

MEDICINE

**High Blood Pressure
Linked with Heredity**

HEREDITY and high blood pressure are linked by figures, just released, from Mayo Clinic case histories of patients returning to the Clinic after 10 or 20 years.

At their first visit these patients had normal blood pressures. Parents of some of the patients had high blood pressure and parents of others did not, the Clinic physicians learned.

Of the 1,374 patients in the study, reports Dr. E. A. Hines, Jr., 58 stated at the time of the original examination that both parents had high blood pressure. Of these, 52 or 89.6%, had high blood pressure 10 or 20 years later.

On a percentage basis, the occurrence of high blood pressure was about six times greater among the group with a history of high blood pressure in the family than among the group with a history of no high blood pressure in the family.

The figures in this study bear out figures from a previous study of predisposition to high blood pressure by ice water tests made by Dr. Hines. The test consists in measuring the rise in blood pressure produced by the stimulus of placing one hand in ice water. A family history of high blood pressure was found five times as often among persons who reacted abnormally to the ice water test, indicating they had high blood pressure or a tendency to it, as among the normal reactors.

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ENTOMOLOGY

**Fly Eats Spider In
Reversal of Usual Roles**

WHEN a fly eats a spider, that ought to be news.

Such a strange reversal of the traditional roles of eater-and-eaten is described by George Elwood Jenks. (*Natural History*, March) And to make the reversal even more complete and strange the fly does its eating from the inside and makes a very leisurely job of it, taking a year to turn its eight-legged victim into an empty shell.

The eater is a brilliantly black-and-yellow fly known to scientists as *Ocnaea smithi*. The eaten is the trapdoor spider, which lives in a silk-lined tunnel with a lid so tight that it is well-nigh impossible to open it even by force when the spider is at home.

The female fly lays her eggs on the wing, dropping them around the trapdoor spider's nest like miniature airplane bombs over a beleaguered city.

Most of the tiny grubs or larvae that hatch from the eggs perish, but one or two may find a spider burrow and literally worm their way in. The larva then gnaws its way through the spider's skin, and for a year feeds within its victim's body, slowly hollowing it out while it grows fatter and fatter itself.

At last the immensely-grown grub emerges, attaches itself to the silken lining of the burrow, and goes through the transformations that eventuate in the adult, winged insect. Then, after a year of underground, boring-from-within existence, the fly emerges into upper air, and sunlight, to mate and breed and repeat the cycle.

Having no feeding mouthparts, adult life of the insect is short. A year in the dark, a week in the daylight world, and it is all over.

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PHYSIOLOGY-AERONAUTICS

**Propose Putting Pilot
On Back or Stomach**

NOVEL position for airplane pilots, seriously suggested in Germany: on back or stomach, not sitting up conventionally. Reason: The circulation in this position can endure great speed acceleration without strain. However, the Berlin correspondent of the *Journal of the American Medical Association* admits the technical difficulties of placing the pilot in a dorsal or ventral position are immense.

The effect of speed acceleration on airplane pilots is a worrisome problem in military aviation. The least indisposition of the pilot, it is said in medical aviation circles, lasting less than a second, is sufficient to produce a catastrophe. Even under the best conditions, a normal reaction time of a fifth of a second means that an airplane traveling 360 miles an hour covers a distance of 120 feet or so unsteered before the pilot is again able to maneuver.

Not speed, but centrifugal force, causes critical changes in hydrostatic pressure in the pilot's vascular system.

Advice to pilots: Don't undertake strenuous flights without breakfast. Flying on an empty stomach or only a cup of tea or a cigarette means decided loss of power of resistance in endurance of speed acceleration.

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IN SCIEN

PSYCHOLOGY

**New Test Measures
Auditory Phantasy**

HAVE you ever amused yourself by fitting words to some indistinct sound, such as a bird call, the cooing of a baby, or the rumble of traffic?

