

## ENGINEERING

**New Ideas in Internal Combustion Engines**

➤ TWO RADICAL departures from conventional structure are represented in two new patents on internal combustion engines. The first, invented by R. F. Harless of Ossining, N. Y., and covered by patent 2,344,865, is on a new method for transferring the heat from the cylinders of an engine to the liquid of the cooling system.

In the customary construction, the cooling liquid comes into direct contact with the cylinders, in hollow spaces that entirely surround them. This usually makes for poor circulation in spots, hence for uneven cooling. To obviate this difficulty, Mr. Harless packs the space around the cylinders with bronze wool, which is a good conductor, and in the wool he embeds a series of circulating coils containing the coolant.

The other engine, so radical a departure from convention that it would hardly be recognized as such, is the invention of Walter Conradt of Kenosha, Wis. Instead of having the customary cylindrical piston sliding up and down in a round cylinder, it has one piston shaped like a quarter of a pie, pivoted at the point. This rocks back and forth in a wide slot. Through a hole in this first piston slides a second, smaller piston, which is really only a rod; this one is connected to the crankshaft. Very high compression, with correspondingly high efficiency, is claimed by the inventor.

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## PSYCHOLOGY

**Lullabies and Play Needed by Infants**

➤ BABIES need mothering, the good old-fashioned kind that goes with rocking and singing lullabies, says Dr. Margaret A. Ribble, of New York, in her newly published book, *The Rights of Infants* (Columbia University Press).

Many mothers seem to know how to mother their babies. Others seem to lack this knowledge or to have had it thwarted or perverted by some unhappy early experience of their own. Still others have it but are afraid to express it because of what Dr. Ribble would probably call faulty instruction in child care. These are the mothers who have been warned that too much handling or jiggling of the child will make him nervous, that too much attention will spoil

him and make him a problem child, that food and sleep are his most important needs and that his life must run on a schedule. Such mothers particularly will benefit from study of Dr. Ribble's book.

Proper food and rest are important. Schedules are useful, especially to the mother since they give her a chance to get her other work done and to get the rest she needs. They help the baby in many ways, too. But they should not frighten the mother into failing to be a complete mother to her baby.

Unwise attention does prolong dependency and spoil the child, Dr. Ribble states. But, she adds, mother love is a good deal like food and one does not deprive a child of food because he may get too much or the wrong kind.

The formula she gives for the baby's emotional feeding is "a little at a time, and frequently." These feedings should be given regularly, so that the baby expects them. A good way to give these small feedings of mother love regularly is to play with the baby a few minutes each time you pick him up to feed him his milk and other food. Bath time is another good opportunity for this loving play and fondling. Talk to him, but not scoldingly, when you change his diapers. Rock him a bit or hold him close in your arms and sing a short lullaby at bedtime.

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## CHEMISTRY

**New Resin Plastic Used As Hog Depilatory**

➤ TRADITIONAL hog-scalding to remove the hair in butchering may soon be "out," replaced by a new scientific method. In the new process porkers are plasticized and peeled. The dead hog is submerged in a tank of liquid plastic, then pulled out coated with the sticky stuff. When properly cooled, the plastic is stripped off, taking all the hair with it. The process is quick, clean, thorough and economical.

The plastic used is a resin chemical. After being used on one hog it is remelted and used again and again. Bristles, whiskers, stubble and hairs are removed from the liquid before it is re-used. They are just as suitable for commercial uses as if they had been removed by the old scalding-scraping method. The new chemical shaving method, and the resin chemical used, were developed by the Hercules Powder Company.

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**IN SCIENCE**

## INVENTION

**Mosquito-Proof Clothing Uses Sponge Rubber**

➤ MOSQUITOES are offered a feast of Tantalus by wearers of clothing fashioned from a new type of fabric, on which U. S. patent 2,344,811 has been issued to F. A. Gill of Chicago.

Mr. Gill had noticed how supposedly mosquito-proof clothing frequently fails to function when it lies directly upon the skin it is supposed to protect, permitting the pests to drill right through. He therefore devised a way to keep the insects at more than stinger's length by securing a close-meshed outer layer of netting over a foundation of criss-crossed strips of sponge rubber, felt or other material, thick enough to hold the netting away from the skin at all points.

A complete suit of the new material consists of trousers, close-fitting over the ankles of high shoes at the bottom, a jacket, similarly close-cuffed to gloves at the wrists, and a visored cap with all-round curtain protecting face and neck and tucking into the jacket collar. Slide fasteners permit rapid donning and removal, and there is a short slide-closed vent in front of the mouth.

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## ARCHAEOLOGY

**A. A. U. W. Confers Award On Woman Archaeologist**

➤ THE \$2,500 achievement award of the American Association of University Women was conferred in New York City on March 24 on Dr. Gisela M. A. Richter, researcher in classical archaeology. Dr. Richter has made distinguished contributions to the field of Greek and Roman art through her writings, lectures and work as curator at the Metropolitan Museum of New York City.

This annual award, the gift of the Northwest Central Region of the Association, was established to give recognition to distinguished scholarly work by women. Dr. Florence Seibert, internationally famous for her research on the chemistry of tuberculosis, received the newly-established award last year.

