toms of confusion remain for some time. In Case 3 symptoms of confusion remained for four weeks. At the last meeting of the Southern Medical Association, Dr. L. A. Green of Jacksonville, Fla., stated that the records of the State Hospital of Florida show a number of cases of patients admitted as insane whose condition was due to cerebral malaria and responded to quinin medication. This I readily believe, for I was so fortunate as to see in consultation with Dr. R. D. V. Jones of Newbern, N. C., a case of cerebral malaria in which symptoms of confusion lasted for over two months. This patient had hallucinations of sight and hearing and illusions of the same senses and at times was in a state of grandeur. So it should be recognized in malarial districts that cerebral malaria is a possible etiologic factor in all acute mental conditions.

CONCLUSIONS

1. Cerebral malaria may assume the form of any brain disease.
2. It is practically never due to the first paroxysm but to succeeding ones and by energetic treatment of the first paroxysm it may be prevented.
3. The specific action of quinin hypodermically and that the drug must be given for effect—the dose usually being 9 to 12 grains every four hours.
4. Cerebral malaria is a frequent disease in malarial districts.

201 Elks Temple.

CASE OF STAB WOUND OF THE HEART; OPERATION AND RECOVERY

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NEW YORK

An Italian woman, aged 44, was brought to the Pennsylvania hospital at noon on April 18, 1909. She had been stabbed in the chest about ten minutes previously. Examined immediately on admission. She was unconscious, very pale, the skin was moist and cold, there was slight dyspnea and no pulse could be felt at the wrist. A wound 1.5 cm. long was present over the second left intercostal space about 5 cm. from the sternal edge. The heart sounds could be heard faintly, were rapid and slightly irregular, but no adventitious sound was heard. The breasts were lactating and full. The outline of cardiac dullness was not determined. Ether, 25 minims, then 1/20 grain of strychnin were given hypodermatically at once, and a very feeble radial pulse could then be palpated, rapid and slightly irregular. The diagnosis was wound of the heart.

Operation was started at 12:50 p. m. A curved incision was made about the inner border of the breast from the second to the fifth rib, and skin, breast and muscles reflected outward. The wound was then seen to enter the thorax through the fourth left intercostal space about 3 cm. from the edge of the sternum. The third and fourth ribs were divided at the costochondral junction and at the chondrosternal articulation and were turned inwardly over the sternum. The pleural cavity was opened freely by this procedure and it was noted that it contained only a small amount of blood. The internal mammary artery was ligated above. A wound 5 cm. long in the precordial fat and pericardium was enlarged by tearing, releasing a quantity of blood and blood-clots which gushed out under considerable tension. The pulse improved immediately and was then noted to be 80, regular and fairly full. The heart wound was about 3 cm. long, crossing the anterior interventricular groove diagonally from above and to the left, to below and to the right about midway between the apex of the heart and the auriculoventricular groove, a little more than half of the wound lying over the right ventricle. A col-

umn of dark blood spurted out with each systole. Six or seven linen thread sutures closed the wound, one of them catching the cut left descending coronary artery. Some clots lying behind the heart were scooped out with the fingers, and as there was no further bleeding the pericardium was closed, using a continuous catgut suture. A rubber drainage-tube was inserted through the left ninth intercostal space into the thoracic cavity and sutured in place. About a liter of blood was drained out, most of it having come from the pericardium. The ribs and intercostal muscles were sutured with catgut, the pectoral muscles with catgut and the skin with silkworm-gut. A small gauze drain was inserted into the outer stab wound. The operation was finished at 1:55 p. m.

The anesthetic was ether, 2½ ounces by the open drop method. It was started at 12:45 and stopped at 1:45 p. m. The patient was then given ¼ grain morphin sulphate, 1/150 grain atropin sulphate hypodermatically, and 8 ounces of normal saline solution slowly by rectum.

The blood examined during operation showed hemoglobin 75 per cent., red blood-cells 4,842,000 and leukocytes 19,400.

