ferricyanide reaction. They are much less effective reagents than Duponol.

Ferricyanide, iodine and iodoaceticacidamide all react with the SH groups of simple SH compounds like cysteine, which is a constituent of egg albumin. Ferricyanide, although it reacts with denatured egg albumin, does not react with native egg albumin.[5] Iodine and iodoaceticacidamide, nevertheless, do react with native egg albumin. 10 mg of native egg albumin treated with 1 cc of 0.0015 N iodine at pH 3.2 and then neutralized and denatured by Duponol, no longer reduces dilute ferricyanide. 10 mg of native albumin treated with 0.01 mM of iodoaceticacidamide at pH 9 and then denatured reduces only half as much ferricyanide as untreated albumin.

In connection with the observation that native egg albumin reacts with iodoaceticacidamide but not with ferricyanide, it is interesting to note that urease is inactivated by iodoaceticacidamide[9] but not by ferricyanide.[10] The effect of iodoaceticacidamide on viruses is now being tested.

The fact that ferricyanide does not react with native egg albumin does not prove that the SH groups of native egg albumin are linked or inaccessible. On the other hand, it can not be assumed, without independent evidence, that in the present experiments ferricyanide, iodine and iodoaceticacidamide are reacting only with SH groups. All three of these reagents can, under suitable conditions, react with protein groups other than SH groups. It is possible, furthermore, that there are reducing groups in denatured egg albumin which are not SH groups but which are oxidized by dilute ferricyanide only in the presence of SH groups.

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SCIENTIFIC APPARATUS AND LABORATORY METHODS

AN IMPROVED TYPE OF KETENE GENERATOR

RECENTLY Herriott[1] described a ketene generator which was improvised from that previously suggested by Ott, Schroter and Packendorf.[2] In our studies of the acetylation of pituitary hormones we have developed a new design of generator, giving a more efficient and workable apparatus. A diagram is given in Fig. 1.

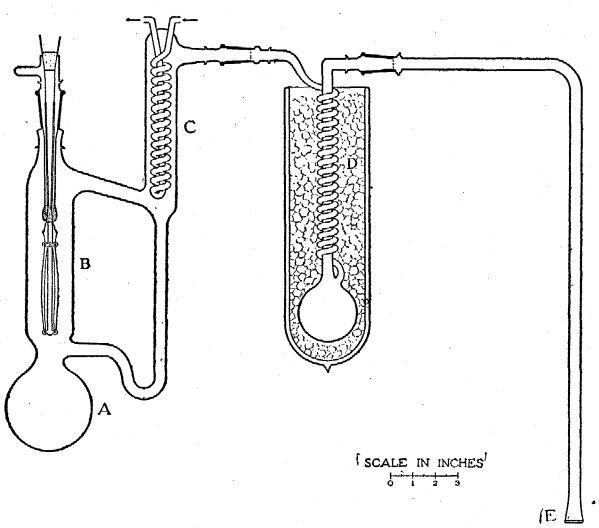

FIG. 1

Vaporized acetone from flask A is decomposed by the heating filament B, which is kept at a bright-red heat. The mixed vapors pass through the condenser C in order to remove the unchanged acetone vapor and most of the ketene polymers. More complete removal of these two substances is then effected by the trap D, which is immersed in a freezing mixture of salt and ice. Ketene then passes into the solution through a sintered glass plate E. The sintered glass plate is particularly useful for bubbling gas; it gives more effective contact between the solution and the gas, and it stirs the solution sufficiently to make unnecessary a mechanical stirrer as generally suggested.

The removable filament-support is the same as described by Herriott. The 40 mill tungsten leads are sealed permanently into the glass and the replaceable tungsten filament (15 mill) may be attached to them in the manner illustrated in the figure. The rate at which ketene is generated can be controlled by varying the current which passes through the heating filament.

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A SIMPLE AND EFFICIENT PRECIPITATE DRYER

IN the course of preparing enzymes, protein was precipitated with ammonium sulfate at 70 per cent. saturation. The filtered, wet precipitate contained a large amount of mother liquor. If the precipitate was allowed to dry on the filter paper more than half its dry weight would be salt and not the active material desired. Drying first on blotting paper and then on a porous plate was tried. By this method all the water was absorbed; but as it began to evaporate,

[1] R. M. Herriott, *Jour. Gen. Physiol.*, 18: 69, 1934.
[2] E. Ott, R. Schroter and K. Packendorf, *Jour. Prakt. Chem.*, 130, N.S.: 177, 1931.
[9] C. V. Smythe, *Jour. Biol. Chem.*, 114: 601, 1936.
[10] L. Hellerman and M. E. Perkins, *Jour. Biol. Chem.*, 107: 241, 1934.

ammonium sulfate was redeposited as an efflorescence on the surface of the protein precipitate.

