INVENTION

Head Protector For Fighter Pilots

➤ A SPECIAL helmet which holds the pilot's head firmly against the buffeting which sometimes results from high speeds has been invented. The helmet allows the pilot to move his head about freely during normal flight, but when there is sudden acceleration or deceleration, the pilot's head is restrained against these dangerous movements.

The helmet is connected to inertia reels which grab hold during such movements and which release when the danger is over. It is used in connection with an anti-buffeting seat, previously patented.

The helmet and its inertia reels are also connected with the pilot's ejection seat. They go into operation whenever the pilot has to pull the switch which sends him and his seat hurtling out of the fuselage to begin a parachute descent to the ground. The restraint automatically lets go when the pilot has been slowed down to a less dangerous velocity.

Frithjof J. Lindstrom, Stratford, Conn., the inventor, has assigned his patent, number 2,638,293, to United Aircraft Corporation, East Hartford, Conn.

Science News Letter, May 23, 1953

MARINE BIOLOGY

Clams Do Not "Clam Up"; Give Up Scientific Secrets

➤ THE CLAM has always enjoyed a reputation for reticence, but now it is giving up secrets of considerable interest to scientists.

So says Dr. K. P. Rao, marine zoologist from India, who is doing research at the University of California at Los Angeles on the "living rate" of shellfish. He defines living rate as "the efficiency in utilization of elements taken in by the animal."

Dr. Rao has found that clams live "faster" at high tide than at low tide, and that this variation continues at periods corresponding to tide levels even when the clam is placed in a laboratory aquarium.

He has also found that clams live "faster" at lower depths than nearer the surface, and that northern clams live "faster" and have thicker shells than those in southern waters.

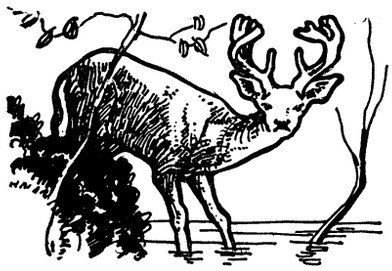
The variation in living rate with tide levels is still somewhat of a puzzle. One theory is that clams become conditioned to changes in water pressure due to the tides, and this response continues regardless of environment.

There is, however, a clue to the shell thickness differences. Clams can take in calcium, much of which is deposited in the shell, directly from sea water. It is known that calcium ions are more available in cold water than warm water. Perhaps for this reason the colder the water, the thicker the shell, says the Indian zoologist.

Science News Letter, May 23, 1953

ECOLOGY

NATURE RAMBLINGS



More Than Trees Die

➤ MORE THAN trees die when a forest is burned. Loss of the lumber and other tree products is grievous enough, but even so it is only one item in the sum of the disaster.

Many of the rest are tangible items, assessable in dollar damages. Others are not so easily itemized, but their value will be recognized none the less, even by the most utilitarian.

Forests are inhabited places, shelters for all manner of beasts and birds. The fate of these, in a major forest fire, is dreadful: terrified flight until limbs or wings will no longer carry them, then agonized death in the flames. Afterwards—no sport for the hunter with either gun or camera, over that blackened area, perhaps for several human lifetimes.

Fish, too, are sufferers. Forest streams are typically cool and swift—the kind of water that trout delight in. In the worst forest conflagrations, the fish are often killed outright by the sheer heating of the water; but even where the fire is not severe enough for that, the after-consequences are just as fatal to the fish.

Polluted with poisons from roasted plants and dead flesh, befouled with charred fragments of destruction, muddied by soil exposed to erosion, heated by the beating sun with no more leafy canopy to intercept it, the streams become totally unfit to support the kind of life they once contained. They become slum waters, or even dwindle to mere trickling remnants of their former selves.

The very soil itself becomes the victim of a forest fire. The forest floor is a complex always in a delicate state of balance. Roots of trees and lesser plants, burrows of mice and moles, myriads of insects and worms and other creeping things, and unseen hosts of micro-organisms are all essential parts of it. Their death leaves the soil mere carrion, no more a soil than a charred trunk is a tree, or a live-roasted carcass a deer or a grouse.

Fire season in the western forests will soon approach its height. It is to be hoped that all Americans who have occasion to be in our national forests this year will observe very carefully the order of the day: "Hold your fire!"

Science News Letter, May 23, 1953

BIOCHEMISTRY

Chemical Controls Aging

➤ NORMAL AGING of the body's cells apparently is governed by a thin surface layer of "life's most essential compound, ribonucleoprotein," says the American Cancer Society in announcing results of research by Dr. Albert I. Lansing of Washington University, St. Louis, Mo.

Dr. Lansing showed in earlier studies that fast-growing cells, including cancer, lack calcium. Calcium-loaded cells age and die; cancer cells, relatively free of calcium, go on dividing indefinitely.

In chemical tests and under the enormous magnifications of the electron microscope, Dr. Lansing has found that the surface of normal cells is covered with a thin layer of ribose nucleic acid and protein. This veneer seems to enable cells to take up several chemicals, including calcium, from its environment.

The ribonucleoprotein layer and enzyme systems on or inside the cell serve as a conveyor belt to bring into the cell the raw materials the cell transforms into aging and useful structures. When Dr. Lansing breaks up the layer with the enzyme, ribonuclease, the cell fails to take up either calcium or another trace metal, strontium.

The electron microscope studies show that the cell (in this phase of his work Dr. Lansing uses clam eggs especially) is covered by thousands of tiny fingers that increase the surface area tenfold.

Science News Letter, May 23, 1953

AERONAUTICS

Navy Jet Will Soon See Action in Korea

See Front Cover

➤ THE NAVY'S new Grumman Cougar jet, soon to move into action off Korea, is shown on the cover of this week's SCIENCE NEWS LETTER. The plane, rated for security reasons in the "over 650 miles per hour" class, is claimed to be superior in performance to the Russian-made MIG.

The Cougars, already in organized units, are swept-wing successors to the Panthers.

Science News Letter, May 23, 1953