

INVENTION

**Full Color Photos
Sent by Wire or Radio**

► A WAY of sending full color pictures over wirephoto or radiophoto circuits has been patented by Harold Carlson, Haitsdale, N. Y. He assigned his patent, number 2,598,504, to the Times Facsimile Corp., New York.

The invention permits a full color photograph to be sent in one transmission, rather than three or four, as in previous systems.

Formerly, the inventor explains, it was necessary to break down a color photo into three separate prints containing the three primary colors, with sometimes an additional print for black. These were then transmitted one after the other, or several circuits had to be used.

Because there were differences in the successive transmissions which resulted in a distorted picture, and because of the time and high degree of skill involved, sending color photographs was never too successful.

The new method, according to the patent, provides two photoelectric eye scanners, which sweep across the photograph simultaneously. One has a current output which varies jointly with the color being scanned and the density or tone of the color. The other has a current output which varies only as a function of the density or tone of the area being scanned. Then the output currents are amplified and combined and impressed on modulators arranged to modulate a carrier current as to frequency and amplitude. One modulator represents the instantaneous color of the picture being scanned, the other the instantaneous density or tone independent of color.

The receiving station impresses the received current on a photosensitive layer or layers and the picture is reproduced thousands of miles away.

Science News Letter, June 7, 1952

NUTRITION

**Sugar and Milk for
Emergency Disaster Feeding**

► FOR EMERGENCY feeding of civilians in case of large scale disaster, scientists at Harvard School of Public Health have been working on combinations of sugar, dry, skimmed milk, oats and soy flour.

A biscuit bar and a mix for a sweet drink have been developed. The most desirable beverage mix, at present, contains a large percentage of sugar and dried skim milk with soy flour and cocoa, reports the Sugar Research Foundation which is helping support the Harvard research.

Dissolved in enough water to make a quart, this mixture contains approximately 1,540 calories and 60 grams of protein, supplying more than half the average person's daily requirements.

A dehydrated bar-form of ration has been produced which could be eaten as a dry bar or, when mixed with water, as a cereal. Primarily consisting of oats, sucrose and non-fat milk solids with added fruits, vegetable fat and soy bean products for flavoring as well as nutritional value, these bars have been found to be palatable. A bar of this type, taken four times a day, would more than fill an adult's daily requirements for calories and protein as recommended by the Food and Nutrition Board of the National Research Council.

Vitamin content is not of great importance in rations for short-term emergency feeding, but the bar under study does contain considerable amounts of several of the vitamins.

The sugar-dried skim milk combination is suitable for disaster feeding where victims are apt to be under considerable emotional strain and possibly injured physically. The protein part is essential to repair of body tissue and the high caloric concentration readily supplies energy.

In the case of exposure to atomic radiation, animal experiments indicate that the digestive tract is the first part of the body to show injury, and the high digestibility and bland texture of this sugar-milk combination would not further aggravate the condition.

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NATURAL RESOURCES

**Sulfur Mined From
Underground Domes**

► DEFENSE-ESSENTIAL SULFUR can now be extracted for the first time from underground salt domes at locations where fresh water is not available and the cost of piping it would be prohibitive.

Freeport Sulphur Company of New Orleans will use the new process to mine a deposit of elemental sulfur, or brimstone, at Bay Ste. Elaine, a marshy area near the Gulf of Mexico, 35 miles from the only source of fresh water.

The Freeport plant, first to use the process, itself is an innovation. It will be built on a huge barge, from which nearly 2,000,000 gallons of superheated water a day will be pumped underground to melt the brimstone.

The process consists in heating the brackish or sea water under pressure to 325 degrees Fahrenheit, more than 100 degrees above the normal boiling point, and in removing from the water all but a minute part of the corrosion-dealing oxygen.

Special controls prevent the decomposition in the salt water of scale-depositing bicarbonates, the chemicals that make water hard, leave rings on bathtubs and cause "tattle-tale" gray. At the same time, the removal of oxygen reduces corrosion which otherwise would be excessive because of the extreme heat.

