anachronism, dating from the time in the distant past when there was no organized work in agriculture under the government. To continue it under present circumstances is unnecessary and inexcusable.

Congress is poorly qualified for the management of such an institution, which is an administrative rather than a legislative function. As a consequence, the abuses which Professor Varrelman mentions have grown up.

A Botanic Garden is properly a scientific institution and could function as such under the Department of Agriculture, to the great advantage of the various plant industry activities of the government.

The Botanic Garden should supplement the activities of the National Arboretum, now under development, by performing for herbaceous plants and smaller growths the same service which the Arboretum contemplates for trees.

The transfer is in harmony with the policy of the administration to unite similar activities for economic administration and efficient operation.

The retirement of Director Hess necessitates a certain amount of reorganization, making of the present an auspicious time for the transfer. If the garden is allowed to relapse into the old routine, it will be very difficult to bring about the change in the future.

Horticultural interests are strongly advocating the change and it is to be hoped that workers in other fields of science will do likewise.

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DECREASE IN GOVERNMENT APPROPRIATIONS FOR ENTOMOLOGICAL WORK

IN the furtherance of economy, the administrative budget as presented to the Congress of the United States provides for drastic reductions in appropriations for the support of entomological work. During the past thirty years the Bureau of Entomology has grown from a small group of enthusiastic economic entomologists into a great organization of highly trained men who have become recognized authorities in almost every phase of entomology. It is now proposed by the curtailment of support to disorganize and to disrupt this organization, to throw out of employment many entomologists who have dedicated their lives to this branch of scientific work at the invitation of the government.

That insect pests will decrease in importance is unthinkable. Inevitably in the future there will be need for many more specialists in the several fields of entomological work than have so far been employed. Since virtually all these problems cross state lines, they are federal and their solution is a function of the federal government. To disrupt this staff in the face of certainties of future needs, in order for the moment to save a few thousand dollars, is not economy but futile and false show of economy.

We realize that the injustices and unwise proposals here outlined are being equally applied to other lines of scientific endeavor in the government service, but we feel it our duty to point out these facts as they apply to entomology.

We believe that if this false economy is practised this year, the people of the United States will pay for this folly a thousand fold.

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President, Entomological Society of America

E. F. PHILLIPS,
President, American Association of Economic Entomologists

SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN EXTRACTOR FOR FLUID SYSTEMS

A SIMPLE apparatus, yet one more efficient than those commonly in use, is suggested for the extraction of various quantities of aqueous fluids by solvents either lighter or heavier than water. It is based upon the principle of a simple but satisfactory and long known gas-washing apparatus, which consists of an inclined tube filled with the wash fluid. A bubble of gas entering the lower end is obliged to roll slowly up through the liquid. Continuous exposure of fresh surface over the rather long path makes the washing very thorough. This idea applied to a globule of solvent traveling through a fluid to be extracted has shown that the effectiveness of the extraction is likewise very satisfactory.

The figure is self-explanatory if the usual types of extractors are compared with it.[1] The ends of the glass tubing in the connections can be fitted together very closely so that no rubber is exposed. No difficulty from the action of solvents on rubber has been encountered. The rubber stopper is at no time in contact with the organic solvent and hence causes no difficulty. Cork stoppers are desirable for the flask and the condenser. Ground glass connections could of course be used.

For solvents heavier than water, the same container or series of containers may be used with a different arrangement of glass bends. In this case the end

[1] Wieland-Gattermann (McCartney), p. 34, 1932; Lassar-Cohn (Osper), p. 207, 1928; Houben, I, p. 572, 1925; Zelmanowitz, *Biochem. Zeitschr.*, 1: 253, 1906; Palkin, Murray and Watkins, *Ind. and Eng. Chem.*, 17: 612, 1925.

with the rubber stopper is somewhat higher than the exit, and an appropriate glass double bend makes connection with the flask. This tube must be large enough (7 mm o.d.) to prevent the formation of a siphon. The solvent must be introduced first to prevent water from entering the return tube. Long extractions with carbon tetrachloride have been carried out in this way without difficulty.

