

ENGINEERING

Dial Telephone Operation Made Easier by Invention

► TELEPHONING is to be made even easier than it is now, when a new hand set just patented by Oscar A. Shann of Short Hills, N. J., comes into use. It does away with the present necessity of lifting the instrument from its cradle before the number can be dialed.

With the new set, contacts are so arranged that the line is ready for dialing when the set is merely tilted sidewise on the cradle. At the same time a small lamp is lighted, and a mirror on the inside of the handle reflects the light down on the dial, making the numbers easier to see. If the line is busy, an amplifier renders the busy-buzz audible at a moderate distance. If the call is going through on a clear line, the buzz does not sound, the user then lifts the instrument, automatically extinguishing the lamp, and the phone is ready for use.

Rights in the patent, No. 2,351,459, have been assigned to the Bell Telephone Laboratories, Inc.

Science News Letter, July 1, 1944

HEREDITY

Brothers and Sisters More Alike Than Believed

► BROTHERS and sisters, not twins, are much more alike than scientists have believed, and there is no evidence that these resemblances are due to environment rather than to heredity, it appears from reports in the *Journal of Genetic Psychology* (June) by Dr. Edward L. Thorndike of Teachers College, Columbia University.

Dr. Thorndike bases his conclusion on his finding that in traits such as height, believed to be little influenced by home environment, there is closer brother-sister resemblance than in those such as weight, even though the latter are more readily influenced by diet or other conditions in the home.

That brothers are more likely to reach about the same height at the same age than they are to weigh the same is indicated by Dr. Thorndike's study of over 400 pairs of brothers at Columbia University, as well as by estimates for the general population.

Brothers in general are less likely to make the same progress in school than they are to obtain the same mark on intelligence tests. Here, again, progress in school is believed to be more influenced by parental wealth and by pres-

sure to do well in school than is the score made on an intelligence test.

But in the case of pairs of brothers attending Columbia, Dr. Thorndike found they are more likely to enter college at the same age than they are to make the same marks on intelligence tests. Dr. Thorndike believes this may be explained by the fact that economic conditions which might keep a bright boy out of school for a half year or more play a disproportionately large part at Columbia.

Science News Letter, July 1, 1944

CHEMISTRY

Fire-Fighting System For U. S. Battle Tanks

► A NEW fire-detecting and fire-extinguishing system, that signals the driver the moment a fire breaks out and then extinguishes the flame is being used in U. S. Army tanks, saving many of them from destruction by fire in the tank itself.

The system is similar to the one used in U. S. warplanes to combat the highly inflammable vapors of the high-test fuels.

The system, developed by Walter Kidde and Company, consists of a detector containing two filaments which are destroyed by fire, closing an electric switch which causes a red fire signal to appear on the instrument panel of the tank. The driver pulls a manual control lever switch, instantly flooding the engine compartment with a blanket of carbon dioxide gas which smothers the fire.

The operation of the new carbon dioxide fire-fighting system is confined to the engine compartment, so that the crew of the tank is not exposed to the fire-killing gas.

After the war this equipment may find new and valuable applications in protecting industrial machinery and private automobiles against the danger of fire.

Science News Letter, July 1, 1944

INVENTION

Rosin for Soil-Binder Used in Road-Building

► ROSIN combined with a non-drying or slow-drying oil, such as untreated soybean oil, is used as a soil-binder for quick road building, in a method on which C. A. Agthe of Zurich, Switzerland, has received patent 2,350,977. One prime objective in developing the method was to get a light-colored binder that could be used when it was desired to avoid a dark color on the road surface.

Science News Letter, July 1, 1944

IN SCIENCE

RADIO

Same Set Able To Receive FM and AM Broadcast

► COMPETITION between amplitude modulated and frequency modulated radio broadcasting is resolved by the invention of a set that is able to receive both kinds, on which W. D. Houghton of Setauket, N. Y., has received patent 2,351,212. The receiver employs a single circuit for receiving AM, working in combination with FM. Frequency modulation is received on the same circuit by throwing a switch that adjusts the AM circuit for FM. Patent rights are assigned to the Radio Corporation of America.

Science News Letter, July 1, 1944

PSYCHIATRY

One Out of Four Recruits Bites Nails

► DO YOU ever bite your nails?

If you do, you have lots of company. Among Naval recruits and men drafted for Naval service, about one out of four retain this nervous habit of childhood, it was found by Lt. L. A. Pennington and Lt. R. J. Mearin, of the U. S. Naval Reserve.

Although nail-biting may in some cases point to nervous instability, it is by no means clear evidence of it, these Naval officers conclude as a result of their study of more than 2,000 men reported in the *American Journal of Psychiatry*. Instead, it shows the "strangle hold" that childhood habits may have long after the cause of them has become non-existent.

Nail-biting can, however, be used in an indirect way to find out useful information about a person, the officers suggest.

"The man who denies, often in anger, the evidence his nails betray," they say, "is quite likely to respond similarly to other situations. In several instances the social histories of these men were found to show attitudes of irresponsibility and inconsistency. Their emotional instability was apparent.

"For those who face the evidence and reply, 'It is a habit I ought to break,' the likelihood of the presence of other nervous symptoms is not great."

