

## INVENTION

**Flying Wing in New Form Adapted to Small Planes**

➤ A NEW version of the flying wing, one that is adapted to a smaller plane than the Northrop type, patented earlier, is the invention of David R. Davis of Los Angeles (U. S. Patent 2,298,040). The rights have been assigned to the Manta Aircraft Corporation of Los Angeles, Calif.

In order to get room inside the wing of a small plane for the pilot, and engine and other things, the wing must be very wide at least in its middle portion, but from there may taper sharply to the tips. This gives a V shape to the front of the wing, the point of the V, which may carry a single engine, projecting quite far forward. The rear is also V shaped but much flatter.

This gives to the whole wing a shape like a fore-shortened kite, but it sails with the sharp end forward instead of the blunt end. A tail assembly completes the plane.

This shape has been tried before, Mr. Davis states, but proved unstable because of poor aerodynamical action at the wing tips. This he remedies by curving the front edges slightly forward as they approach the tips, and by rounding the latter. This gives them a better grip on the air and renders the plane stable. They also improve the aerodynamical performance of the whole wing, he says, and increase the lift.

*Science News Letter, October 17, 1942*

## ENGINEERING

**Expander Type Rings Give Longer Service**

➤ MOTORS and trucks now doing essential service on our highways can be operated a longer time without reconditioning by the use of expander type piston rings, P. E. Friend of the Wilkening Mfg. Co., told the Society of Automotive Engineers meeting in New York.

Plain non-expander piston rings, Mr. Friend said, work all right so long as the cylinder is round and straight. But so soon as it is worn a little more in some spots than in others—is no longer truly circular or straight up and down—the ordinary ring fails in its function because it rides over the irregularities.

The expander type, he explained, is more flexible and has inner springs which exert independent pressure against every part of the cylinder, so that the

ring conforms to the variations in the contour of the cylinder wall. Consequently a worn cylinder can be used much longer, and because of the flexibility of the ring, there is less wear in the first place.

At least six engine manufacturers, he said, are supplying these rings as original equipment, and many others buy them and stock them for replacement service.

*Science News Letter, October 17, 1942*

## MILITARY SCIENCE

**Schooner and Plane Join In Combating Submarines****See Front Cover**

➤ THE United States Coast Guard now has fleets of sailing schooners coordinating their vigilance with Coast Guard patrol planes and fast cutters to rid our waters of lurking submarines.

Like privateers of the old days, these sleek schooners glide along the shipping lanes smoothly and silently, equipped with the latest devices for detecting hiding enemy submarines. They are playing a major part in the battle of the shipping lanes, Coast Guardsmen report.

*Science News Letter, October 17, 1942*

## INVENTION

**New Bomb Sight Invented; Two Telescopes Are Used**

➤ A NEW bomb sight (patent 2,297,132) has been invented by Romeo A. Bossi of Newton Center, Mass.

Its use depends on mechanically calculating the effect of two main factors that govern the aim, height and speed of the plane when the latter is flying directly toward the target.

Two telescopes are employed fastened together like a pair of binoculars. One is the regular sighting telescope, the other a reading telescope which is directed toward a sheet of graduated scales. The bombardier directs the latter to the point on the sheet corresponding to the given height and speed, and of course the other telescope turns with it. When the target comes into the field of the sighting telescope, he releases the bomb.

It may be pointed out that height and speed are not the only factors that affect the aim. This is only the first step to accuracy.

*Science News Letter, October 17, 1942*

**IN SCIENCE**

## INVENTION

**Electron Whirler Patented; Improve First Models**

➤ DR. DONALD W. KERST of Scotia, N. Y., inventor of the doughnut-shaped electron accelerator which whirls electrons up to an energy of 20,000,000 volts, which has been much in the news, has now received U. S. patent 2,297,305 for his invention. The rights have been assigned to the General Electric Company. This company, as announced in the news, is now building a 100,000,000-volt machine of the same sort.

Dr. Kerst claims only improvements over previous attempts to whirl electrons between the poles of a magnet, which attempts, he says, either failed or succeeded only in an extremely limited sense.

The improvements consist mainly in a means of introducing the electrons in such a manner that they will be more surely captured by the magnetic field, and of regulating this field in such a way that the electrons will be held in their courses for hundreds of thousands of revolutions and so build up a high electron energy.

*Science News Letter, October 17, 1942*

## PHYSICS

**Wool Warmth Depends On Weight and Weave**

➤ WARMTH of woolen and partly woolen fabrics depends more on weight and weave than on the proportion of wool in the fabric. This was brought out in tests made by the Manville Jenks Corp. and reported by its president, K. B. Cook, in *Textile World*. The fabrics tested contained from 100 per cent down to 8 per cent wool, the rest being cotton and rayon. Those of the same weight and weave showed about the same insulating power. After five dry cleanings, the warmth of the fabrics increased somewhat, but this was attributed to shrinkage. Another curious result was that a wind as low as six miles per hour can almost double the heat loss through a fabric.

*Science News Letter, October 17, 1942*

# E FIELDS

## NUTRITION

### Japs Use Surplus Silk To Improve Their Diet

➤ EVER wondered what the Japs are doing with all the silk we used to import?

