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METHYLENE BLUE,

WITH SPECIAL REFERENCE TO ITS
EMPLOYMENT IN URETHRITIS.

BY

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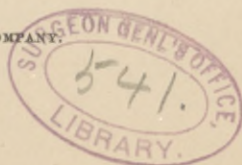
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THERAPEUTICS OF METHYLENE BLUE,
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By WILLIAM J. ROBINSON, PH. G., M. D.

IN the *New York Medical Journal* for June 15, 1895, there appeared a report by Dr. Austin Flint of a case of *Filaria sanguinis hominis* successfully treated by methylene blue. At the conclusion he relates his experience with the use of the drug in gonorrhœa, in which disease it has in his hands proved highly successful. Though quite extensively employed in some European countries, this drug has had a comparatively limited use in this country; but, taking into consideration the influence of Professor Flint's name, and the wide circle of readers of the *Medical Journal*, it will not be surprising if many physicians are induced to try this drug in different diseases, and especially in gonorrhœa, which is often obstinate enough to baffle the skill and exhaust the patience of our best men, and it is for the specific purpose of emphatically warning the profession against the employment of this drug that I am induced to give my experience with it.

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Before I do so, I want it to be distinctly understood that all reports about methylene blue—mine, which follow below, included—must be taken with some mental reservation, *cum grano salis*; the simple but important reason being that methylene blue varies so widely in composition, and other aniline compounds are so frequently substituted for it, that we can seldom be sure as to what particular substance is under consideration—to what compound to put the blame or credit for certain beneficial or disastrous effects. Why it should be so with methylene blue more than with any other chemical I do not know, but it is a fact, as will be seen presently.

Methylene blue is, as is well known, the hydrochloride of tetra-methyl-thionine, but, as found in commerce, it is frequently a double chloride of zinc and tetra-methyl-thionine, besides containing as impurities lead and arsenic, as can be easily demonstrated by making a solution, filtering, and passing a stream of sulphureted hydrogen, when the metals will be precipitated as sulphides. As regards substitution, the substance I have found most frequently substituted for methylene blue, and *vice versa*, is methyl violet (blue pyoctanin). Some time ago a friend was treating a case of carcinoma mammæ by painting around with a solution of supposed methylene blue and was very gratified at the results. It afterward proved that he had been using right along a solution of methyl violet, and only a few days ago I ordered a two per-cent. solution of pyoctanin blue for a case of varicose ulcers and methylene blue was dispensed instead, the druggist explaining to me that he was sure it meant the same thing.

In the *Medical Record* for August 26, 1893, Dr. A. Rose reports some cases of diphtheria treated very successfully with methylene blue, concluding with the remarkable statement that methylene violet was dispensed on his pre-

scriptions instead of methylene blue, and that to his knowledge such errors have occurred elsewhere. To what remedy then is credit due, to methylene blue or violet?

With regard to my experience with methylene blue in gonorrhœa, although not large, it has been sufficient to convince me not only of its utter worthlessness, but of its positive injuriousness. Of the eleven cases of specific urethritis that I treated with that drug, four were chronic, of from six months' to three years' duration, and in those four the drug did not exert the least influence for good; in two of them all the symptoms became aggravated, the discharge increasing, the urine assuming a burning character, etc.

Of the seven acute cases one was markedly benefited. This patient presented himself for treatment ten hours after exposure and two hours after noticing a slight discharge. He was given a saturated solution of boric acid as an injection and methylene blue 0·12 three times a day. On the sixth day the discharge was completely stopped. In two other cases it seemed to act beneficially, but, as it was given in conjunction with other antiblennorrhagics, the results are, of course, doubtful.

In the other four cases the effects were perfectly disastrous, assuming in two such an alarming aspect that it seems to me worth while to relate them in detail:

CASE I.—A. M. C., aged twenty-five years; occupation, engineer; second attack; noticed discharge February 7th; presented himself for treatment on the 14th. Discharge profuse, but other symptoms rather mild. Ordered a mild injection of sulphocarbolate of zinc and hydrastis and methylene-blue capsules, 0·1, four times a day. On the night following, about 1 A. M., I was waked up by my patient, who complained of very severe vesical tenesmus and absolute inability to urinate. He told me he felt bad right after taking the first capsule, but kept on. From 2 P. M. he passed no urine, and the pressure in the blad-

der was becoming unbearable. I administered a large dose of potassium bromide and applied hot compresses to the perinæum, but these means being ineffective, I was obliged to catheterize. The tenesmus and soreness in the urethral canal persisted for two or three days. Under antiblennorrhagics, with salol and mild antiseptic injections, the cure was complete and rapid.

CASE II.—S. B., twenty-eight years of age; a tall, powerful man; occupation, iceman; moderate drinker; has slight gastric catarrh; several previous attacks; noticed discharge March 25th. Treated himself with strong solution of zinc sulphate and carbolic acid and with patent nostrums. All the symptoms becoming aggravated, he applied for treatment April 7th. I prescribed a sedative alkaline mixture and an injection of aqueous hydrastis with boric acid. He returned on the 14th and I gave him the following prescription:

Methylene blue (Merck).....	4·0
Pulv. opii.....	0·5
Pulv. myristicæ	12·0

M., ft. pulv., div. in caps. gelat. no. xxx.

Sig.: Ciat capsules unam quater in die.

He took one that afternoon and one in the evening; after the latter he got a severe headache and passed a restless night. Early next morning he took another capsule and went on his route with his ice wagon. The headache became worse—"splitting," as he said—and he complained of dizziness and pain in his stomach. Not thinking of the possibility of there being any connection between his symptoms and the capsules, he took another one at twelve o'clock. His headache and pain after that became excruciating, and he fainted on the wagon. The man who was with him took him home and he was put to bed. For about an hour he remained dazed, mildly delirious, showing signs of suffering intense pain in the stomach and in the bladder. He tried several times to urinate, but failed. At last he passed about two ounces of dark blue, almost black, urine, on seeing which rare phenomenon his relatives became frightened and sent for me. When I came in he had an attack of vomiting which relieved him. His skin was covered with cold perspiration, pulse rapid and feeble, temperature 99° F. Under

Dover's powder and phenacetine he perspired freely, and his headache, which was still violent, became relieved. A Sitz bath and two to three doses of potassium citrate with tincture of hyoscyamus enabled him to pass a large quantity of urine (blue-colored) with very little pain. For two days he was unable to get out of bed, so great was his exhaustion. A slight vesical tenesmus lasted for about three days, and a dull gnawing pain at the pit of the stomach for about eight days. His urethritis was cured in about three weeks under appropriate treatment.

This settled the fate of methylene blue in my practice—for internal use, at any rate.

My conclusions are as follows: If we see a case of specific urethritis in a very early stage—the first day—then the use of methylene blue, by its direct action on the gonococci, may do good, though we run the risk of strangury and general toxic manifestations. But as soon as the gonococci have penetrated beneath the epithelial layer of the urethral mucosa then methylene blue can do nothing or harm.

I have used it in three cases of intermittent fever with fair results, but its action is certainly much inferior to that of quinine and arsenic. My general conclusion, therefore, coincides with that of Laveran, that used internally methylene blue is good only for one purpose—to color the urine blue. It is an excellent coloring agent, though, for the plasmodia malarie and the gonococci Neisseri, and is useful when employed externally in cancerous and tuberculous affections. It is undoubtedly very pleasant to be in a position to report brilliant successes and cures from a new remedy, but it is certainly just as useful to show the reverse side of the medal, and thus save our fellow-practitioners many failures and our patients much unnecessary suffering.

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FRANK P. FOSTER, M.D.

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