as the preservation in perpetuity, of the excavated archeological materials.

(e) Provisions must be made for adequate publication and dissemination of the scientific and historical results thus attained.

The Committee on the Basic Needs of American Archeology of the National Research Council
Signed WM. DUNCAN STRONG,
Chairman of the Committee

The Planning Committee of the Society for American Archaeology
Signed FREDERICK JOHNSON,
Chairman of the Committee

Committee for the Recovery of Archaeological Remains
Signed WILLIAM S. WEBB,
Chairman of the Committee

NON-PERMEABILITY OF THE LACTATING BOVINE MAMMARY GLAND TO PENICILLIN

AMONG other factors, the possibility of success in treating mastitis by the intravenous route obviously depends on the degree of permeability of the lactating

bovine mammary gland to the penicillin molecule in the blood stream. At least one attempt to treat chronic *S. agalactiae* mastitis by this route has been recorded as a failure.[1] The appearance of penicillin in various body fluids in man following intravenous injection has been reported, and in the bovine, a selective absorption of penicillin from the blood by an active mammary gland might conceivably remove the drug from the blood stream at a rate comparable to that of the kidney, necessitating more frequent doses to maintain a desired blood level. To test this hypothesis, the milk from a Jersey heifer, free of mastitis, was tested for penicillin activity following intravenous injections.

Penicillin Injections: In the first trial, 80,000 Oxford units of a calcium salt of penicillin in eight ml of 0.95 per cent. saline were introduced into the jugular vein. In a second trial, a total of 500,000 units were administered in two portions of 15 ml each about one minute apart. Prior to the injection the four quarters of the udder were milked out until only small intermittent streams were obtained.

Sampling: During the six-hour period following the injection the animal was milked for three to four minutes at intervals of a half-hour, and in the subsequent six-hour period at intervals of an hour. A final sample was obtained 24 hours after the injection. The samples were held at 4° C for less than two hours before portions were removed to the assay cups.

Testing: Preliminary observations indicated that the cup method of assay is adaptable to milk solutions of penicillin and that milk enhances the action of penicillin against the test organism, as measured by the zone size. This effect is probably attributable to the high buffer content of the milk. The cup method is of particular value in testing turbid and non-sterile solutions, and is reasonably critical to about 0.2 Oxford unit, a value within the range of accuracy required for the purpose of this study. The test organism employed was *S. aureus* H. Controls of buffered distilled water containing two units of penicillin gave satisfactory zones after 18 hours of incubation at 37° C.

Results: Penicillin activity was not observed in any of the milk samples obtained in the 24-hour period following the intravenous injection of 80,000 units in the first trial and 500,000 units in the second trial. The samples obtained during the first six-hour period in the second trial were pooled and the cream and skimmed milk tested separately for penicillin. No zones of inhibition were observed.

Our observations do not lend supporting evidence to the value of the intravenous method for the treatment of chronic bovine mastitis with penicillin, and indicate that the lactating bovine mammary gland does not serve as a major systemic exit for penicillin in the blood.

H. W. SEELEY, JR.
E. O. ANDERSON
W. N. PLASTRIDGE
PATRICIA PEARSON
STORRS AGRICULTURAL EXPERIMENT STATION, CONNECTICUT

[1] C. S. Bryan, R. E. Horwood and C. F. Huffman, *Veterinary Medicine*, 40: 87–89, 1945.

ROTATION OF ELECTROLYTE BETWEEN INSULATED POLES OF MAGNET

F. EHRENHAFT has described an experiment in which a drop of $FeCl_3$ rotates between the poles of a permanent magnet from which it is electrically and chemically insulated by a coat of Piceïn wax. I stated, at the meeting of the American Physical Society, on January 19, that I had seen this experiment and that the insulation did not break down under a potential difference of 220 volts. At that time, however, I had not been able to obtain the effect.

By reproducing exactly F. Ehrenhaft's experimental set-up, the rotations were obtained at the Sloane Physics Laboratory. The waxed pole faces were 1.5 mm apart. Light from a carbon arc was sharply focused on the center of the drop of $FeCl_3$ with the help of two lenses, the second of which was a microscope objective of focal length less than 2 cm. The drop was observed with a microscope. The insulation was checked electrically.

By observing the drop with the naked eye it was found that the motion was not a true rotation. The liquid moves both to the right and to the left, in a horizontal plane, and definite up and down motions also take place in the drop. The experiment was repeated with thin glass plates insulating the drop from contact with the metal of the pole pieces, and $CuSO_4$ and $CuNO_3$ were used, as well as $FeCl_3$. The same type of motion was observed in each case. When the magnet was turned upside down, thus changing the direction of the magnetic field, the motion was observed in the same direction. To test decisively the role of the magnetic field, the magnet was replaced by a replica constructed out of brass.[1] Drops of $FeCl_3$, $CuSO_4$, and $CuNO_3$ were found to "rotate" to the same extent as before, both between layers of Piceïn wax and between glass plates.

Further experiments with the Piceïn-covered permanent magnet showed that there was a very definite acceleration as the light beam was first put on. Progressively dimming the illumination considerably

[1] I am indebted to Professor Leigh Page for this suggestion.