used. This may possibly be explained by the fairly rapid oxidation of cysteine to cystine in a neutral medium before its administration. A similar reduction in mortality was observed when cysteine was given either 5 min or 1 hr before X irradiation. Significantly, injection of cysteine immediately after the exposure was ineffectual.

TABLE 2

INFLUENCE OF TIME OF INJECTION OF CYSTEINE ON SURVIVAL AFTER X IRRADIATION WITH 800 ROENTGENS*

Treatment group	Time of injection relative to X irradiation	Number of rats	% Survival after irradiation			
			1st week	2nd week	3rd week	4th week
Control	5 min before	15	73	20	13	13
Cysteine	5 min before	15	87	87	87	87
Control	1 hr before	15	80	20	20	20
Cysteine	1 hr before	15	100	87	80	80
Control	5 min after	16	88	19	13	6
Cysteine	5 min after	15	60	20	13	13

* Cysteine—875 mg/kg I.V., pH 7; controls received equivalent volume of 5% NaCl I.V.

These results are summarized in Tables 1 and 2. If all rats receiving cysteine at either pH 1 or 7 before their irradiation are considered as a single group, there are 92 survivors of 126 cysteine-treated animals (73%) as compared with 18 survivors of 134 irradiated controls (13%). These findings are highly significant statistically ($p \ll .001$).

Change in body weight was followed in a small group of rats pretreated with cysteine. Body weight is a fair prognostic sign of ultimate toxicity in the irradiated rat. Although the initial decrease was similar in the cysteine-pretreated and in the control animals, body weight recovered rapidly in the former.

We may conclude that cysteine, but not cystine, administered to rats prior to X irradiation in the nearly completely lethal range, greatly diminishes toxicity. This ameliorating influence may reside in the protection afforded certain critical cellular constituents against oxidation by the presence of cysteine or an intermediate of cysteine. A study of the protective influence of cysteine when administered at longer intervals before irradiation and by different routes as well as of other substances, such as glutathione, methionine, tryptophane, and ascorbic acid, is in progress. The metabolism of injected cysteine in the irradiated animal and its effect on the hematologic and histologic changes induced by radiation will be reported in detail in a subsequent communication.

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Humidifying Apparatus for Small Test Rooms

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The wood-element hygrostat illustrated in Fig. 1 was devised by Torgeson for use in an experimental lumber dry kiln at the U. S. Forest Products Laboratory, Madison, Wisconsin. Because of its simplicity and sturdiness it later was installed in each of two 600-cu-ft rooms used at the laboratory for accelerated testing of the resistance of wood and wood products to decay by pure cultures of wood-destroying fungi. As set, the hygrostat, in conjunction with the humidifier illustrated in Fig. 2, maintains a relative humidity of 70% with deviations of about ±2%. The temperature of the rooms is thermostatically kept at 80° F. Over several years, no adjustment in setting on account of changes in characteristics of the hygrostat has been needed. The reliable performance and simplicity of this humidification system should make it useful in many connections requiring humidity control within a moderately narrow range and at a level greater than that prevailing outside the space to be conditioned. It is already being used for biological work at a number of other laboratories.

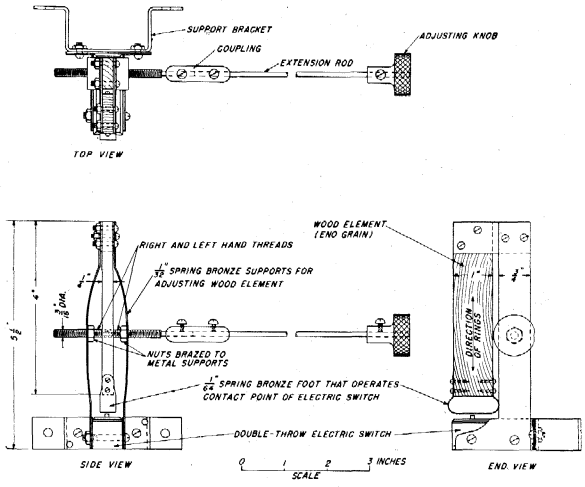

FIG. 1. Hygrostat.

