in the case of urticaria, angio-neurotic oedema, and the various food idiosyncrasies. Convulsions may be caused by protein ingestion, and, indeed, this is a very usual cause of convulsions in children.

My theory differs from that of anaphylaxis, which has been generally accepted to explain various food idiosyncrasies. In anaphylaxis a preliminary sensitization is required, while my theory maintains that the metabolism of the individual is inadequate. Such an inadequacy for the metabolism of nitrogenous food is most usually inherited, but further damage can be prevented by appropriate diet. The protein poison may act directly on the tissue cells of the mucous membrane or the skin, causing, for example, in the one case bronchitis or colitis, in the other such a disease as eczema. Or again, it may act indirectly, as, for example, through the endocrine or nervous system.

It is impossible in this short paper, which I wish to devote to migraine, to discuss fully the pathogenesis of protein poison manifestations, but since heredity plays such an important part in the etiology of migraine, this at any rate must be considered. The old French school represented by Trousseau, Bouchard, and Dieulafoy laid great stress upon what they called the lithaemic diathesis, and insisted on the close relationship and inheritability of gout, asthma, eczema, migraine, epilepsy, and lithiasis. They also noted the frequent occurrence of cancer in certain families which had this lithaemic diathesis. They failed to see, however, that the real basis of the heredity is a damaged protein metabolism in which protein poison manifestations can take place in any tissue or organ of the body, so producing the diseases which they attributed to lithaemic diathesis. The disease and its symptoms depend entirely upon the site of the manifestations. Each cell of the body is an individual chemical laboratory and plays a part in the general metabolism.

I consider it is quite justifiable to assume that the molecular arrangement of the cell structure, and the characteristics of the cell, upon which depends its ability to function properly, are inherited in the same manner as the general physical characteristics of the individual are inherited.

Migraine occurs in individuals who have inherited a damaged metabolism for nitrogenous foods, and I have chosen it as the subject of this paper because the remarkable results that I have obtained in its relief by the practical application of the protein poison theory have been so conclusive as to leave no doubt in my mind as to its truth and value.

Headache is one of the commonest forms of protein poison manifestation. The headaches caused by protein poison vary in severity from the mildest headache to the severest forms of typical migraine. The etiology of all functional headaches is the same. In migraine we have, however, the typical inherited insufficient protein metabolism. It is true that other causal factors, such as eye-strain, may act in producing headache, but they are secondary causes and are incapable of producing migraine if the essential cause is removed. It is quite easy to prove that protein poison is the essential cause of headache by letting a patient resume the articles of diet the omission of which caused the headache to cease. It is true, however, that some patients on a low protein diet will acquire a certain degree of tolerance for the very foods that formerly caused headache. Other patients, however, will never be able to take certain protein foods. It is most important to know that extracts from protein foods such as soups and gravies, and fruit extracts also, though they contain no protein, contain the protein poison and are very potent in causing headache; indeed, one reason why dieting has been unsuccessful in the past is because meat extracts and fruit and fruit juices have not been suspected.

I have found that skin tests are unreliable, and the quickest and best way to ascertain what foods are deleterious in each individual case is to commence with a diet free from protein, especially animal protein, and then to build up gradually a suitable diet therefrom.

The foods which I have found potent in causing headache are meat, fish, poultry, game, and extracts such as soups and gravies made from them; eggs, milk, and cheese; fruit and fruit juices; coffee, tea, chocolate, and alcohol;

and, among the vegetables, tomatoes and mushrooms. This at the first glance seems to leave nothing to eat but cereals, butter, and vegetables; and, indeed, this is the basic diet upon which to put a patient for a few weeks until his headaches are controlled. I use a diet of polished rice, butter, toast, a few green vegetables, and water.

Many patients show immediate improvement, but some are worse the first week—those who formerly had occasional headache having it continuously. This is especially true of immoderate coffee drinkers. The second week there is considerable improvement, and in the third week the majority of patients are distinctly better. In women there is usually a recurrence of headache at the first menstrual period, but after a month or two they have no more headache, not even at the menstrual period.

So soon as the headache is distinctly improved the diet should be amplified, at first with other vegetables, then by a small amount of meat once a day. Milk may be used in the cooking (many patients cannot take raw milk in any quantity) and different articles of nitrogenous food added from time to time until the tolerance for different foods is ascertained. Very few subjects of migraine can take meat soups, fruits, or eggs in any quantity. Sweetbreads, mushrooms, tomatoes, and chocolate usually must be banned entirely. With some it is necessary to omit a single article only, such as eggs. Every article of nitrogenous nature must be suspected until proved to be harmless in the particular case. The protein of cereals and vegetables is usually well borne.

It must be remembered that every food of nitrogenous nature has its specific protein. Some patients who cannot take beef can take lamb or chicken. I have had patients who were very susceptible to such proteins as unpolished rice, almonds, and peppermint. Some can take tea with impunity, but cannot take coffee; as a rule, however, most can take a fairly generous diet if certain particular proteins are omitted.

It is best that all sufferers from migraine should be on a fairly low protein diet. I believe also that the less carbohydrate and fat that is consumed the greater is the ability of the patient to metabolize protein. This may explain why some cases of migraine have been relieved by adopting a low carbohydrate or low fat diet; but I am convinced from my experience that the protein is the real causal agent of migraine.

I am well aware that the statements I make will seem somewhat dogmatic, but I am convinced of the truth of them. A single trial of this method in the most obstinate case of migraine will convince the most sceptical, and the success of his treatment will soon tempt him to apply the theory in other cases of functional disease, where it is chiefly applicable. Diseases in which organic change has already begun cannot be cured by diet, but the protein poison theory throws light upon their etiology and therefore suggests the possibility of preventing all the diseases of metabolism. It gives a new viewpoint in such serious diseases as nephritis, arterio-sclerosis, and even tumour growth.

CANCER OF THE BREAST:

RECURRENCE 31 YEARS AFTER OPERATION.

BY

F. J. STEWARD, M.S., F.R.C.S.,
SURGEON TO GUY'S HOSPITAL.

I MAKE no apology for publishing a note of this case owing to its outstanding interest in its bearing on the age-long question, *When is cancer cured?*

I saw the patient a short time ago with Dr. James Bromley of Sible Hedingham. Her history was as follows:

Mrs. R., aged 81 years, was operated upon for cancer of the left breast thirty-one years ago by the late Sir Henry Butlin. She had no further trouble until a few months before I saw her, when Dr. Bromley discovered three small hard nodules beneath the skin of the left chest in the immediate neighbourhood of the scar of the operation wound. These had slowly increased in size. During the