present, he seems to be doing well, and there has been practically no leakage of bile; his stomach is irritable, and he has difficulty in retaining food. As it is now seven days since, and he has no sign of peritonitis, I think he will pull through.

I would like to call attention to the fact that the adhesions found at the time of the second operation prevented Dr. Brewer from using the technic already described, and I feel that failure to make the duodenal gutter greatly handicaps the success of the work. Further than this, the first tube inserted was never found by x-ray, nor in the stools, and so the length of time the tube was *in situ* can hardly be guessed. A few days later Dr. Brewer wrote me as follows:

I am sorry to be obliged to tell you that my patient died as the result of his second operation. His condition was pretty bad at the time from cholemia, and the wound oozed for about ten days, which greatly weakened him. At the end of this time, the hemorrhage ceased and he began to take nourishment, but the bile never flowed freely into the intestine. Why I cannot imagine, because the duct was coupled up to the duodenum by a large tube through which the bile flowed during the operation. The temperature kept almost to the normal, and there was no peritonitis. No autopsy was permitted.

The most striking thing to me, in the convalescence after this work experimentally, and as borne out by Professor Brewer's experience in both operations, is that there is no biliary leakage and no peritonitis. One would suppose that there would be leakage at the point at which the tube enters the duodenum, at which place there must be some peristaltic back pressure. Such is not the case, however.

It is also curious that it is difficult to keep the tube *in situ* for any length of time without considerable care in anchoring it firmly with unabsorbable sutures.

The one point in this work about which there is some skepticism is whether or not the fistula will eventually close. If it is ultimately proved that in the human being a biliary sinus will not remain patent, a tube with flanges may be inserted, and thus held *in situ* permanently.

I have endeavored to present all angles of this work, so that it may be analyzed. It must stand or fall on its merits. I would esteem it a favor, if the men who have had cases of the nature this method is intended for will criticize its shortcomings.

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BERIBERI CAUSED BY FINE WHITE FLOUR

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The etiology of beriberi in rice-eating countries has had a great deal of light thrown on it recently. One frequently sees reports in the medical and lay press of cases arising on shipboard or in different parts of the world where the eating of polished rice cannot be the cause; reports from medical men proving that rice has nothing to do with it; reports of measures being taken by health officers on the assumption that it is an infectious disease. In spite of the knowledge gained, the disease seems not to be generally understood in such a way that rational measures are instituted when it appears, or that preventive measures are adopted where it is likely to occur. There is no doubt about the cause in the minds of the men who are working in the rice-eating communities, but they do not see the cases arising

from other diets (perhaps the same cause). While the work of these men is very definite and their results splendid, they have not been rightly interpreted by men who see beriberi arising from other diets. The reason of this is that the connection between cause and effect is not so plain. Contributing causes and intermittent conditions cloud the picture. It is in the hope that this difficulty may be removed and that better prophylaxis and treatment may be instituted, even where beriberi is not so prevalent or severe as in eastern lands, that I am writing some observations made clinically during five years in a wheat-eating country where beriberi is fairly common, that is, Newfoundland and Labrador.

There are people in this country who, especially at certain times of the year—mid-winter and spring, and in summer on their fishing vessels—come down to a diet of bread and tea. In other words, substitute wheat for rice, and we have the exact conditions which are seen in the east. The conditions are complicated by vicious physical states, arising from other causes, such as actual starvation, exposure, hardship, unhygienic conditions (this last to be insisted on and emphasized without going into details), so that malnutrition, physical exhaustion, scurvy and various minor and major pathologic metabolic processes are to be considered. Yet these can all be thrown out, and case after case demonstrated in which there is affection of the nerves, and almost invariably it is found that such patients have been or are, to all intents and purposes, on a diet of overmilled wheat, by which I mean ordinary fine white flour.

A great many people here live from hand to mouth, being always on the verge of poverty. There are many who are well satisfied if they have enough flour, tea and molasses to see them through the winter. Agriculture is so discouraging that many never have a vegetable. Game, deer, birds, rabbits, seals are scarce and getting scarcer. Berries, though abundant in the fall, are hard to gather. Fish is worth more to sell than to eat for with it flour, which is the cheapest food, is bought. Although there are times of the year when such people get all of these, there are times when they get none of them and those are the times when the physician begins to hear various complaints. These complaints are in many cases vague, in some definite. Such for instance are night-blindness, retention of urine, numbness or cold feelings, tingling in the legs or arms, or across the abdomen or mouth, feelings of water running up and down under the skin, etc. These are the paresthesias, the functional nervous troubles which are the prodromal stage of beriberi. They are very common. Let the vessel get home or the spring come, the ice break up, navigation open and a more varied diet be taken, and they disappear. But let an added burden be thrown on the economy, whether it be pregnancy, a wetting and chill or a cold; add the squalor and discomfort, dirt and bad air of one of the air-tight overheated cottages the natives live in, increased by the neglect caused by their own undermined health, then you will see the condition advancing sometimes very rapidly to the later stages of sensory and motor paralysis, with affection of the peripheral or special nerves, involvement of the heart, or any other organ, edema, etc., and sometimes death.

