responsible institutions that some control be exercized before its results are exhibited in international journals, and preferably before they are at all presented in print.

Although not directly belonging to the subject, it is hard to refrain from quoting a last oddity found in the bunch of papers referred to above. Harmless as it is, it is instructive by illustrating once more the surprising linguistic illiteracy which can be found in scientific papers. In a publication from Georgia, one finds a printed slip of paper with corrections, one of which reads: "p. 11: 'Vitality' should be 'virility.'" Looking up the page, it appears that no other organisms are mentioned than bacteria, which can not well be virile according to common ideas on the subject. Possibly "virility" was the author's version of "virulence," in his younger days.

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RECENT FIND OF MAMMOTH REMAINS IN THE QUATERNARY OF FLORIDA, TOGETHER WITH ARROW-HEAD

IN September, 1931, Miss Thelma Van Buskirk, a student in Rollins College, brought to the museum a tusk and a tooth found by her brother, Mr. Allen Van Buskirk, a U. S. Government official, during his inspection of canal dredging near Flagler Beach, Florida. These fossils were determined as mastodon remains on basis of illustrations and descriptions in literature, especially Osborn's (1923) "Mastodons and Mammoths of North America." Photographs were made and sent to the Smithsonian Institution, which kindly confirmed the zoological determination.[1]

At my request, Mr. Van Buskirk kindly accompanied me to the spot where he had obtained the objects, and stated that a friend had recently struck some bones near-by while plowing.

Arrangements were immediately made with the owner of the property, Mr. Ed. Johnson, for Rollins College to continue excavations in search of further possible fossils.

About three hundred feet from the point in the canal where the mastodon remains were found, and about ten paces from the point where the plow struck bones, a party of eight[2] started to excavate. Various fossils, as will be described later, were found before much more than a cubic yard of material was removed. Suddenly a large, hard object was located about two and one half feet below the soil surface. In attempting to free this structure, which was entirely under water in the hole that was made, it became necessary to work around and under it with the bare hands; in this manual exploration, a cavity was felt in the surface directed at the time away from the soil surface (*i.e.*, downward). This cavity proved to be large enough to permit the insertion of my hand, thus making possible the careful withdrawal of its wet, loose content. This content contained an arrow-head; the material of which it was made was later determined by Professor J. E. Spurr as chert.

The large object in question, upon being removed, proved to be a pair of lower jaws, each jaw bearing a large tooth. This structure was determined (on basis of comparison with similar local museum material and with literature) as being remains of a mammoth.[1]

The geological formation immediately underlying the horizon in which the fossils occur was determined by J. E. Spurr as a shell marl of late quaternary age; the fossils themselves occur in sandy layers mixed with much organic (vegetable) material.

In addition to the foregoing, one complete needle-like object, and three broken pieces of similar nature, were found from one to seven feet away from, and in the same layer with, the mammoth jaw. These will be described more in detail later.

Excavations are being continued by the students, as time permits, in the hope of obtaining additional data which may possibly prove of value in connection with the question as to the antiquity of man on this continent.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

A METHOD FOR THE DISARTICULATION OF SKULL BONES

HAVING need of a disarticulated cat skull, the method of filling the skull with dried peas and soaking was resorted to, but repeated trials gave unsatisfactory results. Perhaps due to unequally distributed pressure, the parietals and occipitals were pushed off as a group and the pressure was thus released before complete disarticulation could occur.

It was conceived that some method which would

[1] Later, this determination was concurred in independently by W. W. Holmes, C. W. Stiles, Gene Stirling, and J. H. Chase.

[2] A professor, Dr. Frank Guy Armitage, six students, Harold Cochenour, Guilford Galbraith, Daniel Havens, Robert Maclay, Douglas Riggs, and Jack Connery, and one visitor, Kenneth Wooldridge.

give considerable pressure in all directions in equal degrees would probably correct the faults observed when the dry seed method was used. It was subsequently decided that if the cranium could be filled with water and then subjected to freezing temperature, such a result might be realized, but the question then arose as to just how the water might be retained in the cranial cavity.

