



STERILIZING

Miss Ruth Elmquist and James Kettering of the Bureau of Home Economics, with Harry Humfeld now of the Bureau of Plant Industry, developed a process for sterilizing wool blankets without damage to the fiber itself. It is welcomed by hospitals. (See SNL, Nov. 13)

ENGINEERING

Ancient Assyrian Scheme Protects Mississippi Banks

KING Sanherib, of Assyria, never heard of the Mississippi River. He died 2500 years before white men ever saw the Father of Waters, but today, engineers are applying a modification of one of his ideas to the problem of flood erosion of the Mississippi's banks. Asphalt and bricks, in a sloping bank, helped the ancient Semitic king to fight floods on the Tigris. Today, asphalt and woven wire help army engineers control the Mississippi.

Concrete blocks, tried with little success to prevent bank erosion on the Mississippi, were extremely costly and short-lived. Twenty years ago, Lt. Col. George M. Derby, Army Engineer, started experiments with asphalt mats, which he believed would be cheaper and more satisfactory than concrete. Today, on an immense barge, mats 300 by 50 feet, reinforced with woven wire, are manufactured and installed in the river bed. Unlike concrete blocks, the asphalt mats bend without breaking, fitting themselves to each small inequality in the river bed.

Science News Letter, December 25, 1937

PHYSICS

"Empty" Space Not Empty; Is Filled With Many Things

"EMPTY" space, out between the stars, is anything but empty. Research by astronomers of the Carnegie Institution of Washington shows that all sorts of things are rattling around in it. Although it is much closer to a perfect vacuum than anything human means can produce in a laboratory, an average cubic yard of it is stocked with:

- Twenty million free electrons.
- Twenty million hydrogen atoms.
- Five sodium atoms.
- One potassium atom.

Four hundred thousand photons, or "light-darts."

In addition, there is one calcium atom for every ten cubic yards of inter-stellar space, and one titanium atom for several hundreds or thousands of cubic yards.

Larger units of matter, averaging perhaps the size of a smoke particle, also float about, as cosmic dust. One such grain might be filtered out of each 1,000,000,000,000,000,000 cubic yards of inter-stellar space.

Science News Letter, December 25, 1937

METEOROLOGY

Twelve Kinds of Snow Recognized By Science

TO MOST of us to whom snow only means a job of shovelling, it may help a bit (at the next siege of back-breaking exercise) to learn that scientists classify snow into at least 12 different varieties. Right off, there is falling snow and fallen snow. That's easy. And some of us have recently learned about powder snow through the present trend to ski-ing.

But did you ever hear of sand snow, or wild snow, or sun crust or rain crust snow?

Let's start with falling snow. It is precipitation frozen into some type of crystalline form. When it hits the ground it becomes fallen snow. At first fallen snow is powder snow, soft, fluffy and feathery and not unchanged from its in-the-air condition. Skiers look for it.

But powder snow, if it comes to earth at very low temperatures, may form sand snow on which neither a ski nor sled will glide. Greenland explorers have reported sand snow. Wild snow, is another form of powder snow which falls in a complete calm at low temperature and is immensely unstable.

Following first contact snow enters the stage of settling snow. It becomes settled snow which can take the close-lying powdery form which makes the best of all ski-ing.

The next stage in snow's evolution is to pass from the new to the old snow classification and the state of new firn

snow is reached, where the snow is becoming granular and compacted. Variations of firn snow include the sun crust and rain crust forms where melting occurs, and then freezing, with a crust resulting.

Finally advanced firn snow arrives which turns either into firn ice or glacier ice.

Science News Letter, December 25, 1937

GEOLOGY

Odd Trick of Dripstone Builds Santa Claus Image

See Front Cover

SANTA CLAUS is traditionally supposed to live in a vast cavern-workshop at the North Pole, yet something that looks very much like him can be seen in a cavern in our own Southland. In the limestone formations known as Aladdin Cave, in Madison County, Alabama, stalactites dripping from the ceiling and stalagmites slowly mounding from the floor have met and merged, in such shape and markings that even the least imaginative of mortals can easily see (at any rate just before Christmas) a rough but recognizable image of the children's favorite saint.

If you have trouble recognizing the saint, just turn the picture upside down

and see a more gnome-like Santa bent over by a heavy load and with a doll dangling from his arm.

For the photograph on the cover, the

SCIENCE NEWS LETTER is indebted to Dr. Walter B. Jones, state geologist of Alabama.

