

## RADIO

**Harnessed Musical Pitch Controls Gyroscope Speed**

► THE MUSICAL pitch of A above middle C is being harnessed to control the speed of gyroscopes, vital instruments for ships and bombing planes.

The perfect note, broadcast 24 hours a day by the National Bureau of Standards in Washington, is being picked up via short wave radio by engineers at the Minneapolis-Honeywell Regulator Company, Minneapolis. The standard musical pitch is used because the engineers require exactly 400 cycles of electrical current every second and they need an accuracy of one part in 100,000.

WWV, the Bureau's short wave radio station, makes time broadcasts that are accurate within two one-hundred millionths of a second. The station's signal is used to check a tiny electronic tuning fork, which is just about as precise as the government's A above middle C. The fork is then hitched to an amplifier which, in turn, supplies power to run the gyroscope. This set-up is checked against an electronic timer, a stop watch that measures time down to four one-hundredths of a second.

Science News Letter, April 21, 1951

## METALLURGY

**Tungsten Allocated as Essential Defense Metal**

► THE IMPORTANCE of tungsten in making equipment for the armed services is emphasized by government orders just issued putting allocation controls on tungsten ores and concentrates. Domestic production of this important metal is far below requirements, and in an emergency foreign supplies might become unavailable.

Two former sources of tungsten for America, China and Korea, are now reported closed. Chinese tungsten is now going to the Soviets, it is reported, and Korean mining activities are suffering from the war. China before Red control supplied over one-fourth of the tungsten imported into the United States.

Bolivia and Brazil are heavy producers of tungsten, and do their part in meeting American needs. Spain is also a heavy producer, and the United States gets considerable tungsten from Spain and a lesser quantity from Portugal. Additional supplies come from Siam and the Belgian Congo, with relatively small quantities coming from a dozen other countries including Argentina, Mexico and Canada.

Tungsten has the highest melting point of all the metals, which explains its importance where heat-resistant materials are required. An important application is in electric lamp bulbs as a filament. The modern tungsten filament lamp uses about one-third as much wattage as the old carbon filaments to give the same illumination.

Tungsten with iron or steel produces alloys of great hardness and tensile strength. High-speed cutting tools may contain up to some 20% of tungsten and they can be worked on a lathe until red hot without losing the necessary hardness. There are many other applications of tungsten, including in electrical and electronic products.

Other strategic metals may go under government allocation control in June, it is announced by the Defense Minerals Administration, whose head is Dr. James Boyd, director of the U. S. Bureau of Mines. The list includes chromium, cobalt, columbium, calcium, boron, manganese, molybdenum, nickel, silicon, tantalum, titanium, vanadium and zirconium. An important use of many of these minerals is in alloys to produce special steels.

Science News Letter, April 21, 1951

## MEDICINE

**Rh Blood Factor Studies Win Award for Two Doctors**

► DR. PHILIP Levine of the Ortho Research Foundation of Raritan, N. J., and Dr. Alexander S. Wiener of Brooklyn, N. Y., have been selected as joint and equal recipients of the \$5,000 Passano Foundation Award for 1951.

The work of Drs. Levine and Wiener relates to the discovery and clinical application of the Rhesus (Rh) factors in human blood. It has had profound and wide effects on medical practice in obstetrics and pediatrics.

Starting with the fundamental work of the late Dr. Karl Landsteiner, who in 1930 was awarded the Nobel Prize in Medicine primarily for his discovery of human blood groups, O, A, B, and AB which made possible the relatively safe transfusion of blood, work was carried forward with both Drs. Levine and Wiener collaborating at one time or another with Dr. Landsteiner, but not with each other although each was in touch with the other's work.

Science News Letter, April 21, 1951

## BIOLOGY

**Color and Odor Draw Bees To Flowers of Springtime**

► BOTH the color and the perfume of the year's first, newly opened flowers draw honeybees, Dr. C. G. Butler, entomologist at the Rothamsted Experimental Station at Harpenden, Eng., has found.

Color is the chief factor which attracts a scouting honeybee to a flower, though a really strong perfume can act in the same way.

