

AERONAUTICS

Spoken Words Will Identify Aircraft Radio Ranges

➤ **SPOKEN WORDS** uttered automatically and almost continuously are to be used soon to identify to pilots of aircraft certain of the stations that provide the radio ranges to guide them on their courses. They will not replace the three-letter Morse code identification now used but will alternate with them.

This voice identification will prove of considerable help to pilots who have a limited knowledge of the Morse code. In the case of a strange station with code identification only, the pilot must look up the three-letter identifier in a guide to be sure what range he is receiving. The voice transmission makes this unnecessary.

To provide this voice identification, the U. S. Civil Aeronautics Administration, which operates the radio ranges and controls traffic on the airways, developed a voice reproducer which is nicknamed the "baby blabbermouth" because it never stops talking.

First, the voice is recorded on film. Then the device utilizes a transparent plastic fixed to the rim of a wheel. When the wheel is rotated slowly, a light shines through the film onto a photo-electric eye. This eye translates the variation in the light received into the voice.

Voice reproducers are now being installed at 19 widely distributed centers where the new type of very high frequency omniranges have been installed. They are also being installed in connection with 11 so-called fan markers. These fan markers are radio stations a few miles away from airports that shoot a sheet of radio rays vertically into the air. They give warning to pilots of distances to the airfields they are approaching.

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MEDICINE

Selenium and Sulfur New Dandruff Treatment

➤ **GREASY, YELLOWISH** scales on the scalp and common dandruff can be checked in most cases by an electric eye chemical, selenium, plus sulfur, longtime standby for treatment of scalp and skin disorders.

Selenium sulfide's ability to control dandruff and the scaly itching scalp condition termed medically seborrheic dermatitis was discovered some 25 years ago. In the interval the chemical has been given many tests and trials and now Abbott Laboratories, North Chicago, Ill., announce a selenium sulfide product for medical use called Selsun.

Because selenium is poisonous when swallowed, the scalp remedy will be sold only on a physician's prescription. Tests have shown that it is not harmful when

used on the scalp according to the doctor's directions.

The original discovery of the chemical's anti-dandruff power was suggested by Dr. Birger W. Nordlander, research chemist at General Electric Co., who fused selenium with sulfur to get a chemical that would detect mercury vapor in the air. Because this product was a very active form of sulfur and knowing that sulfur had long been used for treating skin diseases, Dr. Nordlander suggested its medical use to Drs. B. L. Vosburgh and Glenn Smith of General Electric's medical department.

While it proved successful, General Electric did not want to continue producing it for medical use. A research and testing program was carried out under the auspices of the Battelle Memorial Institutè at Columbus, Ohio. Abbott Laboratories assumed the final development.

Their product is reported to control 92% to 95% of cases of mild or common dandruff, and 81% to 87% of seborrheic dermatitis. The chemical, however, is not a cure. When its use is stopped, dandruff will eventually come back.

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PUBLIC HEALTH

Food Poisoning Is Year Round Danger

➤ **FOOD POISONING** outbreaks in five different communities have recently been reported to the U. S. Public Health Service. In one of them two persons of a family of five, the mother and 15-year-old son, died, victims of botulism. They got the deadly botulinus germs in home canned asparagus.

In another outbreak, six persons out of a group of 15 were very ill shortly after drinking lemonade which had been made and stored for five hours in a silver plated pitcher. The copper alloy base in the pitcher was exposed and when lemonade was made in the pitcher in the laboratory, 82 parts per million of copper were found in the lemonade.

Hamburger, ham patties, turkey which presumably had not been properly roasted and homemade ice cream were the foods involved in the other outbreaks. In these cases the poisonings were caused either by germs in the foods or by germ poisons, called toxins, produced in the foods.

Germs usually involved in food poisonings are members of the staphylococcus family which also cause boils.

These germs thrive especially well in such foods as cream filled pastries, ham or other meat preparations, chicken, fish, eggs, and salad sandwich mixes made with mayonnaise. The germs also thrive well at room temperature. They get into the food when someone preparing or otherwise handling it has a boil or an infected cut finger, or who may have a cold or diarrhea.

