writer realized. In the second paragraph can be found in italics, "It is never safe to copy a literature citation from some other author's literature list." Later on, in the same paragraph, by way of illustrating specifically the frequency of inaccurate literature citations the statement is made that "on looking up this citation, I found myself in the midst of a paper by Harden and Young on 'Action of Enzymes on Human Placenta.'"

Becoming possessed with a desire to see such a grievous error illustrated, I turned to page 577 of the Journal of Biological Chemistry, 36: 1918. There, to my astonishment, I found a paper on "Action of Enzymes on Human Placenta" not by Harden and Young, but by Hard*ing* and Young!

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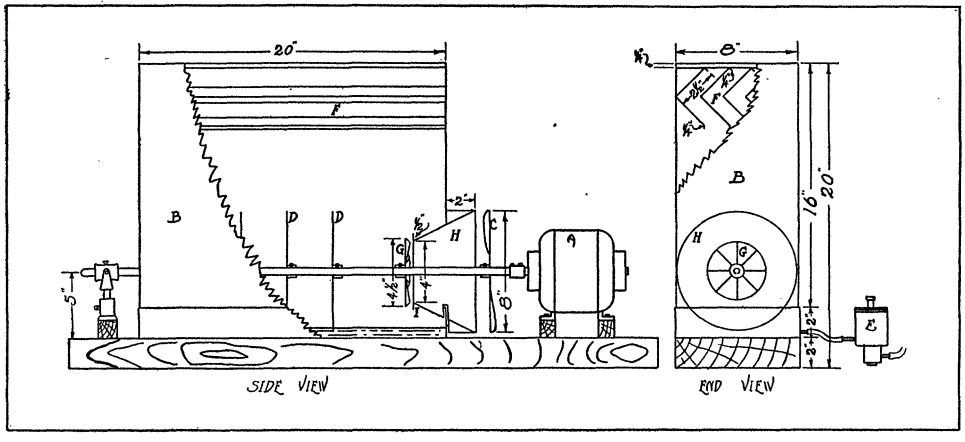
SCIENTIFIC APPARATUS AND LABORATORY METHODS

A SIMPLE DEVICE FOR HUMIDITY REGULATION

THE necessity for an accurate means of humidifying air in incubators, coupled with a limited budget, led to the development of the humidifier described herewith. Since the device is accurate to within ± 2 per cent. relative humidity and may be built complete for approximately $20, it seems worth describing in SCIENCE to make it available for others who may have similar needs. The writers hope to publish soon a bulletin containing a more detailed description of the machine together with some of the results that have been obtained from its use.



Briefly its characteristics are: (1) Accuracy not ordinarily attained, (2) simplicity of design with all the advantages attendant thereto, (3) adaptability, (4) cheapness. Operating the humidifier in a closed system, hygrothermograph charts have been obtained showing a line not varying beyond the limits of the 2 per cent. marks during the course of a week. This lack of variation of the hygrograph needle is not due to a lack of sensitivity of the recording mechanism, either, because the needle on the machine invariably dropped immediately when the incubator door was opened. Simplicity of design was attained by attaching the single moving part of the machine directly to the shaft of the driving motor and by the elimination of a hygrostat. A variation in dimensions will allow the machine to be used in any sized incubator. By coupling onto the end of the shaft, humidifiers in adjacent incubators may be operated by the same motor. Simplicity means cheapness, so that the entire mechanism including a ¼ H.P. electric motor may be assembled for slightly less than $20.

The operation of the apparatus as shown in the accompanying drawing is as follows: A continuous-duty electric motor (A) revolving at approximately 1800 R.P.M. forces air into a humidifying chamber (B) by means of a fan (C). Agitator discs (D) made of ¼ inch-mesh galvanized wire screen (hardware cloth), dipping into water at the bottom of the humidifying chamber, beat it violently and throw it into the air as a fine mist, thus raising the humidity of the incoming air. A float chamber (E) from a brass automobile carburetor maintains accurately the water level in the humidifying chamber. Baffle plates (F) in the top of the humidifying chamber prevent particulate water from passing into the incubator with the humid air. To prevent any particulate water from flying back through the entrance, a baffle plate (G) made from a metal disc in the form of a multiple-blade fan is necessary. A cone (H) tapering from a diameter of 8 inches at the fan to 4 inches

