

CHEMISTRY

New Electric Lamp Uses Tellurium, Common Element

TELLURIUM, an element related to sulfur, discovered about a century and a half ago, and, though not rare, has so far found very few applications, is used in a new electric lamp. To its inventors, John W. Marden, East Orange, N. J., Norman C. Beese, Verona, N. J., and George Meister, Newark, N. J., the U. S. Patent Office has just granted U. S. Patent 2,215,648. Rights have been assigned to the Westinghouse Electric and Manufacturing Company. The inventors are connected with the Westinghouse Lamp Works, at Bloomfield, N. J.

Actual light comes from a glass tube shaped like an inverted J, contained in a larger bulb. The tube contains tellurium vapor. With a tube four inches long and a little more than a half inch in diameter, satisfactory operation was secured with two to three amperes of electrical current at 150 to 200 volts.

A curious characteristic of the tellurium light is that it resembles that of a glowing solid more than of a glowing gas. The latter usually, when broken into a spectrum, shows a series of bright lines, but that from tellurium vapor shows more of a continuous spectrum. When operated at the correct voltage, its light is very close to daylight, so perhaps the lamp will have applications where artificial daylight is needed.

Science News Letter, October 12, 1940

PSYCHOLOGY

Hitler Uses Psychology To Influence His People

THE SECRET of Hitler's success is to be found in the researches of a great Russian psychologist — Pavlov. So declares a follower of Pavlov, Serge Chakotin in a new book, *The Rape of the Masses* (Alliance Book Corporation).

The secret is in the ability of the human mind to form "conditioned reflexes." Not necessarily that Hitler himself could describe what is meant by this psychological term. But, uneducated though he may be, he has hit upon a way to exploit the knowledge that was made available to psychologists by the great Pavlov.

Pavlov discovered that a dog, whose mouth naturally waters while he eats his food, could be "conditioned" to mouth-watering at the sound of a dinner bell after the bell had been repeatedly sounded while the dog ate.

Hitler, Mr. Chakotin points out, has discovered that the German people can be similarly conditioned to respond in certain ways to the sound of the words "Heil Hitler" or the many other symbols of the Nazi regime.

Hitler, he says, makes use of suggestion on the basis of the combative instinct.

"This suggestion works by actual menace from time to time, as an absolute factor, and in the interim by the mass dissemination of symbols which recall the menace and thus act as a conditional factor."

Thus the constant parade of uniforms, flags, the display everywhere of the swastika continuously act to rouse the fear, the enthusiasm, the excitement of the German people just as would the presence of Hitler himself.

Because the symbols of Hitler are seen and heard universally in Germany and in Nazi-dominated territory, Hitler is able to have the same effect on the people as though he were himself omnipresent and omniscient.

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MEDICINE

House Flies Indicted as Carriers of Cow Disease

COMMON house flies, together with a less familiar insect known as frit flies or eye gnats, have been indicted as carriers of bovine mastitis, a troublesome and loss-causing bacterial disease that attack cows' udders. In *Science* (Sept. 27), Dr. D. A. Sanders of the University of Florida sets forth observations which have led him to this conclusion.

He watched both kinds of insects closely, and observed that they habitually fed on waste milk and on stable filth, and flew from these sources to the milk openings. The eye gnats also hung around the animals' eyes, and other body openings.

Dr. Sanders also permitted insects of the suspected species to gain access to the udders of uninfected cows. The animals subsequently developed mastitis, which afforded strong supporting evidence in favor of his conclusions.

Transmitting mastitis does not seem to be the limit of the eye gnats' mischief-making. Calling attention to previous convictions of these insects on the score of carrying conjunctivitis and yaws among human beings, Dr. Sanders suggests that they may also carry the germs of brucellosis or contagious abortion among cattle.

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IN SCIEN

MEDICINE

London Appeals to U. S. For Instruments, Supplies

SURGEONS and first aid stations treating air raid victims in London are in urgent need of surgical instruments and supplies, for lack of which many lives may be lost, it has just been learned.

A list of 69 separate kinds of instruments and supplies, sent by clipper "from a source of highest authority in London" to the Duchess of Leinster now in this country, appears in the *Journal of the American Medical Association* (Oct. 5) with an appeal to American doctors to contribute their surplus instruments to help save lives that might otherwise be lost.

Injuries to head, chest and bones are most numerous, if one can judge from the type of instruments and supplies requested.

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MEDICINE

Bible Describes Symptoms Due To Vitamin Deficiency

VITAMINS were unknown in biblical times, but the ailments now attributed to vitamin lack were observed, Dr. Walter J. Peterson, of Kansas State College, told the American Chemical Society.

He quoted a passage in which Jeremiah, writing of wild asses, says "their eyes did fail, because there was no grass."

"Today," Dr. Peterson commented, "we of course know that grass and all green growing plants contain a yellow pigment, carotene, the precursor of vitamin A, which when absent from the ration of all animals produces as one of its most specific symptoms, xerophthalmia, or blindness."

Recently developed tests for the vitamin A potency of a feed enable the poultry- and cattleman to obtain quickly and easily carotene assay of the feed he is to buy. This is valuable because a high carotene value normally indicates a high content of other important vitamins, Dr. Peterson pointed out.

