the residuary estate of the Rev. J. H. Ellis, M.A., of Trinity, to be used for general purposes as thought fit.

AT St. Louis University, Dr. Alphonse M. Schwitalla, A.M., Ph.D., has been appointed dean of the school of medicine to take the place of Dr. Hanau W. Loeb, recently deceased, and Dr. Don R. Joseph, formerly vice-dean, was promoted to the position of associate dean. Dr. James B. Macelwane was appointed dean of the graduate school to take the place of Dr. Schwitalla.

DR. HUBERT H. RACE, secretary of the Ithaca section of the American Institute of Electrical Engineers, has been appointed assistant professor of electrical engineering at Cornell University.

THE *Journal* of the American Medical Association states that Dr. Langley Porter, recently appointed dean of the University of California Medical School, has also been appointed professor of medicine and Dr. Lionel S. Schmitt, who has been the acting dean for several years, has been appointed associate dean and associate professor of administrative medicine, effective November 1. Dr. Schmitt, who is also a director of hospitals, was formerly clinical professor of dermatology.

DR. DONALD H. ANDREWS has been appointed assistant professor of chemistry at the Johns Hopkins University.

DR. T. M. MACROBERT, of the University of Glasgow, has been promoted to a professorship of mathematics.

M. BACHELIER, of the University of Rennes, has been appointed professor of the differential and integral calculus at the University of Besançon.

PROFESSOR H. LEO has been nominated professor of pharmacology at Bonn.

DISCUSSION AND CORRESPONDENCE

THE CONTROL OF DIABETES IN SIAM BY THE USE OF SOLANACEOUS PLANTS

IT may be of general interest to the readers of SCIENCE to learn of the existence in Siam of solanaceous plants whose fruit has a marked effect on the sugar content of the urine in diabetes, a disease that is quite prevalent in Siam.

The discovery of the virtue of these plants was made by the late Dr. Yai S. Sanitwongse, a graduate of the medical department of the University of Edinburgh, through having a friend, a native doctor, suffering from advanced diabetes, in whom the quantity of sugar excreted fluctuated in a remarkable manner from day to day, at times practically disappearing. By a process of exclusion, it was possible definitely to correlate the decrease of sugar with the ingestion of small fruits, taken with meals as a condiment. Later, the fruits were administered with the food in a number of cases of diabetes, always with marked effect, the sugar clearing up immediately and remaining absent from about twenty hours, but recurring unless the fruits were again taken. The daily use of the fruits in very small quantity at each meal kept the sugar in abeyance and led to improvement in the general condition of the patients, without any restriction in the diet, which always comprised a large proportion of rice. Special reference may be made to a striking case that has come to the writer's personal notice, that of a male European, about fifty-five years old, who had lived in Siam many years and developed diabetes in very severe form, with the usual loss of weight that proceeded to extreme emaciation. This man was induced to make a thorough trial of the solanaceous fruits. Beneficial results were noted immediately, so that in six months after he began treatment, and without the use of any other antidiabetics nor any systematic regulation of diet, his physical condition was vastly improved, the sugar was being kept entirely in abeyance, and he added thirty pounds to his weight. During that period he had taken at each meal ten of the little fresh fruits, and found that it was not necessary to increase the number, and in all probability that it might even have been feasible to reduce the quantity. The fruits produced no unpleasant gastric or intestinal symptoms. In December, 1925, the use of the fruits had been discontinued for about a year, and the health of the individual remained excellent. He then reported that sugar was usually entirely absent from the urine, and that it temporarily recurred only after some dietetic indiscretion, such as a very heavy meal of starchy or sugary food. In March, 1927, the general physical condition of the man continued to be good, there was no recurrence of the disease, and he had the satisfaction of feeling that should the diabetic symptoms reappear he had at hand a certain means of combating them.

The plants whose fruits have the noteworthy property indicated belong in the genus Solanum, but do not appear to have been positively identified as to species. There are at least two distinct forms, found wild over a large part of Siam. The fruits, which grow in loose clusters and resemble miniature tomatoes, are about the size of large peas or small grapes, and have a bright green color when immature, becoming yellow or orange when ripe. The taste is not unpleasant. The fresh fruits are said to be more potent, but the dried ones, even after some months, also produce a noticeable effect.