It was decided that probably the best manner to fill the skull cavity with water was to first place the water in physical combination with some such substance as gelatine. This was done. Cat skulls were soaked over night in water, then placed in warm dilute gelatine cooled to the solidifying point, then placed in a refrigerator at 0° F, excess gelatine having first been removed from the outside of skull, and the next day the skull was removed from the refrigerator and the ice melted by addition of warm water. The skulls treated in this manner disarticulated very satisfactorily. Skulls soaked in water only and frozen gave negative results. Further experimentation has shown that dilute agar is superior to gelatine.

The method as it is now used is as follows: (1) Soak skulls in water for twelve to twenty-four hours (dry skulls give fair results). (2) Place skulls in warm agar (above 45° C) made by boiling 7.5 gms of agar shred in one liter of water till the shreds have all dissolved. (3) Being sure that the liquid agar has completely filled the cranial and nasal cavities, cool to room temperature, remove the skulls from the solidified mass and freeze. (4) Wash frozen skulls with warm water and with slight leverage with the fingers remove such bones as may not have already fallen loose. (5) Remove any adherent agar with a stream of warm water and bleach bones if desired.

The method has been tried with cat, dog and turtle skulls, and has proven very successful with the first two, but the turtle skull is strongly articulated and further it offers almost no surface upon which pressure can be exerted. The method should prove successful with skulls of many animals, including the human.

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DISCARDED ROENTGEN RAY FILM FOR THE MOUNTING OF MUSEUM SPECIMENS

WE have found that discarded Roentgen ray films serve admirably as material on which to mount certain museum specimens. Film lends itself well to the mounting of small specimens of light weight such as gall bladder, bowel, aorta, and organs of small laboratory animals.

It is our practice to immerse the film in hot water until the emulsion softens, then this is scraped off. The film is allowed to dry and then cut to the desired size. It is well to make an exact fit for the inside of the usual museum jar. The fixed specimen to be mounted is then sewed to the film by means of needle and thread passed through holes that have been punched in the film in appropriate places. The specimen is then placed in the jar, fixing fluid added and the vessel sealed.

The method has obvious advantages: (1) Specimens are suspended in the jar on an invisible material; (2) since the film is transparent, both sides of the specimen are visible; (3) the film is a waste product and usually available and unbreakable; (4) the more cumberson glass frame suspension method with possibility of a broken frame can be dispensed with.

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A NOTE ON THE DETERMINATION OF IRON IN BLOOD AND BIOLOGICAL FLUIDS[1]

IN the determination of iron in blood, milk,[2] etc., as the ferric sulphocyanate, a mixture of amyl alcohol and ether is used to extract the color produced, after the addition of the sulphocyanate. Workers using this procedure are aware of the disagreeable odor, and irritating effect of amyl alcohol upon the mucus membranes of the nose and throat. In an attempt to overcome these objectionable features other substances were tried as a substitute for amyl alcohol, and ethylene glycol monbutyl ether[3] was chosen as the most suitable one.

For the extraction of ferric sulphocyanate the ethylene glycol monobutyl ether is mixed with an equal volume of ethyl ether. The extracted color is more intense than that extracted by amyl alcohol, and it does not seem to fade after standing 24 hours. The new medium proposed has no irritating effect upon the mucus membranes, and no disagreeable odor.

ADOLPH BERNHARD
I. J. DREKTER

[1] From the Achelis Laboratory and A. Jacobi Division for Children, Lenox Hill Hospital, New York.

[2] J. H. Yoe, "Photometric Chemical Analysis," Vol. I, 1928, John Wiley and Sons, N. Y., p. 218-ch. 20; R. P. Kennedy, *J. Biol. Chem.*, 74: 385, 1927; C. A. Elvehjem, *J. Biol. Chem.*, 86: 463, 1930; R. Stugart, *Ind. Eng. Chem.*, Anal. Ed., 3: 390, 1931.

[3] Ethylene glycol monobutyl ether $\begin{matrix}CH_2OH\\|\\CH_2OC_4H_9\end{matrix}$ was obtained from the Carbide and Carbon Chemicals Corporation, New York City.