of science I am busy peeling potatoes.'' I know nothing about him at present (January 17, 1920), as the north has been severed from the south by the Bolshevick invasion.

Ever since the false announcement of Professor Pawlow's death a few years ago all his friends have been anxiously awaiting word from him. The above is indeed pitiable but at least indicates that he was living seven months ago.

Francis G. Benedict

ANOPHELES QUADRIMACULATUS AND ANOPHELES PUNCTIPENNIS IN SALT WATER

While it is well known that *Anopheles ludlowi* and *Anopheles chaudoyei* may pass their larval stages in brackish water, the report[1] of Smith (1904) regarding the occurrence of *Anopheles quadrimaculatus* in brackish water has been either ignored or discredited. *Anopheles crucians* has been found in salt water at times.

It seems desirable to record certain cases of the distribution of larvæ of malarial mosquitoes in brackish water which have come to my observation. Although not numerous these cases indicate that the American species of Anophelines may occur in brackish water rather frequently.

During the summer of 1918, while in charge of a malarial mosquito survey of the zone around Camp Abraham Eustis, Lee Hall, Va., the writer secured several imagoes of *Anopheles quadrimaculatus* and *Anopheles punctipennis* from larvæ taken in brackish water. Later, (1919) a single imago of *A. quadrimaculatus* developed from a collection taken in a brackish pond near Hampton, Va.

On August 21, 1918, in company with Mr. T. B. Hayne, a sanitary inspector in the U. S. P. H. S., the writer was surveying the draws leading off one of the tributaries to Skiff's Creek, near Camp Eustis, when a large draw was encountered on which great mats of algæ (*Spirogyra* and *Œdogonium*) were floating. Such algal mats ordinarily afford protection to mosquito larvæ and it was therefore not surprising that we secured two pupæ and several larvæ of the second and third moults of *Anopheles*. Since the water was slightly brackish, the expectation was that the imagoes would be those of *Anopheles crucians*. During the night, however, two females of the species *A. quadrimaculatus* emerged. On the next day a second trip was made to the same draw and temperature and specific gravity readings were taken, a number of larvæ of all ages being secured. The temperature of the water supporting the algal mats was 27° C. and the specific gravity was 1.0048. From the second collection three females of the species *A. quadrimaculatus* emerged and with them two females of the species *A. punctipennis*.

The source of the brackish water was from tidal flow and the tributary from which the draw led, had a temperature of 25° C. and a specific gravity of 1.0058. The seepage was not great. In this case there is no question that the eggs of *Anopheles* furnished larvæ which were able to resist a quite considerable salinity. Except for the presence of salts, the environment was one ordinarily exceedingly likely to furnish malarial mosquitoes.

During the summer of 1919, while the writer was making a survey of territory in the vicinity of Newport News, Va., much of which had been under the control of our sanitary engineers, a collection was made from a pond between Hampton and Newport News, which had been recently cut off by a dike from the tidal water of a large creek. The specific gravity of the pond water was 1.005 while that of the tidal creek was 1.015. One imago of *Anopheles quadrimaculatus* developed from this collection.

It is quite evident from the cases here recorded that future control work in connection with Anopheline mosquitoes must include rather careful study of the slightly saline waters. In all probability the adult females of *Anopheles* select their breeding places with more reference to favorable temperature, light and vegetation than with reference to the chemical conditions. Field

[1] Smith, J. B., 1904, Report of the N. J. Ag. Exp. Sta. upon the mosquitoes occurring within the state, their habits, life history, etc.

observations to be recorded elsewhere indicate that this is the case and that many times, eggs were deposited where they were unable to survive.

F. E. CHIDESTER

U. S. PUBLIC HEALTH SERVICE

A PARAFFINE RULER FOR DRAWING CURVES

SINUOUS lines of almost any form can be drawn with the aid of a ruler constructed in the following manner. Points are plotted on a sheet of paper which is then placed on a smooth board and slender nails somewhat larger than pins are driven into the wood at each point. A strip of any flexible material such as whalebone, metal or bristol board is bent around to fit the uprights and held in place by other nails. The edges of the paper are then turned up and melted paraffine poured in to a depth of about a quarter of an inch. When the paraffine is thoroughly hardened the nails are draw out, their spaces filled up by means of a hot metal point and the sheet of solid paraffine broken in two along the strip which is in the form of the line to be drawn.

Such a ruler, of course, must be made for each curve, although for a symmetrical one only one half need be made. This method gives an evenly modulated curvature which can be trimmed if necessary. When several graphs are to be grouped together as many trials as necessary can be made in a short time until a good arrangement of them is drawn.

A practical point of importance is to have the liquid as cool as possible before pouring otherwise it will penetrate the paper and become fastened to the substratum. After a little experience a mold can be made quickly, although it requires some time for the cast to harden. For those who do not have occasion to draw many arcuations a device of this kind produces fairly satisfactory results and takes the place of rather expensive splines.

D. F. JONES

CONNECTICUT AGRICULTURAL EXPERIMENT STATION

THE HANDWRITING ON THE WALLS OF UNIVERSITIES

A CORRESPONDENT sends us the following extract from Dr. Geoffrey Martin's popular exposition of "Modern Chemistry and its Wonders" (1915), suggesting that as it applies very largely to American universities also, it may be advisable to reprint it in SCIENCE.

The color industry started in England some fifty years ago, flourished immensely for twenty years and then passed away to Germany, where now gigantic factories control the world's markets.

This loss of supremacy in a world-industry is a fact to make Englishmen sad and thoughtful, and those who have lived, as I have lived, in Germany, and have seen her numerous universities and great technical schools filled with eager students, know perfectly well the reason of this disaster. It is not so much the fault of our practical men—who in energy and judgment and general sagacity are, despite all critics, splendid, full of bold enterprise—as the *fault of our universities*, who have *failed entirely* to get into touch with practical men. Instead of encouraging research—and it was this that laid the basis of the German chemical industry—our university senates have done their level best by legislation to keep our best students off it, or to make it so unprofitable that they prefer to enter some other form of activity. Let me give an instance of how the greatest difficulties are placed by the universities before students attempting to undertake scientific research.

When a student enters an English, and still more a Scottish, university, he sees before him a long series of oncoming examinations. Almost every year he has to pass an examination of increasing difficulty, and the only subjects that count are the stereotyped ones, on which questions may be asked at some forthcoming examination. In an atmosphere of examinations he lives, breathes, and has his being. Finally, after some four to six years' hard work, he passes the B.Sc. examination, which is an examination of considerable difficulty. Now mark, up to this point he has only been learning what others have done before him. At no time has he reached the confines of knowledge, or advanced it in any way. His parents now step in. The father says, "My son, we have given you a good education; for four to six years we have maintained you at a university, and you have shown your ability by passing innumerable examinations