Well, according to a Department of Commerce report, they are eating it.

Of course they're not lunching on chiffon hose and satin yard goods. They are extracting honorable Vitamin B from honorable silkworm cocoon, to make admirable diet.

While nutritionists could not be reached for comment, it is believed the new diet of worms will make a tasty addition to rice and dried fish.

*Science News Letter, October 17, 1942*

## ENGINEERING

### Navy Men Win Top Awards In Lincoln Welding Study

➤ TWO MEMBERS of the U. S. Navy Department won the \$13,700 top award of the "\$200,000 Industrial Progress Award Program," sponsored by James F. Lincoln Arc Welding Foundation of Cleveland. They are Captain C. A. Trexel and A. Amirikian, director of planning and design, and design engineer, respectively, of the Navy's Bureau of Yards and Docks.

Their paper described the construction of arc welded caissons or gates for naval dry docks and showed how this method has saved the government \$1,652,000 on work already done or under contract. Further savings in the same kind of work, they estimated, will amount to \$3,540,000, will save 9,000 tons of steel, and the work can be done in one-third less time. The steel saved will permit the caissons to be armor-plated for bomb protection, with no more total steel than unprotected structures.

In all, 408 awards were made to 458 recipients, the difference covering joint authorship. The combined results of all the papers, said Dr. E. E. Dreese, Chairman of the Foundation and of the Jury of Award, showed a possible annual saving of \$1,825,000,000, including 7,000,000 tons of steel and 153,000,000

man hours of labor, by the use of arc welding. It was also pointed out that the use of arc welding has increased 20-fold during the past ten years.

The saving of metal in welding is due to the fact that plates can be joined edge to edge instead of overlapping or with the use of cover plates as in riveting.

*Science News Letter, October 17, 1942*

## CHEMISTRY

### Reclaiming Process for Rubber Is Improved

➤ U. S. patent for the more rapid reclaiming of old rubber has been secured by Henry Ghez and Oscar Ghez of Paris and they have assigned their rights to a corporation in Panama. Instead of pressure cooking the scrap with steam or hot gases at high pressure, they cook it in an open vat in a bituminous liquid of high boiling point. This is quicker, they say, and more effectively conveys heat to the rubber. Also, when the scrap is lifted from the bath and allowed to drain, the material forms a film which protects the rubber from oxidation while on its way to the milling operations.

*Science News Letter, October 17, 1942*

## PHYSIOLOGY

### Test for Blood Volume Based on Radiophosphorus

➤ A NEW, simple test for determining the amount of blood in the entire body from the radioactivity of a few drops (two cubic centimeters) of blood is reported by Dr. Frank A. Brown, Jr., Dr. L. H. Hempelmann, Jr., and Dr. Robert Elman, of Washington University (*Science*, Oct. 2).

The procedure, as reported for dogs, is to inject radiophosphorus into a dog's veins. After a few days the red blood cells become so radioactive that they can be diluted 100 times and yet have sufficient radioactivity for accurate measurement in a Geiger counter.

The red cells from about two and one-half teaspoons of this radioactive blood are suspended in salt water and injected into the dog whose blood volume is to be measured. After allowing enough time for these cells to be mixed with the dog's own blood, two cubic centimeters are removed and the radioactivity of this sample measured with the Geiger counter and compared with that of the sample of radioactive blood injected. Simple division gives volume.

*Science News Letter, October 17, 1942*

## RESOURCES

### Restrictions Put on Wool For Paralysis Patients

➤ ANNOUNCEMENT that the National Foundation for Infantile Paralysis had 100% wool available for patients getting the Kenny treatment resulted in a deluge of requests to headquarters. Consequently the Foundation now announces that the wool can only be shipped to hospitals where the need is immediate, that is, where patients in the early stages of infantile paralysis are actually under treatment when the request is made.

The material, available through the cooperation of the National Paperboard Association, cannot be shipped in anticipation of cases that may occur in the future. In communities where there are only one or two cases, it is suggested that sufficient material, such as old blankets, lightweight woolen suiting and the like, can be obtained without calling on the Foundation's supply.

An average of five pounds of woolen material is required for each patient. Those requesting it from the Foundation are asked to order only as much as is needed.

"If the foregoing is adhered to, we believe we will be able to meet the demands of the entire country," the Foundation states.

The woolen material is cut into pieces used for hot fomentations over the affected areas, an important feature of the Kenny treatment of infantile paralysis.

*Science News Letter, October 17, 1942*

## ZOOLOGY

### Jelly-Fish Are 96% Water Says Report from England

➤ HOW MUCH water there is in a jelly-fish is the subject of discussion in England even during war time.

Dr. A. G. Lowndes, at the Plymouth Biological Laboratory, has determined that jelly-fish in the ocean near Plymouth are composed of about 96% water, 3% salts and a trace of fat. The amount of protein, 0.67%, indicates that the animal has only about 4% protoplasm, the stuff of life.

Text books have long told that jelly-fish contain 99.8% water, but while they are very liquid, their water content is not as high as that. Most marine animals contain about 80% water and 15% protein.

*Science News Letter, October 17, 1942*