trees affected showed the characteristic foliage discoloration produced when gas fumes come in contact with leaves.

The Amherst report afforded opportunity to obtain detailed records of injury to trees which resulted from a defective electric refrigerator in an average household. When the gas fumes were detected, the repairman inserted a tube into the refrigerator to facilitate the passage of gas into the open air at the rear door of the house. At this point, in the absence of any strong currents of air, the gas settled upon the vegetation, covering an area of approximately 500 square feet. Leaves of small elm trees showed a marked reaction within twenty-four hours, as did the foliage of a privet hedge, some other shrubs and a large patch of lawn. The foliage of all deciduous plants showed an uneven, brownish, spotty discoloration and distortion. A Colorado blue spruce, almost in the center of the area affected, at first showed very little indication of injury; but within a few days had lost certain reddened needles, mostly from the lower branches. The spread of the gas from the south side of the affected area, where it had been released, to the northeast corner left a trail of injured plants throughout the plot. Observation showed that in the case of plants nearest to the point of gas release, injury was apparent promptly; while, at the northeastern limit of the plot, conspicuous injury to plants did not appear for five days.

After two weeks the appearance of the lawn improved materially, and the brown area, which was at first conspicuous, quickly disappeared as new grass shoots appeared above the burned area. This would indicate that in cases of limited exposure to gas in the atmosphere, satisfactory regeneration of a lawn will result without reseeding. Injury to the other plants did not progress beyond the limited death of leaves and smaller branches. Examination of the latent buds, green tissue of the bark and roots indicated that practically normal growth may be expected on the affected perennials during the next growing season. The transient presence of the gas, sulfur dioxide, in the atmosphere surrounding the plants had resulted in a mild form of the injury which occurs extensively in areas where this gas is abundant in the atmosphere or regularly present in dilute quantities. In the presence of water, this gas behaves as though sulfurous acid (H_2SO_3) were formed and further oxidation gives sulfuric acid (H_2SO_4), which causes spotting of plant foliage in zones where smoke is abundant. The gas injury to plants in Amherst was of the acute type as contrasted with the chronic and possibly invisible types of sulfur dioxide injury which occur under appropriate conditions. Sulfur dioxide injury to plants is not a new plant disease. However, the use of the gas in electric refrigeration offers a possible source for more cases of isolated reports of injured tree foliage which may be limited or serious, depending upon local conditions.

The diagnosis of this type of injury to plants presents certain complications, and one should not conclude hastily that sulfur dioxide has injured plants in any particular instance. Injuries from plant pests, early frost, drought, sun scorch and certain other troubles may be confused with this injury, and only after a detailed study of an area involved, should one decide that the gas fumes from a defective refrigerator have injured plants. The injury to plant foliage caused by gas escaping from defective electric refrigerators as reported here applies only to electric refrigerators which use sulfur dioxide or other gases which are injurious to plant life.

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ANTHELMINTIC INACTIVITY OF FRESH PINEAPPLE JUICE IN VIVO

J. BERGER and C. F. Asenjo published their "Anthelmintic Activity of Fresh Pineapple Juice" in SCIENCE for September 29 (Vol. 90: 299–300), 1939. These authors incubated *Ascaris suum* and *Macracanthocephalus hirudinaceus in vitro* in freshly squeezed pineapple juice in which both parasites were completely digested at the end of 24 hours. The authors have suggested that there is some scientific basis for the use of fresh pineapple juice as an anthelmintic.

The present note is based mainly on observations on living animals.

A puppy, fifteen pounds in weight, infected with *Toxocara canis,* was given 100 cc of fresh pineapple juice every morning for three days. During these days the supper and breakfast were omitted. On the second morning the dog had expelled 13 parasites. This, however, is quite a usual occurrence in the case of infection with *Toxocara.* At autopsy on the fifth day 26 live ascarids were found distributed through the intestinal tract.

A kitten, three pounds in weight, known to be infected with *Toxocara cati,* was given 25–30 cc of fresh pineapple juice every morning for four days. The first two doses were given by mouth, the third and fourth doses were introduced by stomach tube. At autopsy on the fifth day 35 live ascarids were found in the small intestine.

