BACTERIOLOGY

Air-Borne Bacteria May Show Direction of Wind

WEATHER men studying the origins and migrations of air masses may have to add bacteriology to their other techniques, if heed is given to a suggestion by Drs. Claude E. ZoBell and Helen M. Mathews of the Scripps Institution of Oceanography. They have conducted quantitative studies on the proportions of land and sea bacteria in breezes blowing both offshore and onshore. (*Proceedings, National Academy of Sciences,* October.)

Land breezes carry preponderant numbers of soil bacteria, they found, while breezes from the sea have a higher ratio of saltwater organisms. Not more than five per cent of soil bacteria can live in a saltwater medium. While a somewhat larger proportion of oceanic bacteria can survive living conditions like those of inland soil, a large ratio of such organisms in an air mass of unknown origin would seem to indicate that it had traveled over the sea.

Science News Letter, November 14, 1936

NUTRITION

Feed Cows Lemon Juice In Study of Milk Flavor

THE EFFECT of vitamin C in cows' feed on the susceptibility of milk to oxidized (unpleasant) flavor, when the milk was contaminated with small amounts of copper such as are likely to come from utensils and equipment, has been investigated by Prof. L. M. Thurston, W. Carson Brown, and R. B. Dustman at West Virginia University. The following results were obtained:

The feeding of vitamin C rich foods materially reduced or entirely eliminated the susceptibility of the milk to oxidized flavor even though the milk was contaminated with copper.

The vitamin C content of the feed was increased by use of tomato juice, lemon juice and pure finely crystallized vitamin C (Cebione).

The presence of vitamin C in the ration from the above sources had no unpleasant effect on the natural flavor of the milk.

It is the belief of the authors that pasture grasses probably contain vitamin C or some similar substance which is responsible for the non-susceptibility of milk from cows on pasture to oxidized flavor development.

The development of oxidized flavor may be prevented in two ways: (1) The elimination of all sources of copper contamination and, (2) the feeding of vitamin C rich foods in the winter ration.

Science News Letter, November 14, 1936

PUBLIC HEALTH

Local Health Officers Can Fight Mental Disease

PEOPLE of all ages and in all walks of life may need help in protecting themselves from mental ill health, Dr. B. Liber, New York City psychiatrist, indicated. He pointed out that preventing mental disease is as much a problem for public health agencies as preventing smallpox or other physical disease.

Cooperation of trade unions and of employers should be gained by health officers in order to protect the mental health of workers, Dr. Liber said. Employers should learn that it is to their own advantage that the workers be clear-minded, alert and calm in order to prevent accidents and to produce more and better quality work.

"Child upbringing, sexual problems in youth, marital problems and industrial difficulties constitute the worst causes of mental maladjustment," Dr. Liber said.

Other methods by which health departments can protect mental health as suggested by Dr. Liber are the following:

1. Preventive mental clinics for transition cases of adults.
2. Mental hygienists in all elementary public schools.
3. At least one mental examination of all pupils.
4. Behavior problems solved in cooperation with parents.
5. More attention to mental hygiene in schools for teachers.
6. More and better Child Guidance Clinics.
7. Easy courses in child upbringing for parents and future parents, preferably in public school buildings.
8. Marital consultation bureaus, not compulsory, but friendly, sympathetic and confidential for young men and women before marriage. Discouraging unions between families where insanity or feeblemindedness prevails. Discovering gonorrhea, syphilis, tuberculosis in candidates for marriage.
9. Classes for adolescents in sex education. Dispelling fears and anxieties due to ignorance and leading to mental maladjustment.

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IN SCIENC

BACTERIOLOGY

Plant Disease Germ Related To Bacteria in Humans

A DEFINITE connection between the *Bacillus coli* found in the large intestine of man and the bacteria causing delphinium blight, rot of dahlia and carrot rot has been brought to light by the research of the WPA unit in the New York Botanical Gardens.

These conclusions are presented in graphic form at the series of exhibitions held by the Women's and Professional Division of the Works Progress Administration in various New York City armories.

Through work on these plant diseases the organisms causing the diseases have been isolated and it has been found that they are identical in both structure and reaction with the *Bacillus coli* which may cause disease in man, though it is ordinarily harmless.

Research is now under way to prove whether or not these organisms causing plant disease will produce human disease.

Science News Letter, November 14, 1936

PHYSICS

Returns From Stratosphere Flight Still Coming In

THE STRATOSPHERE flight of 1935 by the National Geographic Society-U. S. Army Air Corps is still yielding information for science, it was revealed at sessions of the American Physical Society by Drs. Brian O'Brien and H. S. Stewart of the University of Rochester and Dr. F. L. Mohler of the National Bureau of Standards in Washington.

Newest feat is to make a determination of the distribution of the ozone in the earth's atmosphere more than a mile above the 13.6 mile ceiling reached in the actual ascent.

It appears that at the stratosphere balloon ceiling at 22 kilometers (13.6 miles) there was a sharp concentration of ozone, and that at 24 kilometers (14.9 miles) the concentration fell to half its value at the 22-kilometer level.

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E FIELDS

BIOLOGY

Plants' Food Making Slowed by Heavy Water

HEAVY water, containing double-weight hydrogen atoms instead of the common, single-weight ones, slows down the food-making process in green plants, Drs. James Curry and Sam F. Trelease of Columbia University have found.