If this food is kept clean, and cold or very hot until eaten, it is not likely to cause food poisoning.

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IN SCIEN

METALLURGY

Conserve Lead Supply by Metal Bonding Process

➤ **AMERICA'S PRECIOUS** supply of lead can be made to go farther, particularly in sulfuric acid manufacture, through a new metal bonding process exhibited by Knapp Mills for the first time at the Chemical Industries Exposition in New York.

A thin layer of lead is bonded upon steel to make it resistant to acid corrosion. In another metal combination, copper is clad with lead and the new material has lead's acid resistance and copper's high electric conductivity and heat transfer.

In making sulfuric acid, which is in critical need in industry and defense production, the new lead-clad metals are expected to release many thousands of tons of pure lead for other uses.

The lead-clad copper will allow the use of freon instead of water in coils in which acids are cooled. It will also allow increasing ten-fold the electrical charge in electroplating.

The stronger base metals used will allow the application of acid-proof metal to many uses that pure lead itself cannot fill.

The lead-clad steel is produced by an automatic process patented originally by the American Viscose Corporation for use in rayon manufacture, while the lead-clad copper is made by a process developed by Knapp Mills that draws lead and copper simultaneously and chemically bonds them together.

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INVENTION

Holster to Reload Water Pistol Patented

➤ **THE BATTLING "COWBOY"** with a water pistol will be able to reload his gun without leaving the arena of action with a water-carrying holster on which a patent has been issued.

The holster resembles the familiar types long used by youngsters but this has a flat water compartment made of a suitable plastic on its rear side. A tube at the bottom of the water compartment is used to refill the gun. Another tube at the top is used to refill the compartment when the ammunition is gone. The pistol is not exactly a "repeater" but it can be reloaded on the field of action. Frequent trips to the kitchen sink are no longer necessary.

Inventors are William E. Lawson, Jr., and William E. Lawson, Sr., Rahway, N. J. Patent 2,576,231 was their award.

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CE FIELDS

ENGINEERING

New Styrene Plastic Has High Impact Resistance

➤ A NEW styrene plastic, which has high resistance to blows and other impacts, is becoming widely used in refrigerators, replacing sheet metal. It probably will be widely used in water pipes and drainage systems, the American Society of Mechanical Engineers meeting in Atlantic City was told by Sanford E. Glick and C. H. Adams, Monsanto Chemical Company, Springfield, Mass.

The development of new and large injection molding equipment makes the future of this new class of thermoplastics bright, they stated. Future items to be produced with the present and anticipated materials will include plumbing fixtures, turrets and hoods, bread boxes, septic baths, gun mountings and office furniture.

Styrene is one of the hydrocarbons that in recent years has been used principally in the manufacture of GR-S or Buna-S synthetic rubber. Styrene plastics have been in use for several years. This new high-impact styrene is much tougher than general purpose styrene.

Many uses for a new class of materials, commercially workable rigid thermoplastic resin rubber blends, were described by E. S. Ebers, B. W. Bender and Thomas R. Grimes of the United States Rubber Company. These resin rubber blends, they stated, have toughness at good rigidity, are easily shaped into various forms, are stable dimensionally and have good chemical and stain resistance.

Applications range from use in television tube masks and refrigerator parts to crash padding and chemical piping where corrosion resistance is required. The material is available in various forms for various uses. It is called a versatile product because of its many uses.

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NUTRITION

Appetite Appeaser For Weight Reducers

➤ THOSE OF you who are trying to lose weight may find it easier to stick to your diet if you take a de-appetizer instead of an appetizer before lunch and dinner.

More correctly, the de-appetizer should be called an appetite appeaser, since it does not spoil your appetite, but takes the edge off, so that you will not eat more than your diet calls for at the next meal. Of course, the appetite appeaser should not itself add too many calories.

Orange and grapefruit juice, fresh, canned or frozen, can be used effectively for this purpose, Dr. Norman Jolliffe and Elmer Alpert of the New York City Department of Health report.