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CE FIELDS

RADIO—MEDICINE

High-Frequency Apparatus Prohibited in England

USE or possession of high-frequency apparatus, such as used for medical treatment, has been prohibited in Great Britain as a war measure, information reaching here states. There is danger of interference at a vital moment to the radio communications of airplanes and other military services. It is explained that the user of high-frequency apparatus is nearly always unaware of the interference it is causing and that it is very difficult to locate the source of the interference.

Permits allowing high-frequency apparatus to be operated under some circumstances may be issued to hospitals and clinics, manufacturing establishments needing high-frequency apparatus and research laboratories.

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ANTHROPOLOGY

Pocahontas' Pa Probably Just One of Powhatans

THAT formidable deeds of Pocahontas' famous father, Chief Powhatan, and those of other chiefs with the same nickname may have been blended into a composite Indian in American history is the revelation of David I. Bushnell, Jr., Smithsonian Institution ethnologist.

Powhatan, he explains, is simply a descriptive place name, meaning "falls in a current." Pocahontas' father, whose right name was Wahunsonocock, had his favorite residence at a village called Powhatan—on the James River where Richmond now stands. The name Powhatan came to be applied to the man himself.

That there may have been several Powhatans in Virginia, Mr. Bushnell suspects, since the name would fit almost any village by a waterfall, and might also be applied to its leading citizen. The name was widely prominent, because even a confederacy of Algonquin tribes that Chief Powhatan—father of Pocahontas—led was known by this name Powhatan.

Archaeological and language studies can clear up, to some extent, some of the mysteries regarding early English settle-

ments at Jamestown, Va., and Roanoke Island, in North Carolina, it is hoped. The famous "lost colony" of Roanoke Island, was actually two "lost colonies," and Mr. Bushnell has been studying the confusing records that have survived for clues to the tangle. One of these lost colonies, it is not yet clear which one, had four members who survived the slaughter of "Powhatan of Roanoke," and who found shelter with friendly Indians. Indians who thus defied the Powhatans are believed to have been Sioux, for Mr. Bushnell points out that Sioux Indians were at war constantly with Algonquins. Descendants of the four white survivors may have been among Sioux Indians who later migrated to the West.

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PHYSIOLOGY

U. S. Scientists Explore Food Values of Seaweeds

SEAWEED is produced in immense quantities along all the world's sea-coasts, yet very little of it gets used directly as human food. The Japanese make use of a jelly-like seaweed product known as agar, and in Europe a certain amount of a crisp and curly sea-plant known as Irish moss is eaten. That is about all.

In an effort to arrive at an estimate of the food values of these seaweed products, Dr. Hugo W. Nilson and J. W. Schaller of the U. S. Fish and Wildlife Laboratory at College Park, Md., added graded percentages of both agar and Irish moss to the rations of young rats, weighing the animals to keep track of weight gains. They also made examinations to learn how much of the total seaweed fed was actually digested by the animals.

The rats thrive on most of the diets, though they did not gain weight any faster than control groups of animals fed on standard rations. The only notable exception was the group on a diet containing 10% agar; these gained 20% more weight than the controls. Rats receiving 20% Irish moss did badly: half of them died, and the survivors gained only about two-thirds as much weight as was gained by the control animals.

Both kinds of seaweed products absorb great quantities of water, so that the rats fed on them were very thirsty. They drank nearly twice as much water for every gram of weight gained, when 30% agar and 20% Irish moss were fed to them.

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RADIO

FM Radio Now Used in Public School Broadcasts

WITH modern school systems using radio to carry instruction to classes throughout a city there was always a hope for little Johnny or Mary that static, natural or man-made, might interfere with the program, and they would be excused from a class. But this excuse is eliminated now with the use of static-free FM (frequency modulated) radio for educational broadcasts.

The Federal Communications Commission has granted permission for FM stations to the Boards of Education both in San Francisco and Cleveland. The former is to be a new station, operating on 42,100 kilocycles, unlimited time, with one kilowatt of power. Thirteen studios will be connected by leased wires to the station.

For some time the Cleveland Board of Education has been operating station WBOE, on amplitude modulation, with 500 watts power. This will change to FM, on 42,500 kilocycles with 1000 watts power, both day and night.

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CHEMISTRY

Air Space in Bottle Neck Found Bad for the Wine

WINE bottles should not have so much air space left in their necks; they should be filled up closer to the cork. This laudable practise was recommended to the American Chemical Society by a four-man research team, as the prime means for preventing bottled wine from spoiling.

The oxygen in this space (known as "headspace" to vintners) goes into combination with certain compounds in the wine, causing darker color, cloudiness, dregginess and off flavor, the report stated. Filling the bottles with hot wine, leaving little headspace, and corking while hot will do much to eliminate wine-spoiling air.

Next to leaving too much air in the bottle, worst spoilage causes are keeping wine in bright sunlight and at too high a room temperature. Both kinds of exposure are common in American liquor stores, as contrasted with the cool, dark cellars where Europeans traditionally keep their wine.

The research on wine spoilage was conducted by C. A. Pederson of the New York Agricultural Experiment Station at Geneva, and Dr. H. E. Goresline, A. L. Curl and E. A. Beavens of the U. S. Department of Agriculture.

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