Once the honeybee has been attracted toward a flower crop, even the weak perfume of the individual flower persuades the honeybee to enter it. If the perfume of the individual flower is masked, the bee hesitates to enter it on a first or subsequent visit.

Science News Letter, April 21, 1951

**IN SCIENCE**

## MEDICINE

**Ersatz Food Chemical Stops 'Flu Virus in Embryo**

► SCIENTISTS MAY be on the track of a way to stop influenza by starving the virus so it cannot propagate itself.

While still far from providing a cure for influenza in humans, the method has succeeded in stopping virus propagation in embryonated chicken eggs where it normally grows well.

The method was discovered by Dr. W. W. Ackermann of the University of Michigan School of Public Health, Ann Arbor, Mich. It consists in feeding the virus in the chick embryo a substitute chemical for the protein-building amino acid, methionine. The substitute chemical, methoxinine, is enough like methionine so that the virus cells take it up readily. But the methoxinine cannot do the nourishing job of methionine and blocks the latter from its job.

The same stopping of 'flu virus propagation can be accomplished by another chemical, ethionine.

The chemicals do not, however, destroy the virus or the tissue it is growing on nor do they prevent the virus from infecting the embryo cells.

Details of Dr. Ackermann's work are reported in the JOURNAL OF EXPERIMENTAL MEDICINE (April).

Science News Letter, April 21, 1951

## HORTICULTURE

**Chemical Spray Makes Sagebrush "Bite Dust"**

► WHEN IT becomes a nuisance on Western ranches, sagebrush is being eliminated by 2,4-D spray, according to the University of California Agricultural Extension Service, Davis, Calif.

Reports from California farm advisers indicate that purple sage, California sage, and coyote brush have been killed by spraying with 2,4-D, applied either by ground rigs or by airplanes or helicopters.

Best results have occurred when the plants treated have large areas of active new leaves.

Spraying brush has proved profitable only when the soil is good enough to grow feed. Cost of material and spraying by helicopter has been \$5 per acre or more in most tests.

A permit to use 2,4-D and 2,4,5-T must be obtained from agricultural commissioners if more than five pounds of acid equivalent are used. Care must be taken to avoid drift of the material to sensitive crops such as tomatoes, grapes and beans.

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# E FIELDS

## PSYCHOLOGY

### Scaring People Not Best Way to Change Their Habits

► SCARING PEOPLE is not the best way to make them change their habits. It may even interfere with their developing new attitudes.

This was discovered in an experiment by Drs. Seymour Feshbach and Irving L. Janis, of Yale University, New Haven, Conn., and reported to the Eastern Psychological Association, Brooklyn, N. Y.

A 15-minute lecture on dental hygiene was prepared in three different ways, all of which proposed the same recommendations. The first was planned to rouse anxiety by showing graphically diseased gums and painful tooth decay resulting from neglect. The other two forms presented moderate and minimal anxiety appeals.

The moderate anxiety-rousing lecture was the best for actually getting people to brush their teeth, it was found.

But when people are worried, that interferes with their forming new attitudes, the findings showed.

Science News Letter, April 21, 1951

## BOTANY

### Ancestor of Red Tomato Wild and White from Peru

► THE ANCESTOR of the bright red tomato, the housewife's choice, may have been a white fruit species that grew in South America.

So say Dr. J. A. Jenkins, associate professor of genetics, and Dr. G. Mackinney, professor of food technology, at the University of California's College of Agriculture, Berkeley.

A report by these two scientists points out that certain wild species of tomatoes, native to Peru, have fruits entirely lacking in pigments. The fruit assumes an off-white color as it ripens.

It is possible that the ancestral form of today's cultivated tomato was similarly white, in which case the common red fruit must have appeared as a mutant, or offspring, with a different characteristic maintained in subsequent generations. At any rate, it is known that the red-fruited form has produced two such mutants, the yellow and tangerine.

Colors of tomatoes, the University of California scientists say, are due to certain complex mixtures of carotenoid pigments, which derive their name from the characteristic pigments of the carrot. Among them is carotene, the most important natural source of vitamin A.

