fects ultimately become more or less permanent. It is possible to make a very strong application of the sinusoidal current without producing any pain; hence its great value in these cases.

DR. ALFRED T. LIVINGSTON, Jamestown, N. Y.: It has been implied that the electric modality called galvanism is not particularly efficacious or at least has not many appropriate applications. As to the effect on the brain secured by passing the current through the skull, I think Dr. Massey has made a correct statement; but that is not the way to influence the brain. The brain condition is influenced by stimulating the vasomotor centers which control the circulation in the brain; and that can be done without any question by the application with sponge tip electrodes or some other form, over those three chief centers, the upper, middle, and lower cervical sympathetic ganglia. I have always observed that the stimulation of the lower pair has the most marked effect on the circulation in the head. I recall one of the most extreme cases of acute mania in a woman in Philadelphia, who was brought to my house at about 8 p. m. It seemed from her state that there was not much likelihood of securing sleep, but I took my galvanic battery to her bedside and solely by the use of the galvanic current I put that woman to sleep within three-quarters of an hour by stimulating the cervical sympathetics. I have also used it in cases of hysteria, hysteric convulsions. Dr. Massey referred to the use of the static spark in hysteria. If I were to be limited to but one form of electricity, I would certainly select the oldest of all—galvanism—as having a wider range of application and more certainty of effect than any other. I have also used a hypodermic injection of ergot and within fifteen minutes I have quieted as excited a hysteric patient as I have ever seen. I am perfectly satisfied that the effect of the galvanic current is exactly the same, producing vascular contraction where there had been dilatation. I have used the galvanic current in cases of blindness of various sorts, particularly in cases of atrophy of the optic nerve, and restored a very good vision which continued through many years. Patients whom I treated twelve or fifteen years ago are going about the streets to-day like other people, attending to their business although their cases had been pronounced absolutely hopeless by ophthalmologists, and I was ridiculed for thinking of bettering their condition. I apply the positive pole at the back of the neck with an electrode of 4 by 6 inches. The negative is applied by means of clay electrodes, pulverized clay moistened by water to a paste condition and laid directly on the closed lids, the face except the lids being protected by a piece of rubber dam having holes corresponding to the orbits. A pliable metallic electrode such as tin foil is laid over the clay and connected with the negative pole. In this way I have given 15 milliamperes for two and a half hours.

DR. H. M. WHEPLEY, St. Louis: I regret that the author of this paper is not present to explain the purpose for which he wrote it. Previous speakers have criticized the paper as being one which has not given specific cases or detailed technique. I believe that the purpose of the author is to show that caution must be exercised in the proper use of electricity. He points out the variety of forms in which it can be used but avoids going into the citation of detailed cases, which causes so many of the medical profession to rush headlong into the use of electricity without understanding when, where, or how to use it. This paper is filled from beginning to end with the suggestions of caution in the use of electricity. I recall the frequent use of such phrases as "some believe," "Dr. — has claimed," "it is stated," "it may have benefited," "it seems doubtful," etc. This paper is a warning to the medical profession to study electricity carefully in a general way before giving too much attention to reports of specific cases. The use of electricity in medicine is nothing new, but this paper indicates that it is often used carelessly. Its use by the laity is along very empirical lines; I believe that a paper of this kind full of cautions and written for publication in the newspapers would have a wonderfully good effect on the public. We know only too well how ready the public is to use electricity as a medical agent; laymen buy

so-called batteries and other forms of apparatus claimed to produce electricity when there is no possibility of its being generated by the apparatus that is sold for that purpose. I feel that the paper from the standpoint of the author is not subject to criticism that has been made of it by the previous speaker. It does not go into the details of cases and technique, but it does sound a timely note of warning to those who use electricity in a haphazard manner.