The patient was quite comfortable, with a temperature of 100 and a pulse of about 100 until the fourth day. Then there was a sudden increase in the pulse-rate to 140, great restlessness, some dyspnea, a marked engorgement of the cervical veins and a dilatation of the left pupil. These symptoms were thought to be due to a pericardial effusion. The fifth day the venous engorgement and dyspnea were much lessened, and on the sixth day a large amount of fluid was removed from the chest after the drainage tube had been removed, the sinus opened up and the tube replaced. Until the fourteenth day the breasts required stupes and massage. On the thirty-second day, the second day in a chair, the patient had a sudden attack of cyanosis and marked dyspnea, which lasted only five or ten minutes, and was relieved as soon as she lay down. This attack may have been due to an embolus, but there were no other symptoms. On the forty-second day a consolidation developed in the upper lobe of the left lung. She ran a high remittent temperature for five days, then it fell to normal and the cough and all the signs in the lung cleared up.

She was discharged on the ninetieth day, easily able to get around by herself. Her pulse-rate was 88, heart was in its normal position, and the heart sounds were of normal character.

A representative of the Pennsylvania Hospital Social Service Department visited her in April of this year and reports that she looks perfectly well, and is doing her own housework. She has a little dyspnea on climbing stairs, but never any cardiac pain or edema. Her pulse is 64, regular and of good volume.

There are two points of interest in this case. First was the marked heart tamponage with the immediate and marked improvement in the rate and character of the pulse when the pericardium was opened. The second interesting feature was the division and ligation of the left descending coronary artery. In the several lists of cases^{1, 2} published, this complication is noted in six; this case is the seventh. The cases are those of Cappelen, Pagenstecher, Vince, Foramitti, F. T. Stewart's first case, and one of those in the series of twenty-one reported by E. Hesse. Three of the seven patients died within three or four days of operation, four have recovered. Hesse's patient was well eighteen months after operation, the woman reported in this paper is well four years after operation. Stewart's patient worked for five years as a janitor, handling heavy boxes, and finally died of pulmonary tuberculosis. The detailed necropsy report is given in his recent paper,³ and showed quite an exten-

1. Pool, E. H.: *Ann. Surg.*, 1912, iv, 500.

2. Peck, C. H.: *Ann. Surg.*, 1909, i, 100.

3. Stewart, F. T.: Five Cases of Suture of the Heart, *Ann. Surg.*, July, 1913, p. 67.

sive myocarditis and the wall of the ventricle was very thin at one place.

These cases would seem to be of considerable interest in view of all the recent clinical and experimental work that has been done to prove that the coronary arteries are not end arteries, as was at one time supposed.

680 Madison Avenue.

A PRELIMINARY NOTE ON SPIROCHAETA PALLIDA AND LIVING TISSUE- CELLS IN VITRO *

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NEW YORK

Having successfully applied Harrison's method of tissue growing *in vitro* to the cultivation of the virus of vaccinia,¹ we have here tried the same method with the *Spirochaeta pallida*. In the present experiment the organisms used were from a culture obtained from Dr. Noguchi. He has kept it growing for some length of time and states that it has lost most of its virulence.

Hanging-drop preparations were made of small pieces of the testes of the rabbits inoculated with spirochetes, to which rabbit plasma was added. The preparations were incubated at 37 C. (98.0 F.). Before incubation preparations examined in the dark field did not show spirochetes nor did those examined during the first few days of incubation. Evidently very few spirochetes were inoculated. The cells of the testes, however, showed a good growth.

After incubation for twenty-five days examination with the dark field showed many organisms. These were extremely motile. Short forms found strongly suggested multiplication of the organism and not merely a survival of the original inoculation. The early negative examinations would also suggest a multiplication.