The phantasies in sound are similar to the pictures you can see in clouds of a summer day, swirl of smoke from a cigaret, a dancing fire, or an ink blot.

Such visual imaginings of both normal and mentally sick people have been used by physicians for some time. Now the corresponding pictures conjured up by sounds are being used to reach deeper into human minds.

A test of mishearing, auditory parallel of ink blot test for personality, has been adapted for the study of the mentally ill by Drs. David Shakow and Saul Rosenzweig of Worcester State Hospital, Massachusetts, who describe the test in *Character and Personality*. (March)

A phonograph record presents a human voice, repeating a series of meaningless vocal combinations. This is played out of sight of the patient or normal subject and at a little distance from him. The test is to guess what the voice is saying.

The mentally ill are continually troubled with hearing voices reviling them, calling them names, threatening them. This new tool enables physicians to elicit such hallucinations and to compare them with normal responses.

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CHEMISTRY

**Plastic Clothes Pins
Made in Pastel Shades**

PLASTICS, synthetic resins, in the household: a new kind of clothes pin made in pastel shades designed to hold gently and firmly with a twist of the wrist engaging the three prongs in the line invented by Harry Rodemeyer of Detroit. Shelf lining paper with a synthetic resin finish—durable, washable, glass-like—backed by strong paper, serving the purpose of old-fashioned oil cloth, invented by Bert C. Miller of Montclair, N. J.

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CE FIELDS

AGRICULTURE

Borer Losses in Northeast Estimated at \$4,000,000

A PRODUCTION tax of nearly 4% was levied last year on the corn crop of the northeastern states, by one insect pest, the European corn borer, U. S. Department of Agriculture estimates indicate. Value of the field and sweet corn crops in the corn borer's range last year was approximately \$106,000,000; borer damage amounted to \$4,000,000. This is nearly twice the estimated damage for the 1938 corn season.

The European corn borer's range is still confined mainly to the states east of the Mississippi and north of the Ohio. For some reason the insect has been slow in invading the great corn areas of the prairie states.

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MEDICINE

Cure Sought for Infantile Paralysis

TO FIND a chemical that cures infantile paralysis, to discover a "sulfanilamide" for this disease, is the objective of the latest research supported by the funds raised in honor of President Roosevelt's birthday.

A few months ago this new attempt would not have been possible. The discovery that a rat, the Eastern cotton rat, can be infected with the virus of this disease opens the road to a new attack. Dr. Charles Armstrong, of the U. S. Public Health Service, first showed last September that this animal can contract the disease from human victims.

With a docile and cheap experimental animal, a large variety of chemicals can be tried as a means of controlling the crippling ill. Just as Ehrlich tried chemical after chemical until 606 was discovered to conquer syphilis, just as scientists today have tried and developed sulfanilamide and its many compounds to cure deadly streptococcus infections and pneumonia, so there is hope that there can be found a chemical that will do the same for infantile paralysis.

At the Michigan State Health Department Laboratories, Lansing, Mich.,

America's first virus laboratory has been built. There Dr. S. D. Kramer, supported by National Foundation for Infantile Paralysis funds, will try chemical after chemical for infantile paralysis.

Hundreds and thousands of chemicals, if necessary, will be furnished by the Cyanamid Research Laboratories for this task. Scientists expect this research to take years. They cannot hope for spectacular speed. It may even fail in the long run. But they are confident that it is the right way to go about attacking the disease.

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ARCHAEOLOGY

Bones Tell of China's Ancient Weather and War

SPRING weather was war weather for ancient Chinese, as for warring nations today.

So it is learned from a study of oracles written on bones, unearthed at the capital of Shang Dynasty rulers in north China near Anyang. Inscribed on these bones, the oldest known writing in China dates from the latter part of this dynasty, which lasted from about 1766 to 1122 B. C.

Climate of northern China was slightly warmer then than now, concludes Dr. Karl August Wittfogel of the International Institute of Social Research at Columbia University. He has reported to the *Geