

## CHEMISTRY

**Several Wines Blended to Make American Champagne**

**C**HAMPAGNE can now be made in the United States rivaling that of European origin, thanks to the skill of American chemists.

Its manufacture was described before the food and agricultural division of the American Chemical Society meeting, in a report of Dr. D. K. Tressler of the New York State Agricultural Experiment Station, Dr. H. E. Goresline of the U. S. Department of Agriculture, and F. M. Champlin, owner of a large wine company in New York.

Since the white wine used as a base must be of extremely high quality, several white wines, including Catawba, Delaware, Elvira, and Dutchess, are blended to obtain the desired excellence.

Selected champagne yeast is added, together with the exact amount of sugar necessary to ferment and yield a pressure of 100 pounds to the square inch in the finished product. Sealed in the dark-green bottles, the champagne is then placed in cellars where the temperature can be carefully regulated—a necessary consideration in fermentation control.

It is during this secondary fermentation and aging that the champagne gains all of its clear, sparkling brilliance. The bottles are placed in an almost inverted position and shaken lightly as well as turned each day. This causes all the sediment to collect in the neck.

When all the sediment has collected, the neck of the bottle is frozen, and the frozen wine and sediment quickly removed. Sirups containing cognac and other flavorings are added, and the bottles again sealed, this time until they are re-opened upon some festive occasion.

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## CHEMISTRY

**Zinc and Paint Disagree; Chemist Finds Out Why**

**Z**INC and paint are chemically hostile to each other, and that is why the average householder finds it so difficult and expensive to keep his zinc-coated eave-troughs decently painted up.

Dr. Henry J. Wing, chemist at the works of E. I. duPont de Nemours and Company, Wilmington, Del., told fellow-scientists at the San Francisco meeting of the American Chemical Society of his investigations into the causes of this expensive unfriendliness between paint and zinc.

He started with the commonly observed fact that paint flaking off zinc-

coated metal is covered on its contact side with a white film. Evidently the paint has done something to the zinc to form this weakening stuff.

Then Dr. Wing made the purest and smoothest zinc surface possible, by coating small pieces of glass on one side with zinc in the same way that aluminum is used to make reflectors for modern astronomical telescopes. These he exposed to fumes from ordinary paint. The same white stuff formed on the mirrors.

Upon analysis this was found to be zinc formate, a compound of zinc and formic acid. Analysis of the white stuff from "natural" paint flakes off the surface of galvanized iron showed the same substance to be present. Paint removed from plain iron did not have it.

This solved the riddle, but the remedy has not yet been forthcoming. Before paint chemists can know how to make paint stick to zinc further research will be necessary.

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## PHYSIOLOGY

**Vegetable Fats Found Digestible and Nutritious**

**V**EGETABLE fats are completely digestible and they satisfactorily fulfill the needs of the body for fat, according to Dr. Harry Steenbock of the University of Wisconsin.

Dr. Steenbock and his associates at the Wisconsin Experiment Station have confirmed the finding made at other experiment stations that lack of fat in the diet of experimental animals results in abnormal symptoms, including the stopping of growth. They found that white rats suffering from want of fat could be completely cured in from five to seven weeks by feeding them daily five drops of corn oil, 15 drops of lard, or 20 drops of a widely known vegetable fat.

The Wisconsin investigators found that all edible fats, animal or vegetable, are completely absorbed by the body if they will melt below body temperature. Hydrogenation of vegetable fats does not make them indigestible, therefore, unless it is carried so far as to give them a melting point of 100 degrees Fahrenheit or more. And this is not done with ordinary commercial vegetable fat.

Some fats are digested much more rapidly than others, Dr. Steenbock found. He pointed out, however, that it has not been proved that quick digestion is desirable, although it is popularly associated with "easy" digestion. Slowly digested foods have a certain value in that they tend to keep one from growing hungry before the next meal.

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**IN SCIENCE**

## MEDICINE

**Cancer Heals Itself; One Case in 100,000**

**T**HE RARE case of a cancer that spontaneously regressed or healed itself, an event that is estimated to occur "but once in one hundred thousand cases" is reported by Dr. M. Viola Rae of University of Toronto and Toronto General Hospital (*American Journal of Cancer*, Aug. 16).

The malignant tumor, discovered in the kidney during an exploratory operation upon a woman 61 years old, had been surrounded and penetrated by calcium deposits and thus had died. After the removal, the patient "made an uneventful postoperative recovery." There was only one small piece of the tumor that was found to be alive.

Just what caused the cancer to heal itself is not known. Dr. Rae suggests that "some complex form of local or general immunity developed, which established retrogressive changes in the tumor."

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## ASTRONOMY

**Faint Comet With Tail Sighted at Mount Wilson**

**A** FAINT, tailed comet first discovered nine years ago has been rediscovered by Dr. Hamilton M. Jeffers of Lick Observatory. It is the Comas-Sola comet, now visiting the sun's vicinity after a journey into the outer reaches of the solar system.

At present in the constellation of Gemini, the Twins, famous for the stars Castor and Pollux, the Comas-Sola comet is 14th magnitude and can be seen only through the larger telescopes. Its head is diffuse and the tail is short, extending less than one degree from the main part of the comet.

The original discoverer of the comet was Dr. J. Comas-Sola, director of the Fabra Observatory, Barcelona, Spain, who found it Nov. 5, 1926.