They kept colonies of a one-celled green plant in practically pure heavy water, and parallel colonies in similar amounts of ordinary water. The heavy water colonies carried on photosynthesis, or primary food production, only about two-fifths as rapidly as those in the common water.

In another experiment, in which Dr. Robertson Pratt also participated, doubt was cast on the ability of heavy water to have any noticeable physiological effect on plant activities. Two kinds of fungi, and wheat at two different stages of early growth, were subjected to the action of the dilute heavy water, but no effects were noted.

Science News Letter, November 14, 1936

ARCHAEOLOGY

Offerings of Pagans Show Changes in Religion

GIFTS left by pious pagans at a holy place on the Thorsberg Moor near Kiel have been dug up in huge quantities by archaeologists working under the direction of Dr. Herbert Jankuhn of the Museum of Prehistoric Antiquities, in Kiel. (*Forschungen und Fortschritte,* October 10.) This spot was a sacred place for several centuries, both before and after the beginning of the Christian era, and the succession of gift-types yields a graphic picture of an evolution in the pagan religion in ancient North Germany.

Oldest are large numbers of earthen pots, in which the devotees set out gifts of food—meat, nuts, butter, etc. Then there are considerable numbers of bronze objects, like sword ornaments and cloak pins. Finally the number of gifts becomes much diminished, but their value greatly enhanced, for most of them are of gold. Inscribed gold rings were apparently the favorite offering in this late stage of the cult's development.

It is still difficult to determine what gods were worshipped on the Thorsberg Moor, but the scanty and almost undecipherable runes and occasional images on the rings hint at Thor, the war-god Tiu, and a god named Ull, who presided over winter, skiing, and archery.

A trace of the ancient cult still survives in a market fair regularly held at Nordmark, which is under the auspices of a church instead of the civil authorities as is customary elsewhere.

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SEISMOLOGY

Quake off Japanese Coast On our Election Day

TOKYO'S sharp earthquake that came on America's election day (Tuesday, Nov. 3) has had its epicenter checked up by American seismologists of the U. S. Coast and Geodetic Survey, on the basis of data collected by wire through Science Service. The point of greatest disturbance was calculated as in latitude 37.5 degrees north, longitude 142 degrees east. Time of origin was 3:45.9 p.m., eastern standard time, or 5:46 a.m., Tokyo time.

Stations reporting were: Georgetown University, Fordham University, Canisius College, the University of California, the private observatory of Mrs. M. M. Seeburger, Des Moines, Iowa, the Philippine Observatory, the Dominion Meteorological Observatory at Victoria, B. C., and the observatories of the U. S. Coast and Geodetic Survey at Tucson, Ariz., and Honolulu, T. H.

Science News Letter, November 14, 1936

ARCHAEOLOGY

Probe 13th Century Russia In Digging at Ukraine

A MEDIEVAL Russian town of the eleventh to thirteenth centuries is being excavated west of Kharkov, in the Ukraine region. Digging has already revealed many homes and the shops where crockery and bone articles were made.

Weapons used in that feudal age are so numerous in the ruins as to give a complete picture of the military technique. Especially well preserved are iron spears, axes, knives, daggers, and sabers.

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ENGINEERING

Rust Brothers Invent Improved Cotton Picker

A GREATLY improved, more efficient cotton picker is revealed in two U. S. patents (Nos. 2,058,513 and 2,058,514) just granted to the famous Rust brothers, Mack D. and John D. Rust of Memphis, Tenn., whose invention and testing of a cotton picking machine to do the work of a hundred human pickers recently stirred the country.

The new cotton picker described in the patents, strips cotton even from the unopened bolls of the cotton plant. It has a "mechanical gleaner" on it, which salvages any dropped cotton. It is more compact so that it can get between narrower rows of cotton plants.

It has a device for directing and manipulating the cotton plants so that the picking spindles will strip the plants for the maximum amount of cotton. It can be operated at maximum speeds to suit the type of field being picked. The faster the machine moves the faster the pickers pick. It does not clog up or jam.

These are some of the advantages which are claimed in the patents for the newest Rust brothers' cotton picker.

Mounted on a tractor, it consists of two picking units, one on each side of the operator, so that when the machine moves down the field it straddles two rows of plants at a time, picking them simultaneously. Just as the cotton plants enter the throats of the picking units, they are grabbed between the jaws of a boll crusher. This bursts any unopened bolls to expose their fleecy cotton to the picking spindles.

Then into the tunnels of the pickers proper pass the plants where a screen cylinder guides them into intimate contact with moist, rapidly whirling spindles, which like hungry fingers pick the cotton from the bolls.

As the tractor continues to move over the rows of cotton, the cotton-laden spindles move out of the tunnel to be stripped of their cargo, while stripped, remoistened spindles take their place. New cotton plants pass into the throat of the tunnel while the picked plants make their exit.

To glean any cotton that may drop off the pickers, there are two separated troughs between which the plants pass. With this new feature, cotton cannot spill over onto the ground. Instead it drops into the troughs where conveyors carry it to suction pipes, which suck the cotton up and send it to huge bags.

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