The organisms were inoculated into the testes of a rabbit and the virulence will be reported later. It seems possible by this method of growing avirulent cultures with living cells and transferring them to fresh cells to restore their pathogenicity. This would be in line with the increase of virulence found in bacteria submitted to the action of immune serum. Further experiments are now being made in this direction and also on the direct inoculation of spirochetes from syphilitic lesions.

Research Laboratory, East Sixteenth Street.

THE PREPARATION OF ALBUMIN MILK IN THE HOME

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The value of albumin milk as a therapeutic agent in the nutritional disturbances of infancy has been fully established. The difficulty of its preparation has curtailed its use very much.

The original directions for its preparation called for a quart of sweet milk brought to the boiling point, allowed to cool to 100 F. and then curdled with a tablespoonful of essence of pepsin. The whey is drained off and the curds suspended in a muslin bag for two hours. The curds are then passed through a hair sieve by gentle pressure with a large spoon

or potato masher adding at the same time a pint of fat free buttermilk. Boiled cool water is then added to bring the whole up to one quart. The preparation is then ready for the addition of from 1 to 5 per cent. of maltose and dextrin.

The main difficulty is in getting the curds to pass through the sieve. In our institution we prepare from 10 to 15 quarts a day. This formerly was a huge task and would consume anywhere from one-half to two hours. And still the product could not be considered ideal. As the result of mashing the curds through the sieve, the fat separates out in the form of butter and your infant is robbed of many calories that he ought to be getting. Recently some have the curds prepared from skim-milk instead of whole-milk. This in some instances might be desirable but in a large group of infants we desire the mixture to contain fat.

METHOD

At St. Ann's Infant Asylum we have found a method of reducing very much the time and labor. The following are the directions in detail:

1. Bring a quart of sweet whole-milk to the boiling point; raw-milk is not used as its curd is much tougher.
2. Cool to 100 F.
3. Add one tablespoonful essence of pepsin and allow to curdle.
4. Pour off the whey and suspend curds in muslin bag two hours.
5. Stand bag containing curds in 8 ounces boiled cool water for one hour. This is very important and is the secret to the success we have had in the preparation of this food.
6. Remove the bag from the water, allow as much water to drip as will and place curds in sieve.
7. Add pint of fat-free buttermilk to sieve containing curds, and stir; it will be found that the curds will pass through in two to three minutes, which must be repeated three or four times.
8. Turn the bag inside out and return to the 8 ounces of water so as to obtain all the curd.
9. Pour in the sieve the 8 ounces of water which was used to soak the curds.
10. Add enough water so that the whole measures a quart.
11. Add the percentage of maltose-dextrin desired and put on ice.

We are able to prepare 10 quarts of this food after the curds have drained and soaked in less than ten minutes with the minimum separation of the fat.

1467 Union Avenue.

A CASE OF ANEURYSM OF AORTA RUPTURING INTO THE VENA CAVA

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History.—D. S., bachelor, aged 70, 6 feet in height, weight 220 pounds, with negative family history, denying syphilis, had never been ill until several months previous to the time I first saw him, Feb. 21, 1911. During those months he became short of breath and had pain in the front part of his chest when climbing the hill to his home and had been treated for asthma. When I first saw him he had severe pains in his chest and was so short of breath that he could not walk across his room. He was chiefly anxious because his eyelids, face and hands were swollen, and his tongue seemed thick.

Examination.—Patient was dyspneic, his face, neck, arms and upper part of his chest swollen and cyanosed, with edema over the exposed bony surfaces. The external jugular veins were full, but no pulsation could be detected. Superficial veins of upper chest were plainly visible. The rest of the body was neither edematous nor cyanotic. There were no visible pulsations. There were distinct diastolic shock over great vessels at base of heart, and heart dullness on the right at the right edge of the sternum and on the left at the mid-clavicular line in the second interspace and 2 cm. outside of midclavicular line at the fourth interspace. Apex beat was

* From the Research Laboratory, Department of Health, New York.

1. Steinhardt, Israel, and Lambert: Jour. Infect. Dis., 1913, xiii, 294.