acetic acid reagent or the chloral hydrate reagent yields without the aid of heat an immediate purple.

A reagent containing sulphuric acid and formaldehyde also serves to differentiate carotene from vitamin A-bearing oils. With carotene a purple zone is formed; with halibut liver oil a bright red is developed in the acid layer and a blue to purple in the chloroform layer.

Trichloracetic acid and chloral hydrate also serve as reagents to distinguish between carotene, vitamin A-rich oils, ergosterol and cholesterol. The formaldehyde-sulphuric acid reagent differentiates from one another carotene, vitamin A and the sterols, cholesterol or ergosterol, but does not distinguish ergosterol from cholesterol.

7893 P

Intestinal Motor Inhibition by Parasympathetic Drugs.

F. D. MC CREA AND DONALD F. MARION. (Introduced by W. A. Perlzweig.)

From the Department of Physiology and Pharmacology, Duke University School of Medicine, Durham, N. C.

It was noted by Bernheim[1] that relaxation usually occurred when pilocarpine was added to a strip of guinea pig intestine contracted by histamine. This was confirmed[2] and several instances were noted in which abrupt relaxation occurred when pilocarpine was added to a strip of guinea pig intestine contracted by physostigmine. We found also that in most instances when the intestine was tonically contracted by pilocarpine, it was relaxed by physostigmine. This result was obtained in 4 of 7 trials using the duodenum and jejunum. The investigation has been extended to other parasympathetic drugs using the same method, *viz.*, suspension of the strip in Ringer's solution.

On adding pilocarpine to the bath containing an intestinal strip contracted by acetyl choline, we obtained relaxation of the duodenum, jejunum, ileum, proximal, mesial, and distal colon. In only 3 of the 66 trials was a motor effect produced by the subsequent addition of the second parasympathetic drug (pilocarpine). This effect is only occasionally reversible, that is, acetyl choline relaxes the intestine contracted by pilocarpine only in a minority of the trials. In each intestinal strip tested acetyl choline caused a con-

[1] Bernheim, Frederick, *J. Pharm. and Exp. Ther.*, 1931, **43**, 509.

[2] Craven, Jean D., and McCrea, F. D., *J. Pharm. and Exp. Ther.*, 1934, **51**, 421.

siderable tonic contraction and the increased tonus was usually maintained.

In the case of the esophagus and cardia, Carlson, Boyd and Pearcy[3] suggest that the inhibition resulting from direct or reflex stimulation of the vagus nerve is due to the existing state of tonus. While this hypothesis would explain some of our results, a great many of them are not consistent with it, and we are forced to conclude that another factor is involved. We are continuing these experiments to obtain further data.

Tables I and II summarize the results of the inhibitory effect of pilocarpine.

TABLE I.

Intestine Contracted by Acetyl choline	No. Trials	Effect of Pilocarpine No. Relaxed	No. Contracted	No. No effect
Duodenum	19	17	1	1
Jejunum	21	16	0	5
Ileum	11	8	1	2
Distal colon	8	6	1	1
Proximal colon	4	3	0	1
Mesial colon	3	3	0	0

TABLE II.

Intestine Contracted by Physostigmine	No. Trials	Effect of Pilocarpine No. Relaxed	No. Contracted	No. No effect
Duodenum	4	4	0	0
Jejunum	3	3	0	0
Ileum	4	3	0	1
Distal colon	3	2	0	1

7894 C

Use of Platform Method of Growth in Demonstrating Pigments of Certain Pathogenic Fungi.*

JOHN W. WILLIAMS.

From the Department of Biology and Public Health and the Homberg Memorial Infirmary, Massachusetts Institute of Technology, Cambridge, Mass.

The platform method of growth has been described.[1, 2] A piece

[3] Carlson, A. J., Boyd, T. E., and Pearcy, J. F., *Arch. Int. Med.*, 1922, **30**, 407.

* Contribution No. 49 from the Department of Biology and Public Health, Massachusetts Institute of Technology, Cambridge, Mass.

[1] Williams, John W., *Science*, 1934, **80**, 2064.

[2] Williams, John W., *Arch. Dermat. and Syph.*, in publication.