The novel features of the hygrostat consist of the wood element and a microtype switch that is sensitive to a very slight movement of the element. The wood should be free of defects and have as flat a grain as possible, for the flatter the grain the greater will be the dimensional change lengthwise of the element with a given change in relative humidity, and thus a correspondingly greater operating sensitivity of the hygrostat will be provided. The sapwood of hardwood species, such as

maple and birch, makes a good element. The switch should be of the normally closed type. It is opened by pressure of the foot of the wood element against a protruding contact point, and this interrupts the flow of

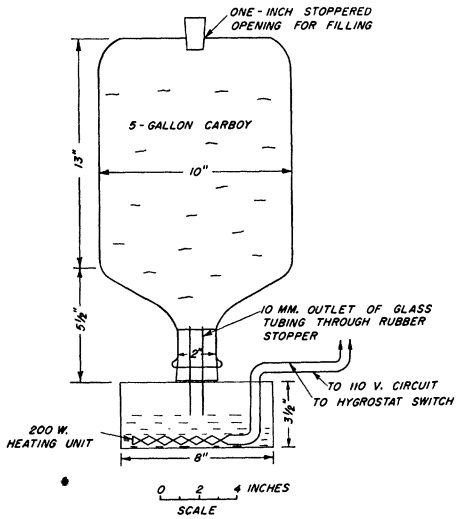

FIG. 2. Humidifier.

current through the heating coil of the humidifier. It is closed again and humidification is resumed as the element shrinks in response to decreasing relative humidity. No relay is required; the switch, which is designed for current loads up to 10 amps at 125 volts, is simply connected in series with the heating element of the humidifier.

The relative humidity to be maintained is controlled by the proximity of the element foot to the switch contact point, which is regulated by adjusting the spacing between the spring bronze element supports. These supports are spread or contracted by turning the right- and left-hand threaded screw in the nuts brazed to the supports. The final adjustment is arrived at by trial and error, using a wet- and dry-bulb hygrometer to indicate when the proper setting has been made.

The humidifier (Fig. 2) consists of a closed 5-gal reservoir of water that feeds through 10-mm glass tubing into a glass evaporating pan. Heat is supplied by an open, 200-w heating coil submerged in the pan. A sealed heating unit probably would give longer service, although the open coil is remarkably durable when kept submerged. The smaller the heat output of the unit, the smaller will be the overrun in humidification resulting from lag in the response of the hygrostat.

The water reservoir is filled as necessary through a ½-in. hole bored in the top. A rubber stopper is inserted in the outlet tube during the filling process. Distilled water is used because of the extreme hardness of the tap water at Madison, although lime would not, of course, materially interfere with the operation of the apparatus if it were removed from the evaporating pan and heating unit frequently enough to prevent large accumulation.

Significant stratification of relative humidity and temperature in the controlled rooms at the laboratory is avoided by keeping an electric fan running at low speed in each room.

From measurements made in one of the rooms during the winter, it was found that about 873 g water/day was evaporated in maintaining the 70% relative humidity. The humidifier was in operation about 5.8 hr each day, which entailed a daily power consumption of about 1.16 kwhr. Corresponding summertime values were not measured, but are known to be considerably smaller. The room in this case is walled on three sides with double sheet rock panels with mineral wool insulation batting between them, and on the fourth side with unglazed tile. All conspicuous cracks and similar openings to the outside are sealed with calking compound, a measure that materially reduces the amount of humidification required.

To provide a relative humidity lower than that of the outside atmosphere, some arrangement for increasing the temperature (if this could be tolerated) or for dehumidification would, of course, be necessary. In any case, the wood-element hygrostat could be adapted to serve as the control apparatus.

Treatment of Nausea and Vomiting of Pregnancy with Dramamine—Preliminary Report

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Nausea occurs in approximately 50% of pregnancies, and in about 25% vomiting ensues. The severity of symptoms varies in individual patients. Frequently patients require hospitalization because of the excessive dehydration which occurs. However, in a study of 15,000 cases, Eastman and Hellman (*1*) have reported that in only one instance was interruption of the pregnancy necessary. The cause of these symptoms has never been definitely established.

Coincident with the study of the control of motion sickness with Dramamine (*2*), it was decided to investigate the effect of the drug on nausea and vomiting in pregnancy.[1] The following data are presented as a preliminary report of this investigation.

Forty-three women who had complained of these symptoms for 4–6 weeks had been given a number of remedies. Intravenous pyridoxine, oral pyridoxine, oral thiamine chloride, sedation, and psychotherapy had failed. Each patient was given 100 mg of Dramamine, three times daily. This dose was reduced to 50 mg three times daily for seven patients because of minor side-effects—drowsiness and vague subjective muscle tremors. Unknown to 10 patients, the drug was discontinued and a placebo of lactose, identical in appearance, was substituted.

Thirty-one patients (72.1%) of the 43 were completely relieved of their symptoms 3 hr after administration of Dramamine. Ten patients whose symptoms were con-

[1] Dramamine supplied by G. D. Searle & Co., Chicago.