

PUBLIC HEALTH

Lifesaving Surfboard Designed by Surgeon

► SURFBOARDS have far greater utility than devotees of the skimming sport would suspect, according to a Georgetown University surgeon in Washington, D.C.

A surfboard design useful to naval landings and lifesaving operations has been developed by Dr. John P. Gallagher. Constructed of foam plastic and weighing less than five pounds, the board will support up to 500 pounds.

A hinged forward section accommodates itself to the motion of the waves. As the rider approaches shore, said Dr. Gallagher, he must contend with the harmonics of the wave he is riding, the slope of the off-shore ocean bottom and the backwash of the wave ahead of him.

Many standard naval craft which are rigid and shallow have a tendency to capsize in rough surf. Hinging the surfboard allows its forward section to tilt up and down, thereby stabilizing the craft. A rider lying prone on the board can skim over the surface of the water ahead of the wave, and land directly on the shore. Strips of rubber under the surfboard permit upward motion and rigid straps on top prevent the hinged section from turning under.

Dr. Gallagher says the surfboard will glide safely over coral reefs which often lie no more than 12 inches under water. Because of their lightness and buoyancy these boards can be thrown down from an airplane for mid-ocean rescues. A life preserver thrown from that height with dead center accuracy might easily kill the man it was intended to save.

The surgeon has previously made important original contributions to medicine. In 1964 he developed the technique of applying electrically-charged gold leaf to internal wounds following surgery. The gold closes wounds without adverse effects on tissue. Before then Dr. Gallagher used hog hairs to successfully repair blood vessels damaged by aneurysm. He injected hairs into the dilated vein at high speeds, causing blood to clot. The process avoids the danger of a silver clamp and a burst vein.

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PSYCHOLOGY

Group Decision Fixed By Leader's Attitude

► THE OLD SAW that man will behave as others expect him to behave received some laboratory support in tests reported in Washington, D.C.

More than 600 executives recently took the role of factory workers to determine how foremen win approval for changes in the work schedule.

The executives were divided into four-man groups playing the parts of fuel pump assembly workers asked to give up an hourly rotation system in the interests of better production.

Two of the men in each group were fast

and resented losing the variety of rotating tasks. One was slow and therefore better with a permanent task. The fourth was the group leader or foreman. Disagreement was built into the discussion.

The attitude of the group leader toward his men fixed the outcome of the decision, reported psychologist Dr. Norman R. F. Maier of the University of Michigan, in the *Journal of Applied Behavioral Science* 1:373, 1965.

If the leader saw his men as problem employees, they did in fact resist the change and a poor decision plus hard feelings resulted. However, if the leader perceived his men as "idea men" a readily accepted compromise was reached, said Dr. Maier.

Instead of sticking to the old rotation system or grudgingly accepting the new method, the group as a whole developed an integrated schedule using partial rotation.

In those groups that opted under pressure for the new system, "problem employees" were reported in three-quarters of the cases. In groups that arrived at an integrated systems, problems appeared in less than half the cases.

Dr. L. Richard Hoffman, graduate school of business, University of Chicago, was associated with Dr. Maier in the study.

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ZOOLOGY

Deer Antler Growth Due to Food, Not Age

► THE SIZE AND SHAPE of a deer's antlers result from the food the deer eats, not from his age. Heredity is another important factor for antler growth, studies show.

A report has dispelled many folk myths about the growth and habits of the number one big game animal in the United States.

Yearling bucks of a captive herd at Pennsylvania University, University Park, that received a balanced diet produced antlers with 12 or more points.

Antlers are appendages of the skull, composed of a solid bony core and supported on permanent skin-covered stalks. These antlers begin to grow early in the summer, during which time they are well supplied with blood and are soft and tender and covered with thin velvet-like skin with fine hairs. During summer, the blood gradually recedes, and the velvet is rubbed off. By late summer, the antlers have attained maximum size, and serve as sexual ornaments and as weapons. The antlers are shed each year between January and April, after the mating season.

Antlers are usually carried on the males, except for caribou and reindeer, in which genus both males and females have antlers.

Many deer die each year more from poor nutrition than from an overall lack of food, the Pennsylvania researchers found in years of study of a large experimental deer herd.

