in Dr. Basso's case. If the original tumor in his case was an endothelioma, a sarcomatous degeneration presumably has taken place with invasion of the cerebrospinal space and extension of the tumor just as we see when a glioma reaches the surface and overflows, as it appears to do, into the subarachnoid space, under which circumstances it may extend the whole length of the spinal cord.

Dr. Peter Basso had not seen the literature in connection with the tufts that Dr. Kennedy mentions, but he had a case, on which he was working, of a perivascular endothelioma, involving the parietal and occipital lobe. It is intradural and right over it there is a marked thickening of the bone. As to the sarcoma and endothelioma question, that is a very long one. He would simply say that if he were shown a slide of the tumor above the cerebellum without being familiar with the history of the case, he would call it a fibrosarcoma, and any other part of the pial tumor would pass for a round cell sarcoma. There were whorls, but no connections as in psammoma. The relationship between these diffuse endothelial tumors and the multiple central neurofibromata is interesting, because there are cases on the borderland. Also the relationship of this condition to the so-called diffuse glioma of the pia as described by Spiller is interesting. These tumors may all really arise from primitive neural cells, as suggested by Verocay, in which case we would consider them of congenital origin, arising at different stages of development and they should be called neurinoma.

INSANITY—THE PHYSIOLOGICAL, MORPHOLOGICAL AND SEROLOGICAL CHARACTERISTICS

By S. D. W. Ludlum, M.D., and E. P. Corson White, M.D.

Abderhalden reactions have been done on cases of insanity and on animals after experimental removal of glands. In all instances there has been noticeable groupings which developed, by means of reactions, the morphology and the physiological and nervous symptoms.

PRELIMINARY REPORT ON THE USE OF THE ABDERHALDEN REACTION IN MENTAL DISEASES

By Henry A. Cotton, M.D., E. P. Corson White, M.D., and W. W. Stevenson, M.D.

Review of recent investigations. Technique of the method. Nature of the reaction. Experimental evidence of the relation of the reaction to disturbance of the ductless glands. Also demonstration of pathological brain lesions coincident to the changes in the endocrin system. Type of mental cases investigated. Analysis of results in 200 cases. Relation of vagotonic and sympathetonic states to the type of mental diseases. Important physical symptoms described especially in dementia præcox.

THE AUTOLYSIS OF NITROGENOUS COMPOUNDS IN THE BLOOD SERUM OF GENERAL PARALYSIS AND DEMENTIA PRÆCOX WITH ITS BEARING UPON THE ABDERHALDEN TEST*

By H. Douglas Singer, M.D., M.R.C.P., and W. B. Quantz, Ph.D.

From the Laboratory of the Illinois State Psychoanalytic Institute.

Estimations of the increase of amino-acid nitrogen in blood serum during incubation for twenty-four hours with brain substrate which had been washed

* The full text published in the Arch. of Int. Med.

with boiling water a varying number of times gave the following average results in milligrams per c.c.:

	No. of Cases	Increase After 24 Hours Without Substrate	Increase After 24 Hours With Brain Substrate which Had Been Washed			
			2 Times	4 Times	6 Times	11 Times
Normal.	2	0.016	0.103	0.057	0.025	0.021
General paralysis.	5	0.012	0.154	0.122	0.087	0.045
Dementia præcox.	5	0.016	0.123	0.048	0.033	0.023

Estimations of the increase of total non-coagulable nitrogen in blood serum treated with placenta substrate for ten minutes only and then incubated for twenty-four hours gave the following average results in milligrams per c.c.:

	No. of Cases	Increase After 24 Hours Without Substrate	Increase After 24 Hours Subsequent to Treatment for 10 Mins. With Placenta
Normal.	4	0.131	0.335
General paralysis.	5	0.026	0.328
Dementia præcox.	4	0.128	0.322

From the above results and the fact previously published¹ that the water which had been used for washing substrates is capable, when used as a substrate, of giving rise to positive Abderhalden tests, the conclusion is justified that the protein which is split up in these tests is that of the blood serum and is not derived from the substrate. Further, that the substrate acts only by neutralizing the antitryptic properties of the blood serum.