The news of the efficacy of these fruits in diabetes

has become known to the country people in several parts of Siam, and it is reported that sufferers from the disease are now using them with success, without any medical attention or advice. It is even stated that in several districts where diabetes is common the people are employing the fruits as a preventive! In the markets of Bangkok and other communities these fruits are now regularly exposed for sale as food by the small vendors of miscellaneous forest and jungle produce, and enough for five days' treatment may usually be obtained for the equivalent of five cents in United States money.

In the absence of full physiological and clinical data, it would be unwise to set up large claims regarding the therapeutic value of the plants in question, but from the information at hand it would appear that in these plants we have available a cheap, easily administered substance which has a noteworthy palliative influence on the sugar content of the urine in diabetes and may act like insulin. There is, furthermore, some evidence that under special conditions the effects may be regarded as curative.

It is believed that the known facts are so suggestive as to warrant a thorough investigation, and it is hoped that some workers or institutions in America or elsewhere may feel disposed to conduct a convincing test. Supplies of the fruits may undoubtedly be obtained through various agencies in Siam, such as the American Consulate, the Botanical Department of the Ministry of Commerce, and the Department of Public Health of the Ministry of the Interior, all in Bangkok. The plants are so hardy that they could probably be grown from seeds in subtropical parts of the United States, or in hot-houses anywhere.

HUGH M. SMITH

BANGKOK, SIAM

E.M.F. INDUCED IN A STRAIGHT WIRE BY A CURRENT IN A PARALLEL STRAIGHT CONDUCTOR

THE seeming paradox described by Professor Karapetoff, in the article under the above title, in SCIENCE of November 18, arises in its faulty premises.

The conception of current in a long straight conductor with open ends is not permissible. It would require an infinite electromotive force to set up such a current, but more important for the discussion, assuming the presence of the current, a finite change in its value is impossible, for such change would be accompanied by self-induced e.m.f. of infinite value, which is absurd. A long straight current-carrying conductor therefore must be part of a closed circuit. In such case, the central conductor must either be closed also, or stuck through holes in the outer conductor, or be of shorter length, terminating inside the outer conductor. In any one of these cases e.m.f. will be induced. In the last case of the open wire, the e.m.f. could not be measured; first, because the necessary instrument could not be connected, and second, because the e.m.f. would be too small to measure, the greater part of the total induced e.m.f. being consumed in the dielectric circuit closing the two ends of the wire.

The reasoning in the second case leads to the correct conclusion as regards such long straight conductors as arise in experience, but by means of unfortunate, and, I believe, unwarranted premises. Induced electromotive forces in both experiment and theory arise only from changes in the interlinkages of electric and magnetic circuits. The experimental fact needs no comment as clearly set forth by Professor Karapetoff. The theoretical origin of induced e.m.f. arises from the energy associated in the combination of a magnetic shell, or an electric circuit, with an external magnetic field, any change therein being reflected as an induced e.m.f. in the circuit, as shown in Neumann's expression. There is thus no warrant for the use of the idea of collapsing lines of force, or a conductor's cutting lines of force, except in so far as these offer convenient ways of computing changes in the total flux interlinking the electric circuit, which perhaps is only another way of expressing the conclusion reached by Prof. Karapetoff in his final paragraph.

J. B. WHITEHEAD

THE JOHNS HOPKINS UNIVERSITY

IN a recent number of SCIENCE Professor Karapetoff proposes the problem of finding the induced electromotive force in a straight wire due to variation of the current in a surrounding coaxial hollow cylinder. He presents two lines of argument which lead to different results, but recognizes that both methods of reasoning are open to objection, in that they are based on Faraday's circuital relation which is valid only for a closed circuit. His inference that it is not legitimate to speak of an electromotive force in a single straight wire does not, however, carry conviction to the present writer. For suppose the long hollow cylinder to be charged initially, positively at the upper end and negatively at the lower end. These charges, oscillating up and down, constitute a varying current, and if there is an axial electric intensity an oscillatory current will be induced in the central wire, whose presence can be detected by the heating produced without the necessity of attaching voltmeter leads to the ends of the wire.

The induced electromotive force in a secondary circuit fixed relative to the observer's inertial frame produced by a varying current in a fixed primary is