What the outcome of this innovation will be, or where it will end, is at present impossible to say. The field is so broad and the inclination to experiment so great that, in all probability, some little time will elapse before the returns will all be in. Whether these extracts exert any specific action, or whether the results thus obtained have been through "suggestion" and auto-suggestion, is likewise hard to explain, the writer is inclined to the latter view, that "suggestion" has been the "specific" agent.

NOTES ON ARSENIC.

BY JAS. LEWIS HOWE, POLYTECHNIC SOCIETY, LOUISVILLE, KY.

NOTWITHSTANDING the well recognized danger of arsenical greens as coloring materials, their use is still far too common, especially in green enameled papers for covering boxes and for more reprehensible purposes. I cite two cases in point.

1. Some time since my attention was called to some so-called "Kiss Candies" for sale in a little variety shop, largely patronized by the children of a neighboring public school. These candies were squares of caramel, etc., each wrapped up with a verse of poetry (?) in a piece of colored paper, together with other candies not wrapped. Some of these papers were colored with anilin dyes, but a very considerable number were green enameled papers. An examination of several of these latter revealed the following: —

Paper I. Bright-green surface, 50 square centimetres, arsenic found (estimated as arsenious oxid), 0.0285 of a gram.

Paper II. Light-green surface, 50 square centimetres, arsenic found, 0.0062 of a gram.

Paper III. Dark-green surface, 50 square centimetres, arsenic found, 0 0093 of a gram.

Paper IV. Bluish-green surface, 47 square centimetres, arsenic found, 0.0209 of a gram.

In the latter cases the enameled surfaces appeared much abraded, doubtless by contact with the other candies.

It is needless to say that here was not only a grave danger of the surfaces of the candies containing considerable arsenic, but the well-known habit of young children of putting everything bright colored in the mouth, might have easily resulted in taking a toxic dose.

2. Very recently there has appeared in the market a natural leaf twist chewing tobacco, wrapped around with a strip of green enameled paper three-fourths of an inch wide and about six inches long, fastened to the tobacco by a tack. The surface of this paper is an arsenic green. An examination was made of the twist by cutting off the exterior and using Reinsche's test. Distinct traces of arsenic were found. The quantity from a single twist was far too small to be dangerous, but it is needless to say that the practice of using arsenic paper under such circumstances should be condemned, and the manufacturers of the twist were cautioned on the point. The arsenic found in the tobacco doubtless came, by abrasion, from the paper wrapped around it, but there is another possibility. It is more or less widely known that Paris-green is used by tobacco-growers against the tobacco worm. While in general, when properly used, probably no danger is to be apprehended, it has occurred in my knowledge that tobacco has been sprayed very shortly before gathering. This would seem to be dangerous, and investigations upon this point are being now carried out.

As regards the detection of arsenic in medico-legal cases, attention has been called by Dr. Bernard Dyer in the Proceedings of the Chemical Society[1] to the fact that in certain cases, at least, a large proportion of the arsenic is precipitated upon the zinc in Marsh's test. The following is an observation in point. Arsenic was recovered in a certain case by Reinsche's test on six pieces of copper foil, each 20 square centimetres surface. Three of the pieces were divided, and from each the arsenic was sublimed in well-defined crystals, which could be identified without difficulty. From the other three pieces all the arsenic was sublimed, dissolved, and submitted to Marsh's test. Only the very slightest trace of a mirror was found, not enough to identify it as arsenic in a doubtful case. In this case, as in that of Dr. Dyer, cast zinc was used.

[1] Proc. Chem. Soc., 1893, p. 120.

Another recent case illustrates the necessity of the physicians who perform the autopsy preserving other organs than the stomach. G. had given her husband coffee from a pot in which she had emptied probably a whole box of Rough on Rats. He drank two cups, containing probably in the neighborhood of 7 grams. The coffee left, which I afterwards examined, was practically a saturated solution of arsenious oxid. Death ensued in four hours. The stomach was brought me, and was found to be empty, and much inflamed. Using the whole stomach, but a very small quantity of arsenic was found, evidently only what the walls of the stomach as a tissue could absorb, and far from enough to have produced death. The corroborative testimony was, however, sufficient to secure the woman's conviction.

Brodie's statement that when arsenic is taken in solution no trace of it will be found in the stomach is too broad, but it is imperative that in such cases other organs, notably the liver (as well as spleen and kidneys), should be preserved for analysis.

In my own experience, Reinsche's test, when carefully carried out, is far more satisfactory and no less certain in testing for the presence of arsenic than Marsh's. It can be readily learned by medical students and used practically by the physician, which is not true of Marsh's test. In order to secure well-defined arsenic crystals in Reinsche's test with a minimum of arsenic, I have found it desirable to use electrolytic foil, to roll the strip very closely, and to sublime in a tube of the smallest possible diameter.

A NEW IDEA IN MICROSCOPE CONSTRUCTION.

BY C. W. WOODWORTH, UNIVERSITY OF CALIFORNIA, BERKELEY, CAL.

EVERYONE who has worked with the microscope, especially in studying rather large objects with medium and low powers, has felt the need of a better means of orientation than those at present available.

Stage forceps admit of complete rotation in one direction and some degree of motion at right-angles to this by raising or lowering the object and readjusting the focus. Ordinarily, any change in the direction of the object requires this readjustment of the focus, and generally the part to be studied is out of the field and must be found as well.

The ideal condition would be to rotate the object at the exact focal point of the microscope, and one can readily see that this could be attained if the object was supported by an apparatus revolving upon two axes at right-angles to each other, which intersect at the focal point, provided neither of these remains fixidly coincident with the optical axis.

There are many ways by which this condition might be attained, but perhaps as simple a modification of an existing stand as could be made with this object in view is a stand I have recently had the Bausch & Lomb Optical Company make for the Entomological Department of the University of California.

The instrument is a "Model" stand with an ordinary revolving mechanical stage. This is supported on a rotating bar, resembling the usual sub stage bar, and provided with a rack and pinion adjustment.

The stage is centred in the usual way, which brings the axis of revolution coincident with the optical axis. The stage bar swings upon a core which is adjustable laterally, so it becomes possible to make the axis of its rotation intersect the optical axis.

These adjustments being made, the instrument fulfils the conditions specified above whenever the focal point is brought to the axis of rotation of the stage bar. Consequently, in using the instrument the tube is brought to a certain position and the focusing of the object accomplished by means of the rack and pinion of the stage bar. The correct position of the tube is determined by trial for each objective, and marks made on the tube to indicate this position.

Different objectives, as those who have used revolving stages must have noticed, have somewhat different optical axes, and there is enough variation with the medium powers to make a centreing nose-piece essential.

While it is mechanically impossible to make all these adjustments perfectly correct, still I find that even with medium powers the object remains in the field during orientation, and that the