A NEW BACTERIA COUNTER.[1]

By William P. Mason.

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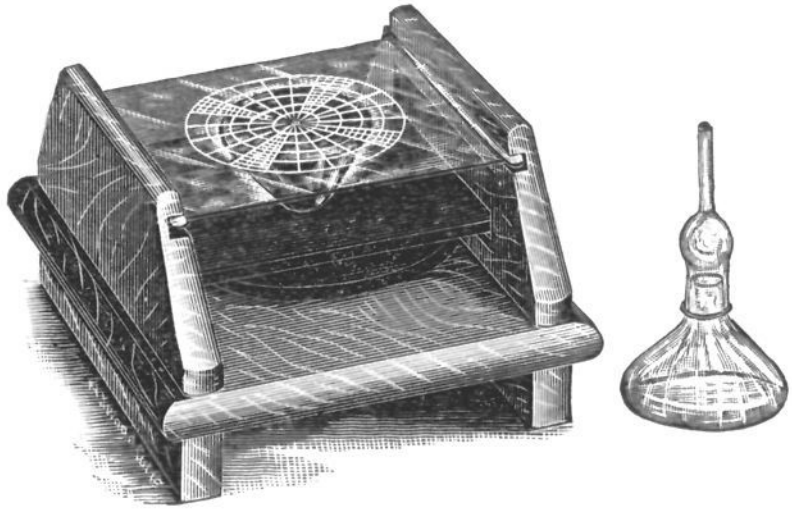
THE "Miller-McPherson" counting apparatus, for determining the number of colonies of bacteria developing in culture media, needs but little explanation beyond what is given in the illustration shown herewith.



The "Wolffhüggle" device which is still so commonly employed, has the disadvantage of not firmly fixing the "Petri" dish in place, so that there is no small danger of counting the same colonies more than once. Nor is it possible to make use of a "Miquel" flask as a substitute for the "Petri" dish, if the "Wolffhuggle" counter is to be employed.

The new apparatus, illustrated herewith, is so arranged as to have the ruled glass plate a fixture, while the "Petri" dish rests upon a movable ebonite plate, which is raised or lowered by the wheel beneath it actuating a hollow screw. The dish may be thus always kept firmly against the ruled plate, with no chance of slipping, and moreover it will be always in focus no matter what may be its thickness.

It is my present practice to almost uniformly employ a "Miquel" flask (see illustration) rather than a "Petri" dish, because the "plating" can be done in the field therewith, and no transportation of the water sample is required.

[1] Read before the New York Section, March 11, 1898.

Under such circumstances the neck of the inverted flask passes through a hole in the ebonite plate and into the hollow screw, while the wheel beneath raises the bottom of the flask against the ruled plate the same as when a "Petri" dish is employed.

The counting apparatus and also the "Miquel" flasks may be obtained of Eimer and Amend, 211 Third Avenue, New York City.

THE DETERMINATION OF LEAD IN ALLOYS.

By W. E. Garrigues.

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IN the analysis of brass and bronze, the fact that we have only a single practicable method for separating lead is an unusual instance of poverty in the case of so common an element.

While the separation and determination as sulphate is admittedly excellent, there is always a more or less lengthy wait during evaporation of the filtrate from the metastannic acid, not to mention occasional losses of the assay at this stage through breakage. The latter is fortunately of rare occurrence and the former of little moment under ordinary circumstances, as no personal supervision is exacted during the operation, but it is not at all a rare occurrence that the foundryman wants his result at the earliest possible moment and it is for such occasions that the following method is especially suited. Nevertheless, the determination is fully as accurate as that with sulphuric acid and as it requires no more manipulation there is no reason why the method should not be employed at all times when the filtrate from the lead is not needed for other determinations.

The precipitation of lead as chromate, from neutral or acetic solutions, is an old and admirable process but it is inapplicable as a separation from copper, the latter being likewise thrown down. Copper chromate is known to be readily soluble in ammonia, but the writer has been unable to find any record of the behavior of ammonia toward lead chromate, the nearest approach being the statement that fixed caustic alkalies decompose it.

Experiment demonstrated that lead chromate is unaffected by