Dr. Jeffers has reported the rediscovery to Harvard College Observatory which acts as a clearing house for American astronomical reports.

*Science News Letter, August 24, 1935*

# E FIELDS

## PHYSIOLOGY

### Monkey Freezer Doubted By Medical Journal

**T**HERE WILL be no murder trial in California over the death by freezing of Stephen Simkhovitch.

Of that the *Journal of the American Medical Association* (Aug. 17) is confident.

The medical journal is depending on California authorities to "express themselves with sufficient urgency on the subject" to prevent "Dr." Ralph Stanley Willard from proceeding with his experiment of freezing a human being in the belief that he can later restore him to life.

In an editorial, "Frozen Monkeys," the official publication of the American medical profession treats the extraordinary proposal lightly. Some investigators, it remarks, are convinced that the old process of substitution or sleight of hand was involved in the production of a live monkey in place of the frozen animal which "Dr." Willard claims spent three days in a refrigerator.

"No doubt the authorities will prevent Stephen Simkhovitch from submitting himself to the congealing process," the editorial states, "even though his fiancée has said the experiment is satisfactory to her. Perhaps she likes them cold."

The American Medical Association can find no evidence that Willard ever attended any school of medicine. Actually he is not a doctor at all, the organization declares. Its records show that he is presumably a chemist and that in Kansas City in 1927 he was associated with the promotion of some sort of tank treatment for many diseases.

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## DIETETICS

### Chow Mein Demonstrated As Good Vitamin Source

**C**HOW MEIN, stand-by of Oriental restaurants, may be unknown in China, but it is an excellent source of vitamins and a balanced meal in itself. This was revealed in a paper reporting the studies of Dr. LeRoy S. Weatherby and S. Murray of the University of Southern California, read before the American

Chemical Society meeting at San Francisco.

Five white rats were fed on a diet of chow mein exclusively for six months after weaning. They showed no diet deficiency during the entire period and grew normally, although a trifle more slowly than rats fed on other balanced diets.

This slight slowness in growth was probably due to the composition of chow mein, the investigators believe, which is 82.36 per cent. moisture, and consequently lacking in solid matter.

Other experiments with groups of white rats showed that chow mein is not only rich in Vitamins A, B and D, but is also sufficiently supplied with minerals and proteins necessary to health.

Five grams of chow mein a day, in addition to a basal diet, was fed to each rat in several groups.

In the first group, it was sufficient to produce a normal growth curve for each rat. A gain of 4.5 grams in weight a week, for eight weeks was recorded for each rat in a second group, together with the disappearance of nervous symptoms present before the test. Complete cure of rickets was effected in four weeks in a third group.

If chow mein will produce similar beneficial effects in humans, as is to be expected from the animal tests, Chinese restaurants will have another good argument in soliciting patronage.

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## PLANT PHYSIOLOGY

### Buckwheat Gives Index To Trees' Mineral Needs

**N**UTRITION problems of human beings are sometimes solved by "trying it on the dog"—or a guinea pig. Buckwheat plants served as the "dog" in getting an index on the nitrogen requirements of young trees in the nursery of the New York State Conservation Department at Saratoga, E. J. Eliason reports (*Jr. Forestry*, June).

Buckwheat was planted in soil where several species of young evergreens had been growing. Its degree of greenness was taken as an index to the relative abundance of nitrogen left in the soil after the tree roots had taken their fill. The buckwheat developed its most marked yellowish hue on soil where red cedars had grown, indicating the greatest nitrogen hunger on the part of that variety. Spruces were next in their nitrogen requirement, and pines required least nitrogen.

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## CHEMISTRY

### Coffee Becomes Stale Through Action of Oxygen

**C**OFFEE goes stale as it grows old because of the action of oxygen on the aromatic fatty substance in the beans that is responsible for their delicate flavor. It is a process analogous to the spoiling of butter. The only thing you can do about it is be sure you get freshly roasted coffee.

These results of research in coffee chemistry were reported before the meeting of the American Chemical Society by Dr. Robert O. Bengis of Yale University.

Experimental procedure followed by Dr. Bengis was basically simple. He extracted the fatty substance from a lot of freshly roasted coffee beans, and later on made a similar extraction from beans out of the same batch, when they had gone stale. Each sample of the extracted substance he exposed to oxygen, in an apparatus that would show how much of the gas the sample absorbed. The fresh material absorbed more than did the extract from the stale coffee, showing that the latter had already taken up a measurable quantity of oxygen, during the process of staling.

Similar tests on coffee marketed in vacuum tins showed that this method of packing affords only partial protection to the coffee. Even with the best of commercial vacuums, there seems to be some air left—enough, at any rate, to start oxidation in the aromatic fatty substance. Vacuum packing therefore, in Dr. Bengis' opinion, serves only to retard the staling process and will not stop it altogether.

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## PLANT PATHOLOGY

### Disease Comes to Rescue Of Dakota Flax Growers

**F**ARMERS in North Dakota have been "getting the breaks" this year. A wet winter and spring ended the long scourge of drought, and at the same time abated the grasshopper pest.

Then a new plague arose to threaten from another angle: hordes of army worms, that made destructive inroads into the flax, a highly important crop in the Northwest. Now a disease has come to the rescue, wiping out the worms by billions.

The nature of the epidemic is not clear. Prof. C. I. Nelson, of the bacteriology department, is now endeavoring to isolate the organism.

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