DR. HAVEN EMERSON, New York: If a quarter of what is so conservatively claimed by Dr. Potts' paper is correct, certainly the medical schools of the country ought to take on themselves the burden of teaching some of the elementary principles of electrical application in the treatment of disease. If anybody has seen the relief from lumbago and sciatica, if anyone has seen the improvement in chronic joint affections which electricity will give, I think he will admit that electricity deserves as much consideration in the courses of medical instruction as a good many of the drugs which are now admitted as valueless in the treatment of disease. The teaching of intelligent pharmacology has eliminated a good many drugs from our class rooms. The inclusion of some such methods as Bier's hyperemia and electricity in the teaching of applied therapeutics will certainly help us in diffusing a knowledge of appropriate treatment. I am of the opinion that electricity assists in restoring the tissues to normal, after chronic inflammation, by improving local circulation, by developing hyperemia, and that in exact experimental analysis of the results we should find that this is the cause of its benefits. Massage, constriction, hyperemia, and electrotherapeutics deal with the local blood-supply. Such measures are as useful as many a drug taught and prepared in pharmacologic studies, and their consideration should be included in our medical schools.

DR. G. BERTON MASSEY, Philadelphia: I appreciate Dr. Whelpley's skill in extracting from this paper what suited him, but I must object to his failure to remember that I spoke very highly also of Dr. Potts' paper. I must protest that we are not here for newspaper articles. We are here to advance each other's art of treatment, and mere negations will not help us.

CLIMATIC TREATMENT OF PELLAGRA

A PRELIMINARY NOTE

C. C. BASS, M.D.
NEW ORLEANS

All writers on pellagra seem to agree that it is a disease of warm countries and of the warm season; that patients with the disease usually improve at once when cold weather sets in, and that many of them never show further evidence of the disease. The literature at my disposal does not show that cold climates have been tried for the treatment of the disease, owing largely, no doubt, to the fact that many pellagra patients cannot afford the expense of going to and of living in such climates. In a paper published in 1909 I called attention to the probable influence of temperature on the course of pellagra.¹

On several occasions in discussions on the subject last year, notably at the pellagra conference in Columbia, South Carolina, in the symposium on pellagra of the Southern Medical Association, and at the conference on pellagra at Gulfport, Mississippi, I also called attention to this fact and proposed the advisability of arranging artificially refrigerated wards, especially for the poorer class of pellagra patients who could not take advantage of climate.

In June, 1909, I had arranged, with very limited means at command for the purpose, an artificially refrigerated room for a pellagra patient then under treatment.

1. New Orleans Med. and Surg. Jour., August, 1909.

This was a mechanical failure, as it reduced the temperature only about 12 degrees, which was very little below the summer temperature.

I had the fortune to see in the spring of 1910 a patient with pellagra who had gone to Colorado for similar symptoms in 1909. She was then greatly relieved by the climate, according to her statement, and remained well; but the same influences of diet and hot weather induced another attack. She returned to the mountains of Colorado and was promptly relieved of all recognizable symptoms.

Since that time I have sent to Colorado four other patients, all of whom are symptomatically relieved. They have all gone to Denver and after spending a few days there to become accustomed to the altitude, three of them have gone higher up in the mountains. One of them was bed-ridden when she left here but was up in ten days and without recognizable symptoms of pellagra in two weeks.

I have sent two patients to Monteagle, Tennessee, and they write that within one week they had improved wonderfully and almost all symptoms had disappeared.

These cases and others will be reported more in detail when the results obtained can be more definitely stated. This preliminary note is published now in order to suggest the treatment for the benefit of the August and September crop of cases.

741 Carondelet Street.

PARSIMONY IN NUTRITION

GEORGE M. NILES, M.D.

Professor of Physiology, Southern College of Pharmacy; Associate Professor of Physiology and Dietetics, Atlanta School of Medicine; Gastroenterologist to the Tabernacle Infirmary
ATLANTA, GA.