From placenta substrate there can be extracted by water or normal salt solution certain nitrogenous bodies which are largely in the form of ammonium salts and urea. Positive Abderhalden tests were obtained with blood serum from a case of general paralysis when ammonium chloride was used as a substrate.

Comparisons, in the three groups of serums examined, between the proportion of total noncoagulable nitrogen present in the form of amino-acid nitrogen in the two sets of figures given above, between the antitryptic titre shown by the increase in amino-acid or total noncoagulable nitrogen according as a substrate was or was not used and between the ratio of noncoagulable to total nitrogen reveal a striking similarity between blood serum from normals and dementia præcox patients with a marked divergence for that from general paralytics.

The following conclusions were drawn:

Substrates neutralize antitryptic bodies in the blood serum, thus permitting fermentation of the nitrogenous constituents of the serum. This autolysis will, if not carried too far, cause a positive Abderhalden reaction.

The Abderhalden test is of no value as an index of disease of, or disorder of function in, any particular organ.

These three papers were discussed together.

Dr. David I. Wolfstein said Cincinnati has recently become the Mecca for epileptics, these unfortunates are flocking there from all parts of the country to consult Dr. Reed. Expressing Dr. Wolfstein's personal views, he thought this Association should exercise extreme caution lest it give countenance to a therapeutic procedure in epilepsy which has not back of it proper

¹ Arch. of Int. Med., 1915, Vol. XV, p. 724.

scientific proof. The theory that intestinal stasis and constipation may have influence in the production of the epileptic seizure is fascinating and perhaps possesses restricted validity, but Dr. Wolfstein is not convinced that it has the general broad value attached to it by the gentleman in question. The cause of epilepsy, according to Reed, is a definite microorganism, a germ which he claims to have isolated pure, to have cultivated; and as fulfilling Koch's main criterion for the specificity of an organism Reed also claims to have produced by its inoculation in animals—two or three rabbits—definite convulsions of epileptic type. Furthermore, Dr. Reed believes so-called idiopathic epilepsy to be a disease definitely communicable from person to person—that is, infectious. One of his normal control animals licked the wound of one of his inoculated animals and soon developed convulsions. This fact appears to be the basis for broad generalizations on the infectious nature of epilepsy in man. Dr. Reed showed smears at a recent meeting of their Research Society. These smears were made from the blood of patients taken during attacks or shortly thereafter. They were also identical with smears from pure cultures obtained from inoculated animals. It is a very large bacillus, surprisingly like the common hay bacillus. If there have been detailed reports of cases with accurate clinical histories from Dr. Reed's clinic Dr. Wolfstein had not seen them. At any rate we should, as neurologists, reserve judgment in this whole matter of the causative relation between intestinal stasis, constipation and epilepsy, as well as with regard to the validity of Reed's bacillus until further confirmation of his findings from competent sources appears.

Dr. C. B. Burr asked Dr. Ludlum what in the absence of any knowledge of a new patient's previous history or without other examination, physical or mental, he would be able to infer from any particular reaction as to the form of disease present, or how far the reaction would serve as a guide to subsequent inquiry and examination.

Dr. L. F. Barker asked whether it would not be well to inform general practitioners that epilepsy is a symptom, not a disease, and that cutting out the large intestine will not cure it. Now and then intestinal stasis may be a factor, but if patients are to be operated upon for intestinal stasis the greatest care in the selection of cases should be exercised.

Dr. Hugh T. Patrick said Dr. Wolfstein had inadvertently given us an opportunity of protesting. In the west there are a good many pilgrimages to Cincinnati for this abdominal operation for epilepsy. The operation is not only a very serious one, but the basis of its performance cannot be said to be scientific. At least it has not been established in a scientific way. And what Dr. Patrick wished to say, what he thought he must say, was that he had been informed from more than one source that the operator uses methods not only unscientific, but ethically condemnable. He had been informed that follow-up letters are sent to patients and prospective patients. Consequently it is our duty to caution patients against this operation and this operator.

