

as the reaction of the fluid in the dialyzer. From various causes the reaction of the urine in the dialyzer may change during the time allowed to dialyze, but we always find the reaction on both sides of the dialyzer the same.

I do not see wherein Jamison is justified in drawing the conclusion that after dialyzing the urine of *pregnant women*, the dialysate gives a positive reaction to ninhydrin. A negative reaction may also be found, for the same factors which interfere with the reaction in certain non-pregnant urines would also be found occasionally here.

One point which I wish to emphasize is that all urines contain some amino-acids and will give a ninhydrin reaction unless some interfering substances are found. It must not, however, be thought that when we get a blue color with ninhydrin, the presence of amino groups in alpha position to carboxyl is demonstrated. A large number of substances will give color reactions with ninhydrin; for instance, ammonia, ammonium carbonate, diammonium hydrogen phosphate, ammonium formate, ammonium acetate, ammonium butyrate, ammonium oxalate, ammonium succinate, etc. Such substances, however, as ammonium chlorid, and ammonium nitrate do not give a reaction.

CHARLES E. M. FISCHER, M.D., Columbus, Ohio.

[This letter was referred to Dr. Jamison who replied:]

To the Editor:—Dr. Fischer entirely avoids the main issue of my recent article, which endeavored to show that the presence of dialyzable products in the urine reacting to ninhydrin is not diagnostic of pregnancy. He has attacked some minor points, however, so I will endeavor to answer him.

I stated that when a urine was strongly acid (to litmus) the ninhydrin reaction was often negative, and this is certainly true in my experience; I have seen an occasional exception when there was a large amount of amino-acids present. This is also the case when working with blood; in using the Pierce-Williams technic, great care must be taken not to add too much acetic acid, for the reaction will often be inhibited though the blood is known to give a positive reaction. Dr. Fischer appears to be mistaken on another point, as illustrated by the following: Suppose that one gets a positive reaction to ninhydrin in a specimen of urine prior to dialyzation; now to the same tube showing the characteristic blue color of the ninhydrin reaction, add acetic acid in moderately large amounts and it will be found that the blue color will soon fade; the fluid in the test-tube may now be exactly neutralized, but the blue color will not reappear. I am confident that Dr. Fischer did not follow this procedure. Further, suppose we test a specimen of urine from a known pregnant woman; this urine is found to be strongly acid to litmus and negative to ninhydrin, and though we now exactly neutralize this urine it will still remain negative, but if we dialyze out the amino-acids, the dialysate will give a positive reaction to ninhydrin. In such a case we are dealing with two factors which may inhibit the reaction, namely, the acidity and some unknown inhibiting substance. The reason that the reaction will appear in the dialysate is, probably, that the amino-acids will dialyze through, but not the inhibiting substance. The reason that the dialysate is nearly always neutral to litmus is that the acid substances are so largely diluted by the water on the outside of the membrane (it is to be remembered that only 2 c.c. of urine are used, and 10 c.c. of water), that their reaction is not perceptible by so coarse a means as litmus, though I have no doubt that acidity can be demonstrated by more delicate means. If a urine gives a strong reaction to ninhydrin and then is made so acid that the reaction disappears, and then again the acidity is exactly neutralized, of course the reaction can be obtained in another specimen of this acidified-alkalinized urine.

This seems to be Dr. Fischer's main ground for criticism, and I admit that there may have been some ambiguity in the wording of my original paper on this particular point; at any rate, Dr. Fischer mistook the sense of my article, as set forth above.

After dialyzing the urine of pregnant women, I have never found one to give a negative reaction to ninhydrin; and if Dr. Fischer has found this not to be the case he should have stated it specifically. From the examinations that I have made I see no reason for altering this conclusion. I have found the reaction negative in the dialysates from the urine of non-pregnant women and also of men.

Theoretically it is true that all urines contain traces of amino-acids, but, in my opinion, drawn from experiments as set forth in my original paper, *not all urines will give a positive reaction to ninhydrin*, probably because the amount normally present is infinitesimal.

CHAILLÉ JAMISON, M.D., New Orleans.

Painless Parturition

To the Editor:—The suggestion of Dr. C. D. Daniels (THE JOURNAL, May 2, 1914, p. 1420), concerning the use of nitrous oxid in parturition, is based on faulty technic. When nitrous oxid is administered with sufficient oxygen to maintain normal oxygenation of the blood, there is no increase in respiratory difficulty with the infant. In nitrous oxid administration, proper oxygenation is relatively as essential an element of safety as is asepsis in surgical technic, and in this day it ought not to be considered necessary to reiterate continually such essential requisites.

RAYMOND C. COBURN, M. D., New York.

Queries and Minor Notes

ABDERHALDEN'S SERODIAGNOSIS IN PSYCHIATRY

To the Editor:—Please describe the technic for preparing nervous tissue for use in Abderhalden's serodiagnosis in nervous affections.

W. S. LORENZ, M.D., Milledgeville, Ga.

ANSWER:—The theoretic basis of this test is the assumption that a protective ferment is formed in the organism against cells or protein which have entered the blood from a degenerated organ. In the test for pregnancy a ferment formed by the maternal system against placental tissue is tested for on the supposition that cells from the placenta find their way into the blood of the mother and excite the formation of a specific ferment capable of decomposing them. Similarly it is supposed that in dementia praecox the brain cortex becomes degenerated and furnishes cells or substances to the blood which act as foreign bodies. The presence of these substances excites the formation of a ferment capable of decomposing the proteins of the human brain. In a similar manner the tissues of the genital glands, which are more or less affected in dementia praecox, are subject to digestion by a similar ferment. These ferments are so specific that the ferment of one sex will not affect the glands of another sex, that is, the serum of a woman will not digest testicular tissue nor will that of a man digest ovarian tissue. Experiment has shown that the organs of animals cannot be used in this test. The organs to be used should be taken from cadavers of persons who were not cachectic and the necropsy should have been made within a few hours (from six to twenty-four) after death. The organs should be taken from the cadaver of a patient who has not died after a long agony and has not suffered from an infection or high fever shortly before death. The organs should be removed with aseptic precautions. Organs containing much fat are not well suited to the test. If the tissue contains considerable fat, it should be removed in a Soxhlet apparatus. The material should be cut into pieces of moderate size (size of a bean) and washed repeatedly until the wash-water gives no reaction with ninhydrin. The washed material should be cut into fine pieces and tested again after thorough washing.

The pieces should then be boiled and tested, and if free from substances reacting with ninhydrin, they should be preserved in the water in which they have been boiled under a layer of chloroform and a layer of toluene.

The incubation and testing are performed in the same manner as when testing for the serodiagnosis of pregnancy. The greatest care must be taken to see that the dialyzing