PERMANGANATE REDUCTION INDEX OF CEREBROSPINAL FLUID.

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Mayerhofer [1] has applied an old oxygen consumed water test used as an index of contained organic matter to determine variations in the organic elements of cerebrospinal fluid in normal and pathological conditions. The number of c. c. of a decinormal potassium permanganate solution when boiled for ten minutes in a strong sulphuric acid solution, that is reduced by 1 c. c. of spinal fluid, is determined the Permanganate reduction index.

The field for the application of the reduction index appears to be limited to young children evidencing symptoms of meningeal irritation, and is of differential aid in determining a true involvement of the meninges and diseases other than meningitis but which appear meningeal. The inconstancy of cytologic findings and the difficulty of demonstrating causative micro-organisms in these borderline conditions, gives to this test a certain sphere of usefulness.

The reduction index is usually below 2 with normal fluids and the upper limit of normal fluids as determined by Mayerhofer is 2.3 and by Hoffman and Schwartz [2] as 2.5. In tuberculous meningitis is there a constantly high index, especially in the last portion of the fluid. In serous meningitis, on the other hand, the index is relatively lower and higher in the first portion. Hoffman and Schwartz report an index of from 2.5 to 5.7 in tuberculous meningitis, rarely above 2.4 in serous meningitis, usually above 3 in epidemic meningitis and between 2.5 and 3.3 in polyomyelitis in the acute stage. These authors also report a case of tumor of the cerebellum with the clinical picture of tuberculous meningitis in which the index was persistently below 2.

I am here presenting a small series of fluids in which the Permanganate reduction index was determined.

PERMANGANATE REDUCTION INDEX.

Case	Diagnosis	Index
49557	Ep. Cerebrospinal Meningitis	3.5
49604	Tuberculous Meningitis	4.2
49763	Tuberculous Meningitis	2.4
51193	Tuberculous Meningitis	6.1
50836	Brain Tumor	1.0
51285	Tetanus	2.7
27827 (SQ)	Tabes	2.5
19 (Ag)	Paresis	1.1
29078 (SQ)	Surgical—Spinal Anesthesia	0.6
25258 (SQ)	Surgical—Spinal Anesthesia	2.4
23703 (SQ)	Surgical—Spinal Anesthesia	1.6
51115	Convulsions (?)	0.9

1. Mayerhofer—Wiener klin. Wochenschrift. 1910, XXIII, No. 18, pp. 651.
2. Hoffman and Schwartz. Arch. Int. Med. 1916, Vol. 17, No. 2, p. 293.

OBSTETRICAL ANESTHESIA.*

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The intention in the present paper is to consider various means of controlling the suffering incident to childbirth without restriction to the subject of true anesthesia.

That the degree of shock caused by inadequate relief of pain during labor may have far-reaching consequences has been abundantly proved. Edgar says: "Possibly the majority of the highly civilized class of women are physically and mentally unfit to suffer an approach to spontaneous labor. Unless guarded from too much suffering women of this class experience a profound physical and psychic shock in their first confinement, from which some never fully recover." [2]

Hellman, in the American Journal of Surgery, says: "Labor if normal is physiological, but the suffering has always been considered something to be avoided as far as is commensurate with safety, and the need of this in practice is increasing with each generation. The fetal head is a trifle larger, the female pelvis a trifle smaller, and the mother's nervous system much less able to withstand the shock of labor." [1]

Since the time of Sir James Simpson, the best obstetricians have employed various anesthetics to relieve the suffering of labor, but until comparatively recent times little has been accomplished to safeguard the patient during the *first* stage, as early use of the anesthetics ordinarily employed, viz.: chloroform and ether, retards labor and their prolonged use is fraught with danger to both mother and child.

From the earliest times the question of therapeutic measures for the relief of pain has been hampered by superstitions and prejudices. Now we have shaken off some of the superstitions but the prejudices it is to be feared are still with us.

At present we are reaping the benefits of the research which has been stimulated by the recent agitation over the subject of "painless childbirth," and the final outcome will probably be to place the entire matter upon a solid foundation based upon the immediate and remote effects of the various drugs employed. When this time has actually arrived, we shall at least have the satisfaction of knowing whether or not our measures for the relief of pain do more or less harm than the pain itself.

Each therapeutic measure for the relief of suffering has been hailed as absolutely safe until a series of catastrophies has proved the contrary. Harm has resulted from the over-enthusiasm of the advocates of each measure and in many instances from the influence of commercial interests.

Most of us probably feel that notwithstanding the large amount of valuable work which has been done recently, we are still far from certain that we know the best means of controlling pain in the various phases of labor.

Narcotics and Antispasmodics.—Many authorities now agree in the use of some form of opium

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