

CHEMISTRY

Gas-Mask Filter From Short Cellulose Fibers

► STRAW and other farm wastes, even stalks of wayside weeds, can be put to good use in protecting the lives of our fighting men if cornered Axis forces finally resort to poison-gas warfare. Two U. S. Department of Agriculture chemists, Dr. E. C. Lathrop and S. I. Aronovsky, of the Northern Regional Research Laboratory at Peoria, Ill., have just been granted U. S. patent 2,372,437 on a gas-mask filter medium in which short cellulose fibers from straw and other neglected materials play an important part.

Long fibers of alpha cellulose, from wood pulp or cotton linters, are standard constituents of such filters, the two inventors explain. However, they require the addition of shorter fibers to increase their adsorbent capacity. Short asbestos fibers can be used, but these are difficult to separate out from the general mass of asbestos and hence are comparatively costly. This objection does not apply to the short, highly adsorbent fibers of alpha cellulose that can be obtained in abundance from straw and stalk materials.

Rights to manufacture and use the newly patented filter medium are assigned royalty-free to the government, through the Secretary of Agriculture.

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ANTHROPOLOGY

Scientists Disagree on Age of Ancient Skull

► HOW LONG has Australia had human inhabitants?

This question is being threshed out anew as a result of the discovery of a human skull in an undisturbed deposit estimated to be 50,000 years old, near Keilor, Australia. This would seem to give the skull an age of 500 centuries.

However, Dr. Franz Weidenreich of the American Museum of Natural History has made a careful examination of the specimen, and he states, in the *Journal of Physical Anthropology* (March), that this skull is very similar to another ancient Australian relic, known as the Wadjak skull, which was found in 1889, and which has a generally agreed-on age of only 20,000 years. If Dr. Weidenreich is correct in his identification of the Keilor skull as belonging to the Wadjak people, a really ancient human type is yet to be found in Australia.

A possible complication in the problem may arise from the fact that "modern" types of human skulls have been found

at apparently the same levels with undoubtedly ancient, primitive skulls, in other parts of the world. Could this mean that modern types evolved early, and perhaps at several different times? Dr. Weidenreich is inclined to think not. He feels that in such cases the dating is in error, and that more reliance can be placed on the skull type than on the geological level of burial.

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METALLURGY

Magnesium, Steel, Cement From the Same Minerals

► A PROCESS that yields magnesium, alloy steel and cement from the same operation is the subject of patent 2,372,571, issued to Dr. Fritz J. Hansgirg, Austrian-born metallurgical chemist who since 1940 has been in this country where, among other jobs, he aided Henry Kaiser in setting up his big magnesium plant at Permanente, Calif.

Dr. Hansgirg's new process is designed to make use of silica-containing ores of magnesium, such as serpentine, olivine, etc. The mineral is finely powdered, mixed with calcium carbide and compressed into tablets. These are heated in a retort, under vacuum. The magnesium is driven off as a vapor, which on cooling yields the metal in solid, pure form.

The slag or clinker contains fine particles of alloy steel, rich in chromium and titanium; sometimes iron ore must be added before processing, if the natural mineral does not contain enough iron. The steel particles are extracted with a magnetic separator, and the silicious residue goes to the cement mill.

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ZOOLOGY

American Toad Trills Love Song to Lady Friend**See Front Cover**

► THE AMERICAN TOAD lives in and around shallow ponds during the spring mating season. During this season he serenades his lady with one of the sweetest sounds that may be heard in the frog-pond chorus. While the toad is trilling his love song, he blows up his throat to immense proportions, as shown in the photograph by George A. Smith on the front cover of this SCIENCE NEWS LETTER. While in the water the toad has a beautiful caramel brown color, and an eye that classical writers have referred to as a precious jewel.

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IN SCIENCE

CHEMISTRY

Shrinkage Controlled By a Melamine Resin

► WOOL CLOTH may be shrunk, and its shrinkage controlled, by the use of a melamine resin developed by the American Cyanamid Company which had an exhibit in New York of tailored suits made of wools treated under the new process. The melamine resin will be known as Lanaset, and the treated cloth cuts and drapes better, retains its original shape and can be laundered, it is claimed.

Lanaset stabilizes wool and wool blends without affecting the absorbency normally characteristic of wool. Other claims are that it reduces felting or matting of the wool upon laundering, and prevents pilling and fuzzing. It can be used also with blends of wool and rayon and in tropical worsteds for men's suits. It is now available for practical trials.

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MEDICINE

Speech Defects Increase, Ascribed to War Strain

► A WAR-CAUSED increase in the number of persons who stutter or suffer from other speech defects appears in the records of the National Hospital for Speech Disorders, according to the annual report by its medical director, Dr. James Sonnett Greene.

A total of 3,749 patients, the largest since the start of the hospital 29 years ago, and 800 more than the previous year, were treated during the past year, Dr. Greene reports.

The added emotional strains and conflicts brought on by wartime conditions explain the increase in Dr. Greene's opinion. Many of the patients were servicemen and ex-servicemen with speech disorders that developed under the strain of military service or had been aggravated by it.

A large proportion of these men were treated without charge. The Government is now arranging, Dr. Greene reports, a contract with the hospital under which it will assume the financial responsibility of rehabilitating veterans referred to the institution for treatment.

