EXPERIMENTS UPON THE NEW SPECIFIC TEST FOR BLOOD.

(PRELIMINARY NOTE.)

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THE recent discovery of specific precipitins which act upon various bacterial products—milks, peptone, egg albumen, and different kinds of blood—has led us to undertake the investigations which are here presented in abstract. A complete review of the literature of the subject, as also a detailed report upon our experiments, will appear in the forthcoming number of the *Journal of Hygiene*.

We have injected rabbits intraperitoneally with horse, dog, ox, sheep, and human serum, and have been able to observe the formation of specific precipitins in their blood. The antiserums from these animals have been tried on twenty-four different bloods with uniformly negative results, when we except the slight action exerted by the antiserum for human blood upon the blood of two species of monkey. In this case a slight reaction was obtained which could not be compared in intensity with that shown on the addition of the antiserum to human blood. A slight clouding was produced by the antiserum for ox blood when added to sheep's serum and *vice versa*. Some animals already gave an effective serum after the third injection.

Bloods which had been dried for two months and preserved at room temperature, either in the dark or exposed to diffuse daylight, or in the dark at 37° C., as also such as had been exposed for a week to the action of sunlight, as also serum from a blister the result of a burn, all gave a positive reaction when tested with their particular antiserum. Some human blood which had undergone putrefaction for two months, when diluted 1 in 100 with normal salt solution, gave a marked reaction with the antiserum for human blood, which it did not do on the addition of other blood serums. A rabbit which was treated with some old antidiphtherial horse serum preserved with tricresol in a corked bottle for two years and seven months, yielded a specific precipitin for horse serum. Positive results were also obtained by treating a rabbit with a pleuritic fluid which had been kept in the laboratory for five to six months, and preserved by the addition of chloroform. A slight but distinct reaction was obtained with human nasal and lachrymal secretion.

Dilutions of human blood (1 in 100) mixed with an equal volume of dilutions of the blood of the ox, sheep, dog, and horse, and tested for human blood, all gave a positive reaction, and *vice versa*. Control experiments with normal rabbit serum, as also with non-homologous antisera, gave negative results.

The investigations we have made confirm and extend the observations of others with regard to the formation of specific precipitins in the blood serum of animals treated with various serums. We conclude that these precipitins are specific, although they may produce a slight reaction with the serums of allied animals. The substance in the serum which brings about the formation of a precipitin, as also the precipitin itself, are remarkably resistant. The new test can be applied to a blood which has been mixed with that of another animal.

We have in this test the most delicate means hitherto discovered of detecting and differentiating bloods, and consequently we must hope that it will be put to forensic use.¹

REFERENCE.

¹ BRITISH MEDICAL JOURNAL, March 30th, 1901, p. 788.

THE *New York Medical Journal* states that Dr. W. Parsons Read of Philadelphia, formerly an Assistant Professor in the Jefferson Medical College, took part in the capture of Aguinaldo. It may be mentioned that the Philippine leader himself is said to have studied medicine, though we believe he did not proceed to a degree.

RESPONSIBILITY AND CRIME.

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THE leading article on the above subject in the *BRITISH MEDICAL JOURNAL* of April 20th, recalls several cases in my experience which fully bear out the statement that epileptics are not infrequently really unconscious of doing apparently purposive acts of a criminal nature, though such acts may appear to be done consciously and with evil intent. Many years ago, when resident in charge of the Glasgow Town's Hospital and Asylum, I was sent for to a hospital (not asylum) ward to see a man who within an hour after an epileptic seizure had made a violent and unprovoked attack on a fellow patient. On getting to the ward, about ten minutes after the occurrence, I found the assailant standing composedly by the fire, but with a somewhat dazed expression of countenance. Addressing him very quietly, I said, "Why did you strike—?"—mentioning the other patient's name. He, in reply, simply repeated the words of my question, then sprang forward and tried to catch me by the throat. A struggle ensued, but, with the assistance of the nurse, I succeeded in overpowering him without either of us sustaining any injury. So far as I could judge he was quite unconscious of either of these acts, and had no recollection of them afterwards.

In another case an elderly man subject to epilepsy, but who was not seen to have a fit, in the middle of the day when the nurse and many patients were in the ward, got out of bed and lifted the chamber-pot from below the bed as if to pass urine. He then suddenly let it fall, turning towards a patient in the adjoining bed, while exclaiming, "You —, I'll do for you!" and made a determined and seemingly murderous attack on him. The other patients succeeded in seizing the epileptic before any material injury was inflicted on the young man assaulted. I was speedily informed of what had happened, and at once went to the ward. I found the old man standing by his bed, pale and agitated, but quite intelligent. On speaking to him about his conduct he said he did not know that he had tried to injure anyone. In saying so he had the aspect of a man who was speaking the truth. I made careful inquiry as to the relations of the two men with each other while in the ward, but could not find the slightest evidence of quarrels between them; indeed, I was assured that they had scarcely spoken to one another since their admission.

The following incidents are illustrative of the same general proposition that the apparently deliberate acts of an epileptic may be done while the ordinary consciousness of the actor may be in abeyance. They are of greater interest from the fact that the patient was a medical man of good intelligence, which was not appreciably affected during his illness, though he was more irritable than before its occurrence. A. B., aged about 50, was under my care during several years on account of epilepsy. The form of the disease from which he suffered was almost purely the *petit mal* or epileptic vertigo. He ultimately recovered, but died about two years afterwards from disease of the heart. While the epileptic condition lasted he had many strange experiences; once when going to a railway station he had reached a central square in the city when his mind became a blank, and he had no consciousness of anything till he found himself back in his consulting room. The distance he had walked in this state of mental automatism was about three-quarters of a mile, and he had safely threaded his way amongst pedestrians and vehicles of various kinds, crossing in his course some of Glasgow's busiest streets.

On another occasion, when examining a patient with the stethoscope, he abruptly stopped without saying a word, then lifted his hat, and left the house, requiring to walk down a stair before he reached the street. Thereafter he went home, his full consciousness having returned on his arrival there. He was afterwards told these circumstances by the patient's friends.

These two experiences, besides others of a similar kind, were told me by the doctor himself; his wife related the following occurrence to me: When the family were all seated at dinner one day, her husband, who had begun to ask a blessing before the meal, took one of his "turns," as they called the seizures, with whose general indications they were