

reaction of the blood be due to the diminution of the alkaline salts proper in the circulating fluid, or to the excess of acid substances owing to retarded elimination.

It is not easy, he remarks, to answer this question. The observation of Biernaki that the diminished alkalinity is owing to the accumulation of lactic acid has not been accepted by any other observer. The epileptic attack cannot be caused by the lessened alkalinity of the blood, since Charon and Briche have found that it cannot be put off by repeated injections of alkaline solutions, nor can the alkalinity depend upon the attack, because it is actually lessened in degree thereafter. Tolone himself thinks that the diminution of alkalinity depends upon the production of substances due to retrogressive changes or to diminished elimination, perhaps owing to the lessened action of the liver. Thus toxic matters accumulate in the blood, which act upon the cortical matter of the brain, but the resulting disturbance represents a reaction and favours the elimination of the toxic products especially by restoring the power of the hepatic cells.

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*Investigations upon the Spinal Fluids in Mental and Nervous Diseases*  
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The study of the state of the cerebro-spinal fluids in disease has been mainly initiated by French pathologists. Schoenborn was the first to take it up in Germany. He was followed by Siemerling and Meyer.

Lumbar puncture has been principally useful for diagnosis; its therapeutic value has been slight. Meyer found that in almost all cases in which there was organic disease with chronic meningitis there was an increase of lymph cells in the cerebro-spinal fluid. He describes these lymph cells as small round nuclei with indistinct contour, at one part clearer but without granules. In general paralysis he has found bigger blue nuclei, which within the cells are surrounded by red granules.

As the result of his observations in the Psychiatric Clinique at Kiel, Dr. Henkel gives the following conclusions: He has regularly found a considerable increase of lymph cells, abundance of serum albumen, and increase of serum globuline in progressive paralysis, tabes, lues cerebri and cerebro-spinalis, and in all the forms of meningitis. These appearances were also constantly observed in cerebral tumours although in a lesser degree. It is much the same in myelitis, only there is a greater relative increase in the amount of albumen. In arterio-sclerosis, multiple sclerosis, and syringomyelia the changes in the cerebro-spinal fluid were variable; perhaps they depended upon the seat of the lesion. In early syphilis without organic implications there was sometimes a small increase of lymphocytosis. No such production of cells could be found in infantile paralysis or in functional disease. One had the impression that in chronic processes single nuclei, in acute processes cells with several nuclei, were most abundant. Inflammations seemed to favour the increase of cell-formation, but the manner of this increase could not be made out.

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