in diameter at the baffle disc converges the air stream and passes it through the baffle into the humidifying chamber. A flange (I) one half inch wide soldered to the small end of the cone prevents water from dripping into the opening. The shaft, shaft hanger, coupling, and collars onto which the fan and agitators are soldered are stock parts of the "Driver" home workshop. They may be purchased from Sears, Roebuck & Co. or from the chain store called "Grant's." The shaft should be of brass, but an iron one may be coated with shellac to prevent rusting. The humidifying chamber may be made easily by a tinsmith from galvanized sheet iron.

When the humidifier is operating continuously and temperature is held constant, the relative humidity within the incubator is a function of the depth to which the agitator discs dip into the water of the humidifying chamber. Hence the relative humidity may be varied by raising or lowering the water level. Since the water level in the humidifying chamber is the same as that in the float chamber of the carburetor, the relative humidity within the incubator may be varied by altering the height of the carburetor. From these facts it is obvious that the precision of humidity regulation depends upon the sensitivity of the float and needle valve in maintaining a constant water level. The ratio between unit difference in water level and unit difference in relative humidity in the incubator depends upon the difference between the capacity of the humidifier and the size of the incubator in question. A machine the size of the one illustrated works very satisfactorily in an incubator of 53 cubic feet capacity.

Other methods of varying the humidity output of the apparatus and therefore of varying the relative humidity in the incubator is to alter the number of agitators or to change the size of the outlet through the baffle plates. These methods, however, serve only to alter the capacity of the humidifier. The sensitivity of the float and needle valve in the carburetor remains as the secret to the accuracy of humidity regulation.

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SPECIAL ARTICLES

THE LEAKAGE OF HELIUM THROUGH PYREX GLASS AT ROOM TEMPERATURE, II[1]

SOME years ago (SCIENCE, 68: 516, 1928) Baxter, Starkweather and Ellestad reported evidence of the slow leakage of helium from a sealed pyrex globe containing helium at room temperature. The gas in the (1044 ml.) globe was originally under slightly less than average atmospheric pressure in this locality, *i.e.*, 75 cm. The globe was occasionally compared in weight with a similar sealed globe, containing argon under a pressure of 79 cm., over a period of a year. In the course of the year the helium globe lost in weight to an extent corresponding to a little more than 1 per cent. of the helium.

Date	Excess in wt. of counterpoise over globe g.	Time days	Loss in wt. mg.	Loss in wt. per day mg.
Nov. 11, 1927	8.08873	0		
Nov. 11, 1928	8.09046	366	1.73	0.00474
Feb. 2, 1929	8.09091	449	2.18	0.00486
April 25, 1929	8.09141	531	2.68	0.00505
May 2, 1929	8.09144	538	2.71	0.00505
June 28, 1929	8.09179	595	3.06	0.00515
March 25, 1931	8.09445	1230	5.72	0.00465
May 22, 1931	8.09500	1288	6.27	0.00488
May 23, 1931	8.09491	1289	6.18	0.00479
May 25, 1931	8.09496	1291	6.23	0.00482

[1] Contribution from the T. Jefferson Coolidge Memorial Laboratory of Harvard University.

The weight of the globe has been occasionally determined since that time and the observations show a continuous regular loss corresponding to that previously found.

In the three years and one half since the experiment was started the proportion of helium which apparently has diffused through the glass is nearly 3.5 per cent. (35 ml.). The rate of leakage per day is somewhat irregular although a continuously slower rate is to be expected on account of the diminishing interior pressure.

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H. W. STARKWEATHER

INCREASING THE VITAMIN D POTENCY OF COW'S MILK BY THE DAILY FEEDING OF IRRADIATED YEAST OR IRRADIATED ERGOSTEROL[1]

LUCE[2] in 1924 reported that the diet of the cow appeared to be the main factor in determining the

[1] The experiments here described were carried out through the cooperation of the Walker-Gordon Laboratory Company and Columbia University.

[2] E. M. Luce, *Biochem. J.*, 18, 2379, 1924.