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SURGERY

**Operation Saves Babies
With Closed Esophagus**

► AN OPERATION which can save half or more of babies otherwise doomed to die soon after birth was reported by Drs. Brian B. Blades, Edward J. Beattie, Jr., and Vincent Iovine of George Washington University School of Medicine, Washington, at the meeting of the American Academy of Pediatrics in Washington.

The babies being saved by this operation are those born with a defect of the esophagus, or food passage. Instead of being open all the way from the throat to the stomach, the esophagus in these babies stops and is closed off part way down from the throat and there is a similar closing at the upper end coming from the stomach. Consequently the babies cannot take food in the normal way. Anything swallowed may get into the airway to the lungs, and stomach juices also may get into this airway.

The babies cannot live more than a few days unless a repair operation is performed. The operation consists essentially in opening the two closed ends of the esophagus and stitching them together to give baby a complete food passage from throat to stomach.

This operation can save 85% of "good" babies, that is healthy, strong ones that can stand the operation. Even in less favorable cases, 50% are being saved. Previously 100% died.

Science News Letter, June 7, 1952

INVENTION

**Patent Baby Incubator
That Keeps Inside Air Pure**

► A BABY incubator designed to prevent air from the room getting inside even while the baby is being tended has been patented by Samuel Y. Gibbon, Jenkintown, Pa. The patent, number 2,598,532, was assigned to the Children's Hospital of Philadelphia.

Air for the incubator comes from outside the room and is kept at a pressure higher than that in the room so that, when the incubator is opened, the air tends to move out rather than into the incubator. A sling can be attached to a scale through an opening at the top in order to keep a weight record without having to remove the baby from the incubator. Openings are equipped with closure sleeves so that an attendant's sterilized hands can be passed into the incubator without contamination from room air.

Science News Letter, June 7, 1952

CE FIELDS

INVENTION

U. S. Patent on Soviet Liquid Oxygen Method

► PETER L. KAPITZA, Soviet Union physicist, and one of the world's leading scientists, has received a patent from the United States government. The patent, number 2,593,763, is for a process which is claimed to be "extremely efficient in refrigerating plants operating at extremely low temperatures for producing liquid oxygen and similar products."

Application for the patent was first made in Russia May 15, 1945, and in this country Feb. 20, 1946. Little has been heard of Kapitza in the past few years. Rumors have had him in Siberia for failing to leave his low temperature work for research on the A-bomb, or in a relatively obscure laboratory in Moscow.

Kapitza first made his name as a scientist at Cambridge University in England, where he delved into the secrets of how matter acts at extremely low temperatures—300 or so degrees below zero, Fahrenheit. However, in 1935, when he went back for a visit to his native Russia, the Soviet officials picked up his passport and "detained" him in Moscow.

His present patent calls for using centrifugal force in the distillation of gases and liquid gases. It is one of several patents granted the Soviet scientist, one of them almost exactly a year ago.

The National Bureau of Standards has been working extensively on separation and distillation processes in the hope that some of them may be applied to the separation of heavy hydrogen from ordinary hydrogen, a process necessary in the manufacture of the hydrogen bomb. Indications are that our scientists have been successful in this endeavor. However, they do not believe that Kapitza's present invention could be successfully adapted to this purpose.

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NUTRITION

Don't Retire From Good Eating Habits

► YOU MAY be reaching the age for retirement from your job or business. But no matter how many birthdays you have celebrated, you can never retire from the responsibility of eating the right kinds and amounts of food, government nutritionists point out.

To help you, or your family, plan the right meals for good nourishment in old age, the U. S. Bureau of Human Nutrition

and Home Economics has prepared a special booklet, called Food Guide for Older Folks.