A method was devised which reduces efflorescence to a minimum, purifies the protein precipitate and shortens drying time. An apparatus was constructed which consisted of a galvanized iron box open on one side. Inside the box, on the bottom, an electric socket is fastened and the wires pass through a hole in one side. In the top, over the lamp and also along the lower edge of each side of the box, holes are bored to allow circulation of air. A drying plate, made of plaster of Paris, about five eighths of an inch thick, fits vertically into the open side, closing the box. This face plate is pushed into the open side of the box until flush with the outer edges. It should fit snugly. In order to be able to remove the plate easily, thumb holes are made by cutting out a small "V" from the middle of each edge against which the plate rests.

Before use the plate should always be oven dried. A 60- or 75-watt lamp is then placed in the socket, the plate adjusted, and the lamp turned on for 5 or 10 minutes to allow the box to warm up. The precipitate is removed from the filter paper, roughly dried on blotting paper and spread in a thin layer on the surface of the plaster plate. The plaster absorbs the mother liquor. As the inside surface is at a higher temperature than the outside, most of the evaporation takes place there, and ammonium sulfate deposits on the inside face. The protein meanwhile dries readily on the outside. When dried to the point of cracking into small pieces it can be scraped off and ground to a powder in a mortar.

The plaster plate is reconditioned for further work by completely scraping off the last traces of any remaining precipitate with a knife or spatula. If the apparatus remains unused for some time the plate should be dried in an oven before use, as it will have become saturated with moisture from the air.

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TURNTABLE FOR EXERCISING RATS

THE turntable herewith described is very satisfactory for exercising rats. It is permanent, inexpensive and easily removed from the cage for cleaning. This new exerciser has been tested thoroughly in the dormer cage[1] used in the animal colony of The Wistar Institute.

It consists of an aluminum disc[2] (Fig. 1) 12½ inches in diameter of 3S18 gage sheet aluminum of 20-minute alumilite finish, with a ¼ inch outer edge flange for

[1] M. J. Greenman and F. L. Duhring, "Breeding and Care of the Albino Rat for Research Purposes," 2nd ed., The Wistar Institute, Philadelphia, Pa., 1931.

[2] The Aluminum Cooking Utensil Company, New Kensington, Pa.

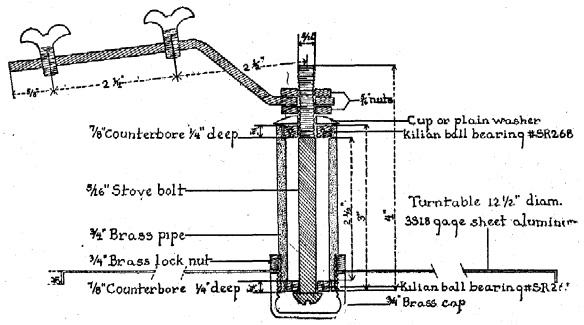

FIG. 1

strength, and a center hole of 1–1/16 inches. This new disc replaces the monel metal and stainless steel discs used formerly, preventing pitting caused by animal excretions and the brittleness in the metal with consequent cracking around the hole.

The housing is made from a piece of standard ¾ inch brass pipe, 3 inches in length, threaded on one outer end, with a ⅞ inch counterbore on each end ¼ inch deep. Inserted in each counterbore is ⅞ inch × ¼ inch Kilian ball bearing[3] SR 268, 5/16 inch bore. A 5/16 round head stove bolt, 4 inches in length, serves as a shaft. The stove bolt is inserted in the thread end of the housing, through the ball bearings, covered with a brass washer and locked with a 5/16 inch standard hexagonal nut. On one end of bolt is placed a 1 inch × ⅛ inch × 6 inch hanger of galvanized steel for fastening to the ceiling of the cage with two ¼ inch thumb screws. On threaded end of housing is placed a ¾ inch lock nut, then the aluminum disc, which is locked in place with a ¾ inch brass cap.

The new brass hub replaces the modified bicycle[1] front wheel hub and axle, to prevent rusting. It costs about two dollars to make one of the new type exercisers.

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[3] Kilian Manufacturing Corporation, 1640 Fairmont Avenue, Philadelphia, Pa.

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