In their study, the would-be weight reducers were told to take four ounces of either orange or grapefruit juice half an hour or an hour before lunch and at the same time before dinner in the evening. Most people like the citrus juice and it is easy to get at home or at a soda fountain or lunch counter. This adds 100 calories to the diet. It supplies a little sugar naturally present in the fruit. This helps to fight off the low blood sugar and consequent low feeling that many have toward the end of the morning or afternoon, especially when on a low calorie reducing diet.

The orange or grapefruit juice appetite appeaser was tried on 42 overweight people who were on a high protein reducing diet that furnished 1,000 to 1,400 calories in addition to the 100 from the appetite appeaser. The eight men and 34 women returned for at least four consecutive weeks to have their weight loss checked.

Their success in sticking to the diet after they started taking the appetite appeaser was rated as 78.8% of a perfect score. The doctors call this "a high degree" of sticking to the diet. Their performance was calculated by comparing their actual weight loss with that predicted for them on the basis of the calories in the diet prescribed and the estimated calories they spent on daily activities. The predicted total weight loss for the 42 was 786.7 pounds. The actual weight loss was 603 pounds, giving a performance index of 76.6, with an average for the individual of 78.8.

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INVENTION

Metallic Lens Antenna Aids TV Transmission

➤ A METALLIC lens antenna, one of the type that now makes it possible to send television programs across the continent, has been awarded a patent. Lenses of this type gather up scattering radio waves falling on them and focus them into a beam which may be amplified and directed on to the next relay station.

Inventor is Winston E. Kock, Middletown, N. J., and the patent received was number 2,576,463. Rights have been assigned to Bell Telephone Laboratories, Inc., New York.

Lenses of this type consist of a series of thin flat metal plates standing on edge and extending in the direction of the wave transmission.

Front and rear of the parallel plates are trimmed so that their edges define a curved surface. As described by the inventor, in this lens one of the sides has in a given plane an elliptical contour, and the other side has in a plane perpendicular to the first a hyperbolic contour.

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BIOLOGY

Bare Legs Keep Chickens Cool

➤ MOST BREEDS of chickens are bare-legged to keep cool.

Prof. Wilbor O. Wilson of the University of California's College of Agriculture at Davis finds that combs and wattles also help the birds cool off when temperatures go up.

Chickens do not perspire as do humans, but depend on loss of heat through these parts to maintain an even body temperature.

The shanks, combs and wattles lose heat in trying to stay at the same temperature as the surrounding air. They are always just a few degrees higher than the air, but still lower than the body temperature of the chicken.

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METEOROLOGY

India Location Holds Records for Rainfall

"Rain, rain, go away.

Come again some other day.

Little Johnny wants to play."

➤ THERE ARE some spots in the world really entitled to chant that ditty. Take, for instance, Opid's Camp, Calif., and Cherrapunji, India. Opid's Camp holds the world's record for the greatest amount of recorded rain in one minute—.65 inch—and Cherrapunji holds the record for the greatest amount over a period of two years—1,605.05 inches, about equal to the height of a 12-story building.

If it had rained steadily for two years at Opid's Camp at that same rate of .65 inch a minute, Opid's Camp would have been drowned under more than 10 miles of rain. Cherrapunji, therefore, doesn't know how lucky it is.

The U. S. Weather Bureau has issued a chart showing what places hold the world's record for amounts of rainfall over various periods of time. For rain over the longer periods, Cherrapunji seems to be the champion and no spot in the United States is in the running. Cherrapunji holds all but two of the 15 records from four days on up—Silver Hill Plantation, Jamaica, being its only competitor.

To Baguio, the summer capital of the Philippines, goes the palm for one day—45.99 inches. Thrall, Tex., must have been enthralled to have had 36.40 inches of rain in one 18-hour period. Smethport, Pa., holds two records, 30.8 plus for four hours and 30 minutes and 34.50 for 15 hours.

Guinea, Va., with 9.25 inches in 40 minutes, Holt, Mo., with 12 inches in 42 minutes, Rockport, W. Va., with 19 inches in two hours and 10 minutes and D'Hanis, Tex., with 22 inches in two and three-quarter hours are the only other American contenders.

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