I have seen the advance into complete helplessness of a patient who complained only of night-blindness with paresthesias, anesthetics and paralysis. I have seen the same patient, put on a diet of whole-wheat flour, beans and peas, get perfectly well in two months. I have taken

into hospital patient after patient advancing from the functional stage of symptoms into the paralyzed, and, by giving a full diet with whole-wheat bread, beans, potatoes, macaroni and fresh meat, had them well in two weeks. I see two to three cases a day now, and during the last two months have taken in the worst ones and cured the patients in two weeks. On one part of our coast where beriberi has been most common, in the fall of 1910 a large vessel went ashore from which whole-wheat flour was unloaded to lighten her. The natives got the flour and there has not been a case there since, nor any of the functional symptoms. The "old stagers" of this country who remember the days when "brown flour" was the diet, say that this trouble was unknown among them. I could multiply clinical and empirical arguments endlessly, but what is the use?

Before the works of Eijkman, Frazer and Stanton, Chamberlain and Vedder and others came out, and their significance as applied to conditions here was understood, I found this problem the hardest to solve. Since the light thrown on this disease has been applied here, everything has been simplified. As I said in the first place, the contributing factors and the intercurrent and analogous conditions must be recognized and allowed for, but after this the bold fact stands out that the beriberi so prevalent here is caused by the same thing here as in Asia, the use of the overmilled grain (wheat, not rice) and the exclusion of other foods.

This must not blind us to the possibilities of other causes. The fact that peripheral neuritis is caused by alcohol does not prove that it is not caused by arsenic or diphtheria or other agents. The fact that one particular form of peripheral neuritis, which is called beriberi, is caused by eating to the exclusion of other foods, grain, whether rice or wheat, which has had its outer coat removed by polishing or milling, does not prove that peripheral neuritis is not caused in other ways, any more than the fact that beriberi was caused by eating polished rice proved that it might not be caused by eating overmilled wheat. Here in my experience is the proof that it is, and yet the fundamental cause is no doubt the same.

It is no part of my purpose to follow this argument up and to advance hypotheses to explain the other causes of the disease, as, for instance, the fact that unmilled grain may have the neuritis-preventing elements in its peripheral layers removed, changed or dissolved out by dampness, or decomposed and removed by heat, or that in certain states the body may not cause the decomposition of the proteins of other diets in the way necessary to produce the particular substance necessary to the normal preservation of nervous tissue. What I mainly want to do is to lead men to accept, at its worth, the work of the scientific investigators of this problem, to apply the findings to the amelioration of whatever conditions are the cause of the disease wherever they find it, and to produce a fuller understanding and recognition of the disease as a clinical entity outside of rice-eating communities.

It looks as though the time were not far distant when the wanting ingredient of the diet would be isolated and possibly put on the market in easily handled forms, which would vastly simplify our work in the prevention and treatment of this disease.

Meanwhile, a dissemination of the knowledge of its symptoms, cause, prevention and cure should be taking place. There are many isolated communities in which the diet is restricted and in which tuberculosis is rife, to which education for the prevention of tuberculosis is

being brought, and many of these communities are under more or less government control. It should be easy in such to include in the instructions on foods a knowledge of the value of whole-wheat flour, from the standpoint of preventing many of the prodromal, as well as severe, ills of beriberi, as well as from that of its general nutritional advantages. Where government control is possible, as in institutions, government relief work, etc., whole-wheat flour should be insisted on, as has been done in the Philippine Islands.

I have found the same prejudice against whole-wheat flour here as has been found against the unpolished rice there, but it has broken down before its proved value, and, at present, I am unable to supply the demand for it locally. The old regulations devised for preventing disease on vessels should be revised to meet this new knowledge. Sailors should be made to understand the significance of some of these symptoms, and ship-owners should understand the possibilities and means for their prevention. It should be taught that the more the diet is to be restricted to flour, the more is it necessary to have whole-wheat flour. The worse the hygienic conditions and the greater the hardships, even the more is it necessary. Or to put it in another way, whole-wheat flour is better than fine white flour for many reasons. The more one depends on it for the diet, the stronger become the reasons. When the staple article of diet is flour, the reasons are paramount; whole-wheat flour must be used to prevent nerve-poisoning.

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THERAPEUTIC LITERATURE *

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By "therapeutic literature" I mean literature in the form of books, monographs, magazine articles, journals or tracts of optimistic and self-helpful character which are written in language and meaning acceptable to the laity, and which can be safely placed in the hands of certain patients to help them cure their diseases or remove their symptoms.

I know that many physicians are already in the habit of suggesting the reading of certain books to their patients as an aid to cure, but as yet I have not been able to find where any one has systematically collated this form of literature for use in a therapeutic way. It is not my purpose by any means to attempt to name all the books which are used, or might be used, but I have selected only those with which I have become acquainted, and which have proved of value to me in my professional work. These books I regard as a part of my therapeutic armamentarium.

Although it is still a mooted question whether patients should be instructed in medical matters, and I strongly object to ever placing an ordinary medical text-book in their hands, yet in all these books which I have selected there is nothing to suggest self-medication or to encourage introspection, and no dismal prognoses are given, but all are encouraging and self-educative, and assist in a logical way in producing that attitude of mind which has given the various "cults" what success they have had to-day. These books teach patients to form the habit of dismissing the disagreeable, to be less self-contemplative and to look outside of themselves for life and happiness,

* Read before the Morgan County Medical Library Association, Jacksonville, Ill., Feb. 18, 1912.