Science News Letter, July 1, 1944

CE FIELDS

AERONAUTICS

Secret of Robot Bombs May Be in New Patent

► THE SECRET of Germany's "secret" robot bombs may be contained in newly-issued U. S. patent 2,351,977, now in the hands of the Alien Property Custodian. The invention covered by this patent is a system for the automatic steering of aircraft by means of gyroscopic controls; application was filed April 17, 1941, nearly nine months before Pearl Harbor, by Adam Kronenberger and Fritz E. Bartelt, both of Berlin.

One of the two gyroscopes used in the device controls the course in altitude, and the second takes care of lateral steering. The vertical gyroscope holds a steel bar midway between the poles of two opposing permanent magnets; a shift in the position of the bar causes changes in their fields of force, which are reflected in terms of controlling currents by means of coils wound on the arms of the magnets. The horizontal gyroscope shifts a contact to and fro over a resistance; current passing through this, suitably stepped up, swings the rudder.

There is of course nothing to indicate whether or not this particular mechanism is used in the Nazis' latest futile effort to terrorize Britain, but the robot rocket's controls, if not identical with this, may resemble it.

Science News Letter, July 1, 1944

CHEMISTRY

Rust-Proofing Technic Keeps Reserve Ships Ready

► A NEW RUST-PROOFING technic, called "dehumidification," is being used by the Bureau of Ships of the Navy to keep ships that are in reserve or inactive in readiness for sea.

Based upon the knowledge that steel does not rust in the desert, the new technic makes the air inside the ships very dry. This excessive dryness and proper preservatives combined make Navy vessels nearly rust-proof and extend their useful lives many years.

Six mechanical dehumidifying units are used aboard the AVC-1, a sea-going guinea pig for the experimental work. Various chemical driers and preserva-

tives are also being tested thoroughly.

A thin film of rust preventive is used to preserve metals and machinery. Mildew and decay preventives are used to preserve wood, life jackets, cordage, and other non-metallic equipment.

Food, clothing, soaps, fire-fighting chemicals and other semi-perishable stores are kept aboard ship, to determine what, if any, spoilage occurs.

Ammunition, oil, and some types of fuel are not put on board until the ship is ready to go to sea, because of the danger from explosion near cities and warehouses where the ships are docked.

After the crew are placed aboard the previously inactive or reserve vessel, under the new plan, they are able to live on dry and canned food already aboard, and operate the vessel from other stores stowed on the ship.

This new system will speed up the breaking out of inactive and reserve vessels from a matter of days or even weeks to a matter of hours.

In the driers, used to take moisture out of the air, are silica gel or activated alumina. Two beds of these compounds are used. When one becomes saturated with moisture from the air, electric heat dries it out, making it ready for use while the other bed is in operation.

Science News Letter, July 1, 1944

AERONAUTICS

New Devices for Planes Aid Comfort and Safety

► A NEW lightweight passenger chair that will make flying more comfortable, and an airport beacon that will make night flying safer are announced.

A new 26-pound weight-saving passenger chair, developed by Western Air Lines, saves 157½ pounds in the entire seat installation in a 24-passenger plane. A glass fabric lining, which is moisture-proof, fireproof and vermin-proof, saves 71 pounds in weight as compared with plane fabrics formerly used. The weight-saving program allows Western's DC-3 plane to carry a 313-pound additional load of cargo.

The new airport beacon, developed by the Civil Aeronautics Administration at the request of the Airline Pilots' Association, instead of revolving, moves up and down through an arc of 90 degrees at the rate of 23 complete cycles a minute. This motion of the 5,000,000 candle-power beacon distinguishes it from all other nearby lights and enables the pilot to see it from almost any angle.

Science News Letter, July 1, 1944

STATISTICS

Only 10 Lives Lost Through Ships' Structural Failures

► AN INVESTIGATION of 2,993 Liberty ships shows that no lives have been lost as a result of structural failures, except in the case of the John P. Gaines, from which ten persons were missing after successfully embarking in a lifeboat. This statement was made in a report of a board of investigation called by the Secretary of the Navy to study the design and methods of construction of welded steel merchant ships.

Out of the group of ships studied, 20 vessels suffered complete fractures of the strength deck, and of these, five vessels have completely broken in two. Two of these complete fractures occurred before the ships were placed in service.

Cracking in ships afloat has usually been associated with very low, near-freezing temperatures, or heavy seas, or a combination of the two conditions.

Contrary to a widespread impression, hull fractures are not confined to Liberty ships, but also occur in other types.

An analysis shows that practically all fractures occur as a result of imperfect welding. Effective corrective measures taken have reduced fractures that occur while the ships are still being built.

Science News Letter, July 1, 1944

GENERAL SCIENCE

Partial Mercerization Improves Fit of Bandage

► PARTIAL mercerization of open-weave cotton gauze improves the fit of the bandage and allows greater freedom of movement in bandaged joints. All-cotton gauze bandages treated in this way are expected to enable inexperienced persons to do a better job of bandaging injured knees, arms and elbows.

This new type of cotton bandage fabric has a high degree of stretchability which makes the bandage partly self-fitting, sufficient elasticity to make it flexible and somewhat self-tightening without restricting the circulation of the blood, and a roughened surface which makes layers of bandage tend to cling together.

The bandage was developed in the Department of Agriculture's Southern Regional Research Laboratory. After six months of experimental tests, the Surgical Department of the U. S. Naval Hospital in New Orleans reports it superior to regular gauze, particularly for orthopedic use.

Science News Letter, July 1, 1944