Dr. Smith Ely Jelliffe said similar experiences are now almost a by-word. Eye muscle cutting for the cure of epilepsy had its little day; stripping of the clitoris was much in vogue at one time; ovariectomy was a panacea for a time. We laugh at these enthusiasms, unmindful often of the fact that we are indulging in them ourselves. The intestinal operation for epilepsy is only another instance of faddism going wrong. A few residual results will be satisfactory. These will be attributed to the operation, and touting for practice may be based upon them.

Dr. E. B. Angell asked how much pancreatic extract Dr. Ludlum uses in his cases. He has been in the habit of using in intestinal disturbance extract of the pancreas in tablet form two hours after eating at the beginning of intestinal digestion, and he is curious to know Dr. Ludlum's exact dosage.

Dr. Herman M. Adler gave a word of caution against interpreting the anatomical findings too specifically. The correlation in Dr. Ludlum's cases seems convincing, but so far as affecting any change in the structure of the ductless glands, that remains to be proved. During the past years Dr. Adler has been performing experiments on rabbits in which he fed them hemolytic fats with the object of demonstrating some relation between the anemias and the atrophy of lymphatic tissue, which occurs so frequently in psychiatric cases. After prolonged feeding with huge doses of fat, it was found that the rabbits became extremely emaciated, and showed extreme grades of anemia. They were so emaciated that they had actually acaphoid abdomens. In all these rabbits, however, it was interesting to note that the thyroid gland and the adrenals were immensely enlarged. On histological examination this hypertrophy appeared to be parenchymatous.

Dr. S. D. W. Ludlum said in answer to Dr. Burr's question: We have a reaction to a certain gland, can you tell a priori what this means? Given a reaction of the thymus gland it might mean hypophyseal dystrophy, or preinvolution melancholia, so that simply the reaction would not be enough to make a diagnosis without studying the morphology of the patient and his sympathetic nervous symptoms. The reaction means that this is simply one more of the symptoms of insanity and is not necessarily a cause and does not mean that the cure of insanity is going to come through the ductless glands, but is one more link in the chain of etiological factors.

Dr. Henry A. Cotton said that in his paper he mentioned some work that had been done in regard to the relation of intestinal stasis to epilepsy. While he did not subscribe to all in the article in question, he thinks that the work concerned with the intestinal condition is probably corroborated by other investigators. It is a well-known fact that epileptic convulsions are influenced considerably by the diet, so it seems fairly well established that the intestinal stasis plays an important factor in the production of convulsions. The correction of intestinal stasis alone probably will not cure epilepsy if there are other factors which are not attended to, nor is it claimed that pancreatin is a cure for epilepsy, but it certainly exerts a marked influence on the frequency of the convulsions.

Results of the Abderhalden tests in these cases correspond with the physiological work by Cannon, especially in regard to the hyperactivity of the suprarenal gland. Therefore, they reported these cases as a part of their investigation as they consider it an important contribution to the pathogenesis of epilepsy.

Dr. H. Douglas Singer simply emphasized the importance of exercising great caution in drawing conclusions from such results as those reported by Drs. Ludlum and Cotton. They had observed that, using the serum of normal animals, substrates prepared from the glands of internal secretion appear to be quite efficient in the neutralization of antitryptic materials.

THE HISTOLOGY OF SELECTED AREAS OF THE CEREBRAL CORTEX IN DEMENTIA PRÆCOX

By E. E. Southard, M.D.

The material examined was selected from cases already studied clinically and anatomically, with systematic brain photography, and was designed to include examples of cases with normal-looking brains, with conditions suggesting congenital origin, and with conditions suggesting acquired nature. The areas had been selected as those about which we know most physiologically. The