length of the survival time in a limited volume of air. These animals do not struggle or move about to any extent so that the metabolic factor did not influence the survival time to any great degree in these experiments.

At temperatures of 23° to 26° C., specimens of the average weight of those used above will survive in a liter bottle for ten days or more before the point of suffocation is reached. At 35° C. the point of suffocation is reached in two or three days in bottles of similar size. When the temperature is down to about 10° C. with the animals in hibernation, it has been found that those of the average size, as considered above, will live for about two months in a liter chamber of air.

These experiments, which are only a part of more extensive ones, give a rather definite idea of the lethal point for suffocation in oxygen percentages and carbon dioxide percentages for this animal, as well as reviewing the factors influencing the survival time. This is a preliminary report.

GEORGE E. POTTER

BAYLOR UNIVERSITY

GRADUAL OBLITERATION OF THE PORTAL VEIN AS A SUBSTITUTE FOR ECK-FISTULA[1]

THE diversion of the portal blood directly into the vena cava was accomplished by N. V. Eck[2] in 1877 by means of the fistula which bears his name. This procedure has been exceedingly useful in the study of many problems concerned with the physiology of the liver and organs whose venous blood drains into the portal system. Its application has been somewhat limited by the technical difficulties of the operation, particularly for those not trained in blood vessel surgery. During the past three years the author and associates, J. C. Ellis and W. B. Mathews, have made use of a more simple method for accomplishing the same purpose. It consists essentially in producing so gradual an obstruction to the portal vein that the collateral anastomoses in the esophagus and rectum develop sufficiently to prevent gangrene of the intestines. This may be accomplished by means of a two-stage operation in the dog, cat, goat, rabbit and rat. At the first operation, the portal vein is carefully isolated and two strong linen threads introduced around it above the entrance of the pancreatic-duodenal branch. One of these threads is then tied sufficiently to produce a constriction of the portal vein to about one half of its normal diameter. A slight congestion of the intestines may occur which rapidly disappears. The ends of the second thread are then fastened to the abdominal wall so they may be readily found at the second operation. The second operation may be done two to three weeks later, at which time the portal vein is completely occluded. Gangrene of the intestines does not occur. The operation is very simple and there is practically no mortality. A demonstration was made of this method at the meeting of the American Physiological Society in Chicago in April, 1930. It is altogether probable that many others have used this or a similar method before. I have been prompted to publish this note because of the many requests received during the past year for details of the method. We have used it successfully on the various laboratory animals listed above.

LESTER R. DRAGSTEDT

[1] From the Department of Surgery of the University of Chicago.

[2] N. V. Eck, *Militar-medicinisches Journal*, 1877, cxxx, Jahrgang 55. Travaux de la Soc. des Naturalists de St. Petersburg, 1879, x. 55.

DEVIL'S SHOE-STRING AS AN INSECTICIDE[1]

THE investigator's attention was attracted to the possibilities of devil's shoe-string, *Cracca virginiana* Linn., as an insecticide three years ago through studies of derris, and particularly through the physiological action of derris on fish. The roots of both plants are powerful fish-poisons and, from all accounts, affect fish in a similar way. No references in literature have been found where this species has ever been used for insecticidal purposes; however, studies have been made by several investigators of foreign species of this genus. The most important studies were made by F. Tattersfield, C. T. Gimingham and H. M. Morris.[2]

Roots were dug from several localities at various times of the year and were dried by different methods. They were then finely ground in an herb mill. Careful and repeated experiments with aqueous suspensions were made under laboratory conditions on the cotton or melon aphis, *Aphis gossypii*. Marked variations in toxicity were found, due to the season, soil, method of drying and probably various other factors. The most toxic samples were obtained from sandy soil, dug in the hottest part of the year and dried in the sun. Drying in the shade, boiling in water and heating the roots caused a loss in toxicity. Comparative data with nicotine sulphate (40 per cent.), and aqueous suspensions of derris and a commercial brand of pyrethrum showed that the best samples of devil's shoe-string were slightly more toxic than pyrethrum, but were less toxic than derris; however, they compared more favorably with derris than derris with nicotine sulphate (40 per cent.).

[1] Contribution No. 24, Department of Entomology, Texas A. and M. College, College Station, Texas.

[2] "Studies on Contact Insecticides," Parts 1 and 2, Vol. 12, and Part 4, Vol. 13, Annals of Applied Biology.