This title, adapted from a recent address of Sir James Crichton-Browne, represents a wide-spread dietetic movement which I view with some concern. Previous to this century, throughout the history of the advancing civilizations of the earth, there has never been any concerted effort toward parsimony in nutrition; and, with the exception of certain ascetic orders, whose habits of self-denial were either religious or esthetic, the desires for food have been universally gratified, subject only to limitations of purse or environment. The doctrine that a strong body should be generously fed, and that a virile people should be hearty eaters, was of world-wide acceptance. Furthermore, it was noted that the liberal consumers of the flesh proteins figured most largely in the arts of both peace and war, while the vegetarian nations either lagged behind, or were the servitors of their meat-eating masters.

In accordance with these historic and economic facts certain dietetic standards have been fixed, these standards being the aggregate result of statistical and experimental studies carried out by many physiologists on numerous large groups of individuals under varying circumstances. These results were collected by Atwater, of this country, and Voit, of Munich, who found that an average individual under average conditions thrive on a daily allowance of 118 gm. of protein food, 56 gm. of fat, and 500 gm. of carbohydrates, such as sugar and starch, this containing 3,055 large calories, or heat units. Under increased physical exercise this was raised to 3,370 calories. These findings were approxi-

mated by a large number of independent observers, most of them, however, allowing a slightly higher daily protein ration.

These standards having been settled with supposed immutability, all was serene until in the dietetic firmament there appeared a new galaxy. We were informed that the theories drawn from the dietetic experience of untold millions of progressive and militant human beings, were altogether erroneous; and, like the man with the eight-day clock, who wound it up every night for twenty-five years before he discovered his error, we have been partaking of double or treble the amount of protein necessary for our well-being. We might say that after these eons the light has just broken in, opening up to us a new heaven and a new earth.

The advance guard of this new thought was Mr. Horace Fletcher, a gentleman of intelligence and culture, who, finding himself obese, dyspeptic, and in declining health, accidentally discovered that by slow, deliberate eating he was much benefited. Being both observant and analytical, he reasoned out a theory that the whole process of bodily nutrition is materially affected by the preliminary treatment of food in the mouth; furthermore he became satisfied that by most thorough mastication and insalivation less food is required for adequate nutrition, while bodily conditions are improved. He sums up his philosophy as follows: "If you eat only when you have an earned appetite, masticate your food thoroughly, and take great care to eat only what your appetite approves, the rest will take care of itself."

Like many other fads containing elements of truth this "chewing fad" attracted to it a circle of adherents, and, fortunately for Mr. Fletcher, it caught the ear of some level-headed physiologists, among others the late Sir Michael Foster, of Cambridge, England, and Dr. Van Someren, of Venice, the latter of whom read a paper on "Fletcherism" before the Congress of Physiologists at Turin in 1901. This led to a series of experiments at Cambridge, which were later continued in America by Professor Chittenden, of Yale, the latter, however, losing sight of the chewing feature, except as it lessened the craving for food, and hinging his experiments on the momentous question: What is the proper daily protein ration best to meet the requirements of the average human body?

The investigations of Professor Chittenden,¹ are in some respects epoch-making contributions to physiology. The experiments were on groups of professional men, army volunteers, athletes and animals, and proved to his entire satisfaction that 60 gm. of protein daily is sufficient for a man weighing 154 pounds, or practically one-half of the previously accepted standard. To quote his words:

These are perfectly trustworthy figures, with a reasonable margin of safety, and carrying perfect assurance of really being more than sufficient to meet the true wants of the body, adequate to supply all physiological demands for reserve protein, and able to cope with the erratic requirements of personal idiosyncrasies.

The limits of this paper will not permit an analysis of Professor Chittenden's experiments, showing where fallacies may exist, or where conclusions are drawn on too meager evidence. He is a doughty antagonist, and one may well hesitate before breaking lances with either him or the formerly obese Mr. Fletcher. They have

1. Chittenden: *Physiological Economy in Nutrition; and The Nutrition of Man.*