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PSYCHOLOGY

Propaganda Analysis May Protect You Against It

POWERFUL weapon in war and peace, in education and in delusion, is artful propaganda.

Rousing emotions, deliberately avoiding appeals to the intellect, propaganda is potent in producing action without deliberation. Under its influence, men and women may assume and perform acts that later in sober retrospect are sincerely regretted.

Examination and analysis of propaganda is the only defense of the consumer against such unconsidered action. Aid is given in a discussion of common propaganda devices contained in the current issue of "Propaganda Analysis."

First is the device of "Name Calling." Humans are so constituted that they build up strong dislikes for certain labels. Anything, good or bad, to which such a label happens to become attached is automatically rejected. Some of today's bad names as listed in the discussion are: Fascist, dictator, Red, Communist, economic royalist, rabble-rouser. You will undoubtedly recall others of a few years back: Bosche, slacker, pacifist, profiteer.

The name "chiseler" had a great vogue during Blue Eagle days but is no longer quite so potent.

Other devices are (1) "Glittering Generalities" by which the propagandist identifies his program with "the right" by use of virtue words such as: Social justice, liberty, public service, democracy. (2) "Transfer" by which the prestige of an established institution, church or nation, is made use of. (3) "Testimonial" or the use of big names. (4) "Plain Folks" such as the old familiar front porch campaigns. (5) "Card Stacking" against facts, ranging from carefully placed emphasis to downright lies. (6) "Band Wagon" by which we are urged to follow the crowd.

If you keep this list of propaganda devices in mind and watch for them in radio talks, in articles on politics or current topics, even in the arguments of your friends, you will be amused to see them cropping up again and again and in this mood your emotions may not be carried away.

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ENGINEERING

Wood Is Major World Fuel; But Coal Is Power Leader

IN this modern world it may come as a surprise to know that an eighth of the power used by mankind is from firewood, most primitive of fuels. This is approximately twice as much as comes from water power.

Coal is responsible for 56.6% of the 1935 world power supply, with 16.5% from oil. Lignite and gas furnish 3.7 and 3.8%.

In the last quarter century the proportion of the power derived from coal has decreased although it has been stationary over the last four years. Oil and water power use has risen.

Because of increased efficiency in the use of coal—making more iron and steel through the use of the same amount of coke, for instance—it is expected that there will be a decline in the consumption of coal even with accelerated industrial development.

Because coal and oil are irreplaceable natural resources there is cause for long-time satisfaction in such better economy. Experts foresee that the protection of oil and coal resources will be first attained, as Dr. E. F. Armstrong, London chemical consultant, expressed it, when these materials cease to be squandered and are

used only in the form of residual products after more or less extensive chemical changes. The burning of raw coal may some day become an industrial if not a legal crime.

Countries without natural oil may bring about relatively large scale production of synthetic oils from coal much earlier than now predicted.

The crackling log on the open fire seems not to be destined for world extinction for many years to come, if ever. Wood as fuel is still of prime importance in heavily forested and thinly populated areas. The chemist eyes wood jealously because of many complex compounds within it. He may eventually present us with synthetic logs for our fireplace, compounded from the residues of his chemical utilizations.

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ANTHROPOLOGY

Man Got Up On His Legs Before He Could Think

MAN learned how to stand up before he learned how to think.

This was one of the points developed in an address before the New York Academy of Sciences, given by Dr. Dudley J. Morton of the College of Physicians and Surgeons, Columbia University.

The animal ancestors of man were quadrupeds, Dr. Morton said. In a tree-dwelling phase of life they gradually learned first partially erect, finally fully erect posture and walking.

"Since attainment of upright posture preceded any high development of reasoning powers," commented Dr. Morton, "the change was obviously conferred or imposed on our prehuman ancestor through the orderly workings of Nature and could not have been accomplished through any enlightened choice on his own part."

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ported from Cretaceous beds, 100,000,000 years old, have been found in Cretaceous rocks of eastern Colorado.

Apataclurus, a primitive carnivorous mammal of 50,000,000 years ago, whose remains were found recently in Utah, greatly resembled the saber-toothed tiger that lived only 1,000,000 years ago.

Publication of the findings of the Byrd Antarctic Expeditions was made a government project.

Numerous cooperating agencies compiled the first weather cyclopedia of North America.

Record-breaking floods visited the Mississippi, Ohio and Connecticut valleys during