Observations showed that devil's shoe-string kills in a manner similar to that of derris. Its action is as quick or even more so, but it takes a somewhat longer time for the insects to die. It kills through paralysis and perhaps also through interference with respiration.

Field experiments on plant lice, *Aphis gossypii* and *Rhophalosiphon pseudobrassicae,* tent caterpillars, *Malacosoma americana,* yellow-necked caterpillars, *Datana ministra,* and Colorado potato beetle larvae, *Leptinotarsa decemlineata,* showed that the plant has considerable promise as a contact spray. But it possibly has greater promise for the control of various animal parasites. Almost perfect results were obtained on various species of fleas and lice; and encouraging results were obtained on cattle grubs, *Hypoderma lineatum.*

The supply at present is probably adequate for commercial purposes; but due to marked variations in the toxicity of the plant, it may not be possible to wholly utilize the available supply. Its commercial possibilities probably depend upon how cheaply it can be grown and harvested. A more detailed article will soon appear elsewhere.

V. A. LITTLE

AGRICULTURAL AND MECHANICAL COLLEGE OF TEXAS

BIOCHEMISTRY IN RELATION TO INTELLIGENCE

MANY people seem willing to believe that the chemicals in one's body may affect one's mind; but, apparently, scientific literature has been extremely vague or altogether silent on the subject, except in the case of glandular secretions, certain drugs and the like.

In an attempt to determine whether there is a characteristic chemical difference between "intelligent" persons and idiots, blood tests were made on 12 normal or superior persons and 20 idiots. All the subjects were adults of approximately the same age and health, and in each group there was an equal number of males and females. Differences in diet were made note of, and the time of day at which blood was taken and the interval elapsing before the tests were kept fairly constant.

The Clark-Collip modification of the Kramer-Tisdall method was used for the determination of calcium, with the result that practically every case came within the normal range; all the idiots were normal in their calcium-content.

The Fiske-Subbarrow method was used for the determination of inorganic phosphate in blood plasma. The phosphate-content of the normal group was found to range between 3.25 and 8 mg per 100 cc of blood, but in only one case was it above 5.88 mg and in that case a retest one month later showed 3.01 instead of 8 mg, suggesting that the excess was temporary. Without a single exception, the idiots had a high phosphate content, ranging from 5.98 to 12.48 mg and averaging 8.95 mg per 100 cc of blood, as compared with an average of 4.36 mg for the normal group.

No characteristic sex differences appeared in calcium or phosphorus, and there was no reciprocal relation between the amount of calcium and that of phosphorus, especially in the case of the idiots.

Several other experiments on this general subject are in progress.

H. D. POWERS

WILLARD, NORTH CAROLINA

THE LANGUAGE OF A CLERGYMAN

IT was gratifying to find that my modest paper on "The Language of Scientists," printed in SCIENCE for December 5, 1930, excited some interest. I had very appreciative and helpful letters from various parts of the country and from men engaged in many different scientific specialties, showing that the points treated of were considered important and timely.

And now I have the valuable criticisms of two correspondents in SCIENCE for January 16, 1931. I enjoyed reading these as much as I suppose the writers enjoyed making their very appropriate comments.

It was hardly fair, however, to visit the errors of this one poor sinner on the whole class of clergymen. To be sure I know many of them who say "dioseize" for "dioceses," who make three syllables of "Reredos" and who even will put the accent on the penult of "deficit," but as a class I am not aware that they are particularly weak on rhetoric, as I seem to be. At any rate this clergyman will try to be more careful in future and to get some keen-nosed rhetorician to revise anything he may prepare for publication.

There is only one word to which I take exception. Dr. Theodore W. Darnell, of New York (I do not know him, but I am sure he must be a Litt.D.), speaks of my "castigation" of my fellow members. Now this was just what I had no intention of administering. I wrote in a humble and sympathetic spirit and hoped that none would feel that I was being censorious in the ordinary meaning of the word. In fact one of my correspondents voluntarily congratulated me on my success in this particular. But the effect of the written word depends, not only on the disposition of the writer, but also on that of the reader. This latter it is impossible to guard against entirely. To point out errors is neither a pleasant task nor likely to excite gratitude in one who feels that he is himself perhaps guilty of some of them. I did not spare myself and told of my own mistakes and said that *we* were all *liable* to err instead of charging, "*You* are all *likely* to err."