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# CE FIELDS

## SOCIOLOGY

### Drafting of Women Favored by A. A. U. W.

► DRAFTING of women for women's branches of the military services is favored by the American Association of University Women, provided the need for such draft exists and is demonstrated by the War and Navy Departments.

A majority of the association leaders reached by a poll voted in favor of drafting women, if necessary, under a Selective Service law. Because of the importance of the decision, a questionnaire pointing out that recruiting of women for the armed forces had fallen below the need was sent not only to members of the National Committees on Legislative Program and on Status of Women, but also to the National Board of Directors, state presidents and chairmen of the local committees.

"It is only consistent that the A. A. U. W. take this stand," stated Mrs. Frances Valiant Speck, secretary to the Committee on Economic and Legal Status of Women, "since the Association voted at the 1941 biennial convention 'continued support of the principle of equality for women,' the principle of equality being construed as meaning equality of responsibility as well as equality of rights."

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## CHEMISTRY

### Penicillin's Big Family Causes Much Confusion

► THE GROUP of germ-fighting chemicals, such as penicillin, produced by microorganisms themselves is growing so fast that even scientists working to discover new ones are having trouble keeping them straight, it appears from a report by Prof. Selman A. Waksman, of Rutgers University and the New Jersey Agricultural Experiment Station. (*Science*, March 17)

Part of the confusion comes from the fact that two groups of scientists, working in different institutions or even in different countries, will at about the same time discover an anti-germ chemical from the same microorganism. Each group of scientists gives the chemical it has discovered a different name. It

takes some time before further studies show that the two separately discovered substances are identical.

Confusing also is the fact that some of these microorganisms produce more than one germ-killing chemical. Top of the list in this respect, Prof. Waksman reports, is *Aspergillus fumigatus*, which can form four different anti-bacterial substances, spinulosin, fumigatin, fumigacin and gliotoxin.

*Penicillium notatum*, which produces penicillin, also forms another anti-bacterial substance which has been variously called the E. coli factor, penatin, notatin and penicillin B.

Still further confusion arises from the fact that the same type of anti-bacterial substance may be produced by several different microorganisms. Prof. Waksman gives six substances in this class, citrinin, penicillic acid, penicillin, gliotoxin, spinulosin and clavacin.

Some of these chemicals, although efficient weapons against germs, cannot be used to treat disease because they are too toxic.

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## PUBLIC HEALTH

### First Fatal Human Case Of Horse Disease Noted

► THE FIRST human death from the Venezuelan strain of equine encephalomyelitis, popularly known as horse sleeping sickness, is reported by Col. Raymond Randall, V.C., and Capt. John W. Mills, V.C., of the Army Veterinary School at the Army Medical Center. (*Science*, March 17)

The death occurred in the British West Indies last fall during what was apparently the first outbreak of equine encephalomyelitis in Trinidad, B. W. I. Laboratory tests establishing the fact that the human death was due to this disease are now reported. The Trinidad epidemic was among horses and mules.

Only two other human cases of the Venezuelan disease, very mild ones in laboratory personnel working with the virus in the United States, have previously been reported. Outbreaks of equine encephalomyelitis caused by the Eastern and Western strains of the virus have occurred in this country and have caused deaths in the human as well as the horse population. The present studies, the Veterinary Corps officers point out, establish the fact that all three strains of this disease known to be present in the Western Hemisphere can cause fatal encephalitis in man.

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## PUBLIC HEALTH

### Hospital Census Shows Enormous Increase

► AN ALL-TIME record of 15,374,698 patients, exclusive of newborn babies and outpatients, were admitted to hospitals in the U. S. during 1943, the American Medical Association's annual census of hospitals shows.

This figure is an increase of 2,829,088, or 22.5% over the previous year.

Births in hospitals during 1943 totalled 1,924,591.

The number of hospitals increased by 310, while the number of hospital beds increased by 265,427 plus 5,686 more bassinets.

"This recent growth is the equivalent," states the report in the *A.M.A. Journal* (March 25), "of a new 727 bed hospital for each day of the year."

The enormous expansion is due to wartime needs. The largest gain in number of hospitals occurred in the federal group, which would include Army, Navy and Marine or Public Health Service hospitals, and Veterans Administration Facilities. This group now numbers 827, as compared with 474 in 1942, and their bed capacity is given at 476,673, an increase of 255,735 since 1942.

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## GENERAL SCIENCE

### Science Laboratories Get Eased Priorities

► PRIORITIES for science laboratories for facilities for assisting the war effort have now been amended and clarified by the War Production Board. Procedure for obtaining controlled materials is simplified. A new procedure has been set up for obtaining certain essential materials referred to in previous orders as Class A products.

Previous restrictions on the quantity of aluminum that may be obtained are removed. Priorities assistance may be used for laboratory construction jobs costing not more than \$500, the cost of labor and equipment not included. Hand tools and safety equipment bought by a laboratory for resale to its employees may be obtained under the amendments.

Priority ratings assigned by the War Production Board to assist science laboratories may be used to get materials for development of products designed primarily for future civilian markets only if such activities will be carried on without diverting manpower, technical skills, or facilities from war work.

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