While this type of extractor had no greater efficiency than the type usually used[2] in removing materials easy to extract, such as succinic acid, an appreciable difference was found where the distribution between the solvents was less favorable. Citric acid provided an example of this type.

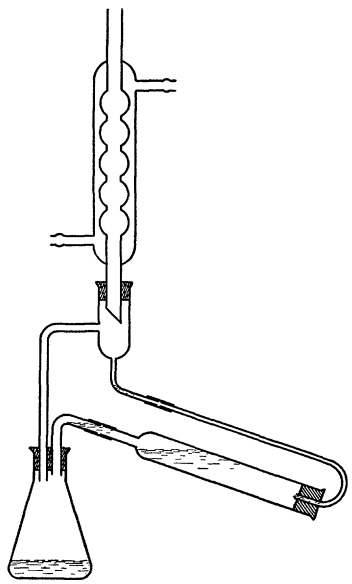

FIG. 1.

Experimental observations are shown in the accompanying tables.

TABLE 1

SUCCINIC ACID

Extraction time (hrs.)	1.5	3.5	6.5
Type A Extractor[2]	0.33g	0.48g	0.50g
Type B Extractor	0.32	0.47	0.50

Table 1 gives the total amount of material extracted in the time given from a solution of 0.50g of succinic acid in 15 ml of water.

TABLE 2

CITRIC ACID

Extraction time (hrs.)	5	10	20	28	35
Type A Extractor ...	0.05g	0.12g	0.30g	0.41g	0.54g
Type B Extractor ...	0.10	0.19	0.38	0.46	0.52

The total amount extracted in the time given from a solution of 0.52g of citric acid in 15 ml of water is shown in Table 2. The rate at which the ether condensed was in all cases about 15 drops in 10 seconds.

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SPECIAL ARTICLES

ST. LOUIS ENCEPHALITIS

SEROLOGICAL RELATION TO JAPANESE ENCEPHALITIS AND EXPERIMENTAL STUDIES ON IMMUNITY

THE severe outbreak of encephalitis in St. Louis[1-4] and Kansas City, Mo., during the late summer of 1933, preceded by a similar epidemic in Paris, Ill., in 1932,[5, 6] has been differentiated clinically and epidemiologically from Economo's disease (lethargic or epidemic encephalitis) and likened to the summer epidemic of encephalitis in Japan, designated as Type B.[7] A further comparison of the Japanese and St. Louis disease has now become possible, following the discovery of a virus as the causative agent of the St. Louis encephalitis[8, 9] and a specific immune reaction between this virus and the blood serum of convalescents.[9, 10] The basis for the immunity test rests on the fact that sera from a large majority of tested convalescents of the St. Louis, Kansas City and Paris disease exhibit a specific protective effect when mixed with living virus obtained from the brains of fatal cases and injected intracerebrally into Swiss mice. Animals receiving these mixtures usually remained well, while those given mixtures of virus plus sera from non-contact individuals invariably died.

[2] Quick, *Ind. Eng. Chem. An. Ed.*, 5: 76, 1933; McNair, *Ind. Eng. Chem. An. Ed.*, 5: 76, 1933.

[1] J. P. Leake, *Jour. Am. Medical Assn.*, 101: 928, 1933.

[2] J. F. Bredeck, *Am. Jour. Pub. Health*, 23: 1135, 1933.

[3] J. P. Leake, *Am. Jour. Pub. Health*, 23: 1140, 1933.

[4] T. C. Hempelmann, *Am. Jour. Pub. Health*, 23: 1149, 1933.

[5] W. E. Conklin, personal communication.

[6] H. S. Houston, *Ill. Health Quart.*, 6: 174, 1932 (No. 4).

[7] R. Kaneko and Y. Aoki, *Erg. d. inn. Med. u. Kinderheilk.*, 34: 342, 1928.

[8] R. S. Muckenfuss, C. Armstrong and H. A. McCordock, *Pub. Health Rep.*, 48: 1341, 1933.

[9] L. T. Webster and G. L. Fite, SCIENCE, 78: 463, 1933.

[10] L. T. Webster and G. L. Fite, *Proc. Soc. Exp. Biol. and Med.*, 31: 344, 1933.