A child infected with pinworms, *Enterobius vermicularis,* has been given fresh pineapple juice every morning for three weeks. The infection still persists.

Observations were also made on *Toxocara canis* and *T. cati in vitro* at 38° C. In fresh pineapple juice, these ascarids were almost completely digested in 15 to 20 hours. Pineapple juice added to gastric juice

and to 0.2 per cent. HCl solution, however, had no digestive effect on these parasites. It is suggested that the digestive effect *in vitro* is due to the *bromelin*, the proteolytic enzyme present in pineapple, which however is destroyed by the action of gastric juice.

Our observations, therefore, do not support the suggestion that fresh pineapple juice may be of value as an anthelmintic.

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SOCIETIES AND MEETINGS

THE AMERICAN ASSOCIATION OF SCIENTIFIC WORKERS AT COLUMBUS

A MEETING of the American Association of Scientific Workers was held at the Deshler-Wallick Hotel at Columbus, Ohio, at 4:00 P.M. on December 30, 1939, in connection with the meetings of the American Association for the Advancement of Science. Professor Kenneth V. Thimann occupied the chair. The general topic of the meeting was "Science and the Public." The first speaker was Mr. Watson Davis, editor of Science Service, who spoke briefly on the publicizing of science. The newspapers, he said, are the principal medium for the dissemination of science to the general public. In writing for the newspapers it is necessary to use an emotional approach tempered with intelligence. The science writers at this meeting of the American Association for the Advancement of Science wrote from 5,000 to 10,000 words each for the newspapers.

The next speaker was Dr. Julian Huxley, exchange lecturer from the British Association for the Advancement of Science. "Science and the Public" is a very broad subject, he said. After discussing the publicizing of science, he discoursed at some length on science and social relations. Man has mastered inanimate nature, but not human nature. We must get rid of the idea that the present state of society is a good one. At present we have no satisfactory machinery for coordination in society. Man must develop a social brain. Social science must be developed. Many scientists are opposed to social science, calling it pseudoscience. They have been impressed by the failure of the techniques of natural science when applied to social science. However, we should expect that in a totally different domain new techniques different from those used in the natural sciences will have to be developed. Totally new methods of measurement must be worked out. This is gradually being done in psychology, and it is to be expected that the same will be done in sociology. Already we have the measurement of public opinion by polls. All this takes time, but perhaps in a century politicians will be scientifically trained. Furthermore, an intellectual atmosphere suitable for the social sciences must be developed. This led him to a discussion of scientific humanism and fundamental human values.

The third speaker was Dr. Loring Andrews, of the Worldwide Broadcasting Foundation, who spoke on "Putting Science on the Air." Dr. Andrews has cooperated with the Boston-Cambridge Branch of the American Association of Scientific Workers in broadcasting science. Dr. Andrews discussed the interests and attitudes of the average radio listener and in particular the technique of putting science on the air. He emphasized the fact that a science broadcaster should be a master of the technique of radio broadcasting as well as have a thorough knowledge of science. The programs must be carefully prepared if they are to be successful. Many hours of work go into a fifteen-minute broadcast. He also discussed the various kinds of radio technique.

The last speaker was Professor Colston Warne, of Amherst College, who spoke on "The Relation of the Consumer Movement to Scientific Groups." Dr. Warne, who is president of Consumers Union, talked about the development of the consumer movement in the United States in the last decade, pointing out the difficulties the consumer had in making wise choices in purchasing because of the conflicting and frequently misleading claims made in advertising, etc. He also spoke of some of the present opposition to the consumer movement. He said that in the past the objectives of the consumer movement have been too narrowly conceived. He defined the objectives to be as follows:

(1) Dissemination of knowledge among consumers of the quality of goods, prices, etc.

(2) Securing of legislation in the interest of the consumer, such as food and drug laws.

(3) Securing a bounty of goods. Thus far the decision as to whether manufacturing plants shall operate or close has been solely in the hands of the management of corporations. Thus plants often close when consumers need the goods they could produce. Consumers should have a voice in deciding when plants shall operate or close, that is, a voice in management.

(4) Intelligent living in the twentieth century.

He said that scientific groups such as the American Association of Scientific Workers can aid in the movement.

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