prevented excessive heating of under-cured hay (having a moisture content up to 37.0 per cent. in stacks so far tried).

Three round stacks consisting of approximately 6½ tons, 3 tons and 2¼ tons, and having when built, moisture contents of 37.0, 29.4 and 35.3 per cent., respectively, reached maximum temperatures of 112°, 100° and 76° F., respectively. Ventilation in the 6½ ton stack, provided by a round moulded shaft one foot in diameter, was believed inadequate.

An unventilated 8½ ton stack containing 37.2 per cent. moisture when stacked, reached a maximum temperature of 148° F. and contained considerable moist brown hay when opened.

A fourth stack, rectangular in shape, containing 9 to 10 tons of hay, carrying 21.2 per cent. moisture, was so constructed that half the stack was ventilated and half not ventilated. Maximum temperatures in similar locations in the ventilated (68° F.) and unventilated (92° F.) portions of the stack showed a difference of 24° F. in favor of the ventilated hay. A slight difference in quality of the hay in favor of ventilation was noted.

Frequent velometer readings in the chimney of the ventilated part of the stack showed that the upward flow of air in the ventilator shaft commonly reached a speed of 150 feet per minute with occasional velocities of 250 to 300 feet per minute.

This principle of hay ventilation is believed applicable to most existing hay barns and mows, as well as stacks, and seems to offer a hope of eliminating much of the hazard of spontaneous heating of hay, at small cost for installation and no cost for operation.

MAYNARD S. GRUNDER

AGRONOMIST,
WESTERN WASHINGTON EXPERIMENT STATION,
PUYALLUP, WASHINGTON

ORGANIC MERCURY DERIVATIVES OF BASIC TRIPHENYLMETHANE DYES

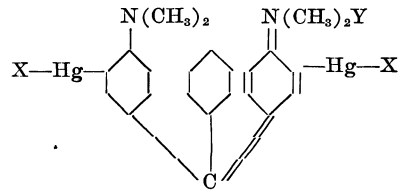
BECAUSE of the distinctive characteristics of the basic triphenylmethane dyes the organic mercury derivatives of these dyes would seem to present interesting bacteriological and pharmacological possibilities. It has proved difficult to mercurate basic dyes directly,[1,2] but I have found that the mercury compounds can be prepared by a two-stage process in which a derivative of the basic triphenylmethane dye is mercurated and the resulting mercury compound converted into the dye. Proceeding in this way, it is possible to prepare series of mercury compounds of both the colorless and colored forms of amino triphenylmethane derivatives.

[1] F. C. Whitmore and G. J. Leuck, *Jour. Am. Chem. Soc.*, 51: 2782–2784, 1929.

[2] L. Chalkley, *Jour. Am. Chem. Soc.*, 47: 2055–2061, 1925.

For example, 4,4′ bis-dimethylamino-triphenylacetonitrile is readily mercurated, and the mercurated nitrile can then be converted into the corresponding mercurated malachite green by means of a photochemical reaction. Both mono- and di-mercuri derivatives are produced smoothly in the mercuration.

The dimercuri malachite green probably has the formula:



Here X and Y are anions, but not necessarily the same anions.

The mercury in this compound is relatively stable to ammonium sulfide, which, in presence of ammonium hydroxide, gives only a colorless organic mercuric sulfide, which remains colorless for some time at room temperature.

When X is an anion which ionizes readily from the mercury the salts of even this dimercurated dye are generally quite soluble in alcohol, and the alcoholic solution, if not too concentrated, may be diluted with water without precipitation of the dye. From such solutions chlorides, even in low concentration, precipitate the insoluble chloromercuri compound. However, dicyanomercuri malachite green—where X is CN^-—has the solubility of the ionizable salts and, in addition, is soluble in presence of moderate concentrations of chloride ion.

Further details of these reactions and compounds will be published elsewhere. The chief purpose of this note is to call the existence of these new substances to the attention of bacteriologists and pharmacologists. I have a little of the dicyanomercuri malachite green and should be glad to supply small samples to interested scientists while my stock lasts.

LYMAN CHALKLEY

POINT PLEASANT, N. J.

BOOKS RECEIVED

GERICKE, WILLIAM F. *The Complete Guide to Soilless Gardening.* Pp. 285. 60 figures. Prentice-Hall. $2.75.

Living Specimens in the School Laboratory. Pp. 93. Illustrated. General Biological Supply House, Chicago. $1.00.

LORD, EUGENE H. *Experimenting at Home with the Wonders of Science.* Pp. xii + 243. 107 figures. Appleton-Century. $2.00.

PERRIER, GEORGES. *Petite Histoire de la Géodésie: Comment l'homme a Mesuré et Pesé la Terre.* Pp. 188. 9 figures. Alcan, Presses Universitaires de France, Paris. 18 fr.

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