Deer prefer dogwood, black cherry and sassafras to other foods throughout the year. They eat acorns and berry leaves when available and also large quantities of dry leaves, particularly in the winter.

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IN SCIEN

PHYSICS

Scientists Reveal Mixed Feelings on Computers

► SOME SCIENTISTS simply do not like computers. Their concern is not that the machines are about to "take over," but that addicted users may be in danger of losing the forest for the trees.

When about 200 scientists at Brookhaven National Laboratory, Upton, N.Y., were questioned, the majority took practical and resolute positions on the computer's role in their work. The dissenters, however, believe that computers tempt researchers to seek and accept immediate numerical results for specific problems instead of the underlying scientific laws.

Perplexed by the variety of opinions among his colleagues, Dr. Robert J. Spinrad, a scientist at Brookhaven, undertook a survey "to see whether one attitude could be associated with physicists and another with biologists, or whether age or training could be correlated with response." The results, reported in *Physics Today* 18:47, 1965, showed at least two interesting patterns of response.

First, there is a correlation between the scientist's age and his use of the computer. The older men tend to use them less than their younger counterparts. Second, there is a much lower commitment of medical and biological researchers to computer-aided studies than of physicists.

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TECHNOLOGY

'Transposer' Aids Speech And Hearing Ability

► A NEW HEARING apparatus called a transposer, invented by a Swedish research engineer, Bertil Johansson of the Karolinska Institute, Stockholm, has attracted international attention. Twenty table models are being tried out in the United States, Canada, Great Britain, Germany, Holland and Denmark.

The hearing apparatus was designed for persons with some hearing left in the base regions of sound, and has been tested with good results at the Manilla school for hard-of-hearing children in Stockholm.

The principle of the transposer makes it possible for persons who cannot hear high-frequency sounds well to use the part of hearing they have left. Sounds included are "s," "sh" and "ch."

Another invention by Mr. Johansson and a team of researchers is the baby-test-audiometer. It works on the same principle that audiometers in the United States follow with newborn babies, but a new departure in Stockholm is the beginning of tests on the hearing of unborn babies.

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CE FIELDS

GENERAL SCIENCE

Warn Against Confusing Science and Technology

► A WARNING against confusing technology with science was sounded by Dr. Caryl P. Haskins, president of Carnegie Institution.

The main job of technology, Dr. Haskins believes, is to turn out socially useful products. The essential goal of science is "the search for truth."

The products of technology are usually far more evident than those of science. Technology frequently produces, with the aid of the knowledge provided by science, useful devices that are likely to be credited to science.

There are, therefore, particular dangers for science in a society as technologically oriented as that of the United States, Dr. Haskins warns in Carnegie Institution's Year Book for 1964.

He notes that the great successes of science in the past have depended not only on the abilities of scientists, but also on the understanding, patience and perceptiveness of the patrons who supported them. With so much of today's science now being paid for by the Federal Government, the "patron" of modern science is the public.

This results in the demand for understanding once made on the few to be "now extended to us all, on an infinitely greater scale."

If the differences between the goals of technology and science are not understood, public support of basic science could become "unwisely or improperly administered."

Some examples of science dazzling its public patron with arresting prospects of technological advances have already occurred. Not distinguishing between science and technology could multiply the number of such instances in the future, Dr. Haskins states.

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MEDICINE

Common Sugar Cures Skin, Tissue Ulcers

► COMMON GRANULATED SUGAR has been used to cure 41 of 49 ulcers among patients at Glenn Dale Hospital for long-term illness in Washington, D.C.

Dr. James W. Barnes Jr., who exhibited photographic proof of his cures at the thirty-third Annual Scientific Assembly of the Medical Society of the District of Columbia, told SCIENCE SERVICE that he had convinced a number of scientists who thought the treatment was pure quackery.

"I tried the treatment out of pure frustration," Dr. Barnes said. "My mother had told me she had cured boils by putting lard covered with sugar on them, but I went to pathology textbooks for my ideas. Among

some of the treatments mentioned that had not been successful was granulated sugar."

A 39-year-old woman with multiple sclerosis was one of the patients whose ulcers healed. Another was an 82-year-old partial paralytic with late latent syphilis.