The red and tangerine tomatoes contain several carotenoid pigments, but the yellow fruits are low in carotenoid content.

Most California tomatoes have yellowish skins, which tend to give the red-fleshed tomato a slightly different color from those obtained in markets during the height of winter. These winter tomatoes, which come from Mexico, have colorless skins, so the identifiable color is the true color of the inside flesh.

Experimental cross breeding of the three colors of tomatoes by Drs. Jenkins and Mackinney brought interesting results.

In two of the crosses—red with tangerine, and red with yellow—the first generation hybrids are red, but the parental types recur in the second generation.

The third cross—tangerine with yellow—also has a red first generation offspring. But in the second generation, rather than returning simply to tangerine and yellow hybrids, red offspring also appear.

Science News Letter, April 21, 1951

## INVENTION

### Ordinary Electric Razor Can Be Used To Cut Hair

► THE ORDINARY electric razor can be used to cut the hair, as well as shave the face, provided it is equipped with an attachment on which the government recently granted a patent, 2,547,288.

It is a three-sided rectangular piece, pivotally attached to the razor, and its lower side is a plate with comb teeth. This plate when pressed against the skull holds the cutting blade of the razor a proper distance away while the comb teeth hold the hair upright for clipping. The pivotal movement raises or lowers the cutting blade to regulate the length of the hair.

Inventor is Bernhart P. Sandlie, Malta, Mont. No alterations in the razor are needed to use this device.

Science News Letter, April 21, 1951

## MEDICINE

### Radio Broadcasts Interfere With Blood Pressure Studies

► COMMERCIAL radio broadcasts temporarily have interfered with a search for the cause of high blood pressure, the council for high blood pressure research of the American Heart Association was told at its meeting in Cleveland.

Drs. Harold C. Wiggers and John J. Farrell of Albany, N. Y., Medical School had developed a method of using radio waves to stimulate the nerves going to the kidney and other areas of the body. The idea was to see whether long-continued stimulation of these nerves would cause high blood pressure.

Local commercial broadcasts interfered with their stimulating wave signals, so the research has had to be stopped until a shielded room is built.

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## BIOLOGY

### New Amino Acid Is Found In Protein of Body

► A NEW biological material, hitherto unknown in nature, has been added to the two dozen amino acids known to make up the protein of body tissues. Dr. H. R. Crumpler, Dr. C. E. Dent, Dr. H. Harris and R. G. Westall, working at the Medical Unit, University College, London, have isolated this unique substance from the urine of certain families of normal, healthy humans.

Kidneys of both men and women in groups of related individuals apparently make and secrete amino-iso-butyric acid throughout the lifetime of these otherwise normal people, without regard to age, sex, diet or any other factor which might be expected to modify body chemistry.

The new substance is a modification of a similar substance, amino-butyric acid previously reported in 1912 but not confirmed. Both substances have been made synthetically and are well understood from the theoretical viewpoint. The remarkable circumstance is their appearance in only a few related strains of the human family. Chromatography, a new method of chemical detection, is responsible for the discovery of these individuals and their unusual chemical output.

Further study at the University Hospital is in progress, which may throw more light on the part this unexpected chemical may play in building up body chemicals in processes of nutrition and growth. The studies are reported in NATURE (Feb 24).

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## TECHNOLOGY

### Southern Industry Increase Outstrips National Rate

► THE 16 STATES constituting the area below the Mason and Dixon line, including Texas, are now doing nearly 60% of all American textile manufacturing, 75% of tobacco manufacturing, producing 40% of the petroleum-coal products and over 33% of the products of the chemical industry.

These figures were given to the American Society of Mechanical Engineers meeting in Atlanta, Ga., by Prof. Frank F. Groseclose of the Georgia Institute of Technology. The South is booming, he said, and may now be considered the nation's number one region of opportunity.

In the past decade the value of manufactured products in the South increased 248% as compared with 232% for the nation as a whole. This is only a beginning of what the South can do with the labor, natural resources, markets and power facilities at its command. The natural resources include not only farm products such as cotton and sugar, but also lumber, petroleum, natural gas, sulfur, iron, coal and other minerals.

Science News Letter, April 21, 1951