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CE FIELDS

CHEMISTRY

Silicone Can Withstand Extreme Temperatures

► A SAND-BASED silicone, a new elastic electrical insulating enamel that will withstand continuous operation at 500 degrees Fahrenheit followed by sudden plunges into icy sea water, is the latest silicone material to be produced commercially and is to be used in the insulation of resistors that control the current fed into war radar, radio and other electronic essential equipment. It is produced by the Dow Corning Corporation.

The new silicone, which will be known as Silastic, is a rubbery, white salve-like material, that can be applied by dipping and cured at from 500 to 550 degrees Fahrenheit. In addition to passing tests for thermal shock endurance, it is waterproof, and can withstand immersion in boiling water as well as in ice water. Applied to glass cloth and tape, this coating produces a heat-resistant electrical wrapping material, and may be used in other applications to exclude moisture from electrical equipment.

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PUBLIC HEALTH

More Than 16 Million Entered Hospitals in 1944

► AMERICANS entered hospitals as patients at the rate of one person about every two seconds last year, not counting the babies who were born in hospitals at the rate of one live baby every 16.4 seconds, the American Medical Association's 24th annual hospital census shows. (*Journal, American Medical Association, Mar. 31*)

The 16,036,848 admissions to hospitals, exclusive of outpatients and newborn infants, is called "unprecedented" by Dr. F. H. Arestad and Dr. M. G. Westmoreland, in their report of the facts and figures on hospitals.

About one-fourth of these admissions, 4,287,271, were to federal hospitals and 2,257,949 to other governmental institutions.

The number of registered hospitals decreased to 6,611, which is 44 less than for 1943, but the number of beds increased to a total of 1,729,945.

In contrast to the feeling some patients

may have had that they were being hustled out of the hospital pretty fast to make room for the next patient, is the figure showing that in general hospitals the average length of stay per patient increased by one-half day.

Of the 1,919,976 babies born in hospitals last year, 96.7% were born in general hospitals, with only 3.2% born in maternity hospitals and 0.1% in other institutions. The number of babies born in hospitals has tripled in 15 years.

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ICHTHYOLOGY

Pickrel Caught Are Often Below Legal Length

► THREE out of every five Eastern pickrel caught by sportsmen have to be thrown back into the water because they are shorter than the legal 12 inches, if those caught in a 200-acre pond near East Haddam, Conn., are typical.

Over 1200 fish were caught by rod and line for tagging, fin-clipping and life-history data in the summers of 1940 and 1941 as part of a cooperative project between the East Haddam Fish and Game Club and the Department of Forestry and Wild-life Management, University of Connecticut. About 64% of all the fish caught were less than the minimum legal length, Leonard E. Foote and Bradford P. Blake of the University of Connecticut report. (*Journal of Wildlife Management, April*)

There were approximately 60 pickrel per acre, and an average of three of these excellent game fish were caught each hour the sportsmen fished. They ranged in length from six to 22 inches. The smaller fish fed almost entirely upon insects while the larger ones enjoyed a bill-of-fare composed largely of fish.

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HORTICULTURE

Tree Bears Fruit From January Until May

► ONLY ONE plant patent was issued last week, as contrasted with 473 "regular" patents. This plant patent, No. 656, is on a subtropical fruit tree, as yet unfamiliar to most Americans, the cherimoya. According to the statement of its breeder, William H. Ott of Whittier, Calif., this tree bears fruit continuously from January until May, and the fruit is better adapted for commercial handling and shipping than the varieties hitherto grown.

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MEDICINE

Protective Cream Given G.I.'s Using Bazookas

► SOLDIERS using bazookas and flamethrowers, as well as tank crews, are protected against flashburns by a new cream issued to them by the Quartermaster Corps. Its prime function is to provide a "fireproof" protection for exposed parts of the body against burns from sudden flashes of flame. As such, it will probably be made available after the war to community fire departments for the protection of its fire fighters.

The cream, which comes in a pocket-size container, does not possess any medical properties and will not cure burns. It was originally developed for the use of Navy gun crews by the Naval Research Medical Institute, and has only recently been adopted by the Army.

The cream is applied in the same way as a woman's beauty mask, just heavily enough so that the skin does not show through. It will dry in about five minutes. Rain, perspiration, or friction tend to remove the cream. It can be rapidly removed with soap and water.

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MEDICINE

Medical Officers Want To Become Specialists

► A LARGE percentage of doctors now on duty with the Army, Navy, Public Health Service and Veterans Administration want six months or more of further training in hospital or other educational work and want to qualify as specialists in some branch of medicine after the war. These desires were expressed in answer to a questionnaire sent to each medical officer. The results are reported by Lieut. Col. Harold C. Lueth, Surgeon General's liaison officer. (*Journal, American Medical Association, Mar. 31*)

More than 35% of all medical officers on duty are represented in the questionnaires studied. Of these, nearly 60% want to take six months or longer courses and 63% want to become certified specialists.

The 10 most popular fields in which long courses of further training are wanted are, in order of frequency of request: surgery, internal medicine, obstetrics and gynecology, general review, psychiatry and neurology, pediatrics, orthopedic surgery, ophthalmology, radiology and otolaryngology.

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