Six of the patients were bed-ridden diabetics, but the sugar did them no harm as it was not absorbed metabolically.

"The way sugar works is to form a counter-irritation, so the original wound is changed," the physician said. "It appears to initiate wound repair by causing 'local injury' and be a stimulus for granulation tissue formation. Because a number of the patients had been taking cortisone, which is a poor wound healer, the sugar overcame the effect."

Dr. Barnes is frank in admitting that more research ought to be done on the actual reasons behind the cure.

"I am sure that enzymes are involved," he said, "but I have never had time to do the research. Prevention is still better than cure, and we are spraying silicone on other parts of the bodies of our patients to prevent further ulcers from forming."

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TECHNOLOGY

New Engraving Process For Aluminum Devised

► A NEW METHOD of engraving aluminum reverses all known processes and cuts the cost by one-fourth to one-third. With the "intacam" method, solution is used only on the sections to be engraved. It will work on any size from a fraction of an inch to the side of a building, claims the Bowers Lighter Company of Kalamazoo, Mich. Company president Fredrick H. Bowers received a U.S. patent for the process.

Intricacy of design does not increase engraving costs substantially, reported the company.

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GENERAL SCIENCE

U.S. Needs 100,000 Doctors Added by 1975

► ALTHOUGH LEADING the world in medical science, the United States faces a shortage of 100,000 doctors by 1975.

This is the prediction of Dr. Eliot Corday, president of the American College of Cardiology and associate professor of medicine at the University of California at Los Angeles.

Dr. Corday based his estimate on the present doctor-patient ratio of one to 750. There ought to be one doctor for every 450 persons, in his opinion.

The shortage is due to a lack not of potential medical students, but of enough schools to train them, Dr. Corday said. He urged organized medicine to back the Federal program calling for an outlay of \$767 million on medical education.

Despite great scientific advances in the past 15 years, medicine today faces a major unsolved problem of trained people to fill the ranks. A critical shortage of both doctors and nurses exists.

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MILITARY SCIENCE

Australian Forces Seek 'Phantom Fighters'

► AUSTRALIAN SCIENTISTS are trying to create a unit of phantom fighters by sound-proofing their troops' jungle equipment.

At present the combat smocks rustle as the fighters move and when there is a heavy rain a loud drumming is set up as it strikes their tents.

"Raindrop drum can be a give-away in the jungle," Dr. F. A. Fox, chief of the Australian Defense Standards Laboratory, told a textiles congress in Canberra.

The difficulty with sound-proofing is in eliminating both rustle and drumming in the same fabric, from which both tents and smocks are made.

A more resilient resin than used at present is needed to deaden the sound of raindrops and reduce rustling.

Research is being conducted at the Joint Tropical Research Unit at Innisfail, Queensland, but so far with little success.

The fabric must be water- and fire-proof as well as being sound-proof, lightweight and comfortable, and give protection against insects.

Insect bites, said Dr. Fox, have caused more casualties in the tropics than enemy action.

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CONSERVATION

Wastes Junked in Ocean Menace Sea Life, Man

► MAN MUST STOP polluting and even destroying large areas of the sea with his wastes and junk.

Already man-made wastes have killed fish, endangered birds and sea life and spoiled beaches and shorelines, a 54-nation Intergovernmental Oceanographic Commission sponsored by UNESCO in Paris said.

The sea can no longer encompass and diffuse all the wastes that are not broken down by biological processes such as crude oil, radioactive wastes, heavy metals and chlorinated hydrocarbons used as insecticides, said Dr. Pieter Korringa, chairman of the Commission's panel and director of the Netherlands Institute for Fisheries Investigations at Ijmuiden.

Domestic sewage is no great problem as a rule because it is broken down so rapidly by microorganisms in the sea.

International studies should be made on such problems as the presence of insecticides, pollution of coastal zones and the use of the continental shelf area for offshore dumping of junk.

Man has always had a fallacious belief that the sea was limitless and that anything could be dumped into it. But now scientists are finding that waves and currents diffuse wastes much more slowly than originally thought.

Crude oil from tankers and other shipping can cause problems by destroying the beaches and coasts used for fishing, bathing and other activities.

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