organism are like those of culture 607, except that it develops more slowly at 20° C., requiring one week to attain a good growth at this temperature.

In view of both the cultural characteristics and the history of these cultures, it would seem that there is little or no basis for considering them tubercle bacilli. It is most unfortunate that the results of these three research projects were published as contributions to our knowledge of the characteristics of the tubercle bacilli.

The misleading information thus placed in the literature becomes part of the history of the tubercle bacillus, and through references thereto by the authors of subsequent papers is perpetuated. As an example, we found in a paper by Sweany[6] a reference to Wherry's paper[4] as follows "By growing '801'[7] (the original Koch strain) on synthetic media with various alcohols, Wherry, in 1913, produced spore-like bodies in the bacillus and altered the acid fast staining qualities very markedly."

The blame for these misnamed cultures can not be placed on the curators of type culture collections. Such collections can be only depositories, and it must be the responsibility of each worker to check for himself the identity of the cultures which he uses. We wish to emphasize this point in order that further work with the tubercle bacillus may mean progress rather than confusion in the field.

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READING KNOWLEDGE

THE inadequate language equipment of the average American student and research worker in science is fairly well known. Its consequences, however, are hardly well enough realized. It might serve a purpose to focus attention on this important point by giving a few illustrations. They have not been collected by any systematic search. On the contrary, they all happened to come to the writer's attention on one single day, when he had occasion for looking through the chief American contributions in a very limited field. In all, half a dozen papers by American authors were consulted. In this limited material, two instances were found where an inadequate knowledge of German had led the authors in question to fundamentally wrong interpretations on important points.

One author writing in *Soil Science* says:

> Winogradsky found the nitrate-forming organism in his cultures in two stages, one of which he terms "schwärmer" and the other the "free cell stage." It is doubtful if such forms were present in this work, though such might have been the case. The free-cell type was common in all the cultures, and many strains showed great masses of the organisms which resembled very closely the "schwärmer" stage; however, this latter character of growth differed but slightly from the forms found as free cells . . . although the organisms within the group were occasionally slightly smaller.

The passage quoted is about the only one in the paper from which it could be gathered with some definiteness how the American organism studied compares with the classical Nitrosomonas of Winogradsky. As the statement stands, however, it is devoid of any sense. Apparently because of an insufficient knowledge of German, the author must have taken "Schwärmer" to mean the so-called zooglea form, instead of the free, motile monad form which the German term actually signifies. But the zooglea and the monads represent the two opposite extremes within the series of forms characteristic of these organisms.

In a recent contribution in *Centralblatt für Bakteriologie,* dealing with the same organisms, an American author discusses the findings of a German colleague as follows:

> In this way he secured a culture which was either a new form having power of multiplication in 0.3 per cent. peptone solution or his culture was impure.

Then comes a reference to a footnote, reading:

> Heubült says: "Ohne Zusatz organischer Substanzen findet eine normale Entwicklung statt, auch konnte ich bei einer Zugabe von 0.5% [in the original 0.05%; L.G.R.] Glukose kaum eine Wachstumshemmung feststellen. Dagegen war z. B. bei einem Zusatz von 0.3% Pepton oder 2.0% Natr. butyric. überhaupt kein N_2O_3 nachzuweisen, noch fand Wachstum statt, wie die mikroskopische Kontrolle zeigte."

The American author has evidently translated "noch" by "still" or "yet," instead of by "nor," as would have been correct. Because of this error, he quotes the German author as having found exactly the opposite of what he actually did, and his comment is worded accordingly.

It is to be hoped that the present findings do not represent average conditions. But it seems to be too much in any branch of science to find errors such as those quoted in one third of the papers consulted, and this in papers justly claiming international attention, published in technical journals of high standing. This can not contribute to the international respect for American science. As long as the certified reading knowledge of American graduate students and Ph.D.'s remains as uneven as it is, it would seem to be a minimum requirement on the

[6] H. C. Sweany, "The Granules of the Tubercle Bacillus," *Am. Rev. Tuberc.*, 17, 53, 1928.

[7] Wherry's culture "801" has been identified as American Type Culture Collection Culture 607.

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.