Being badly nourished, this booklet points out, is often the reason for complaints that drag an older person down, such as a chronic tired feeling, a gloomy outlook on life, anxiety over small things, loss of sleep and even too much weight. All through life people need food that supplies protein and minerals, many different vitamins, and fuel for energy and warmth. If you have a special health problem, you should of course see your doctor about your diet. Otherwise you can safely follow the daily food guide in the booklet.

Older people sometimes do not eat enough food, relying on snacks here and there, because they have not much appetite. If your appetite needs coaxing, the following suggestions from the booklet may be helpful:

Walking or other light exercise is an appetite builder. Keeping regular meal times and making meals attractive also will help to coax back a lost appetite.

Don't forget that ways to make meals interesting are to include on your plate—

Some food of distinctive flavor, to contrast with mild-flavored foods.

Something crisp, even if it is only a pickle or a lettuce leaf, for contrast with softer foods in the meal.

Some bright-colored food, for eye appeal.

As people grow older, senses of taste and smell are less keen. So, if you find it dull eating some kinds of food that you need, give more attention to flavor and seasoning. Even a very little of a flavorful food makes a bland food more appetizing.

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PHYSICS

Amorphous Selenium Shows Good Infra-Red Qualities

► AMORPHOUS SELENIUM, an element in its non-crystalline form, has been found to have desirable optical qualities in the infra-red spectrum of light.

H. A. Gebbie and C. G. Cannon of the physics research laboratories at the University of Reading, England, report in the JOURNAL OF THE OPTICAL SOCIETY OF AMERICA (April) that lenses made of the material can have short focal lengths, yet have large radii of curvatures because the material sharply bends light rays passing through it. That high refractive index, as it is called, allows the lens to minimize focusing flaws characteristic of many lenses.

The men suggested that lenses having aperture ratio of $f/1$, where the diameter of the lens is about equal to its focal length, might be used as microscope condensers, and objective lenses for the spectroscopy of small specimens. They also might be used as an alternative to ellipsoidal condensing mirrors in spectrometers.

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SURGERY

TB Lung Operation Urged as Routine

► AN OPERATION to remove part or all of a tuberculous lung can now be done so effectively and safely that it should be considered as part of the treatment program planned when the patient first gets sick and not as a last resort measure, Dr. Richard H. Overholt of the Overholt Thoracic Clinic, Brookline, Mass., and Tufts College Medical School, Boston, declared at the meeting of the National Tuberculosis Association in Boston.

Figures given by Dr. Overholt and by Dr. James D. Murphy of the Veterans Administration Hospital, Oteen, N. C., bear out this opinion.

The reason such operations are now being performed increasingly is that streptomycin is used to prevent the spread of infection and prevent other complications of surgery. The new anti-TB drug, isoniazid, is also now being used for "drug coverage" in surgical cases, but it is still too new for reports of its value in such cases.

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TECHNOLOGY

Standard Ice Cream Containers for 21 States

► ICE CREAM containers in grocery store freezers of 21 states soon will be standardized as a result of action taken by the National Conference on Weights and Measures meeting in Washington to give customers more nearly what they pay for.

But a move which would require that ice cream be sold by the pound instead of by the pint was shelved for the present. Manufacturers argued that the cost of re-gearing their production lines would hit the customer squarely in his pocket book.

Standards for the new quart, half-gallon and gallon size containers become effective immediately in 21 states. The new ice cream boxes will appear as soon as they can be designed and manufactured. Half-gallon size boxes will be of two shapes, a squat model and a more slender model, both having flat sides. Quart and gallon size containers will resemble present day boxes outwardly, but will have slightly changed dimensions.

The states affected by the new regulations are Alabama, Florida, Georgia, Indiana, Kansas, Louisiana, Maine, Massachusetts, Michigan, Montana, Nevada, New Jersey, North Dakota, Oklahoma, Oregon, Pennsylvania, Texas, Vermont, Virginia, West Virginia and Wyoming.

Four other states are in the process of adopting National Bureau of Standards Handbook 44. They are Maryland, New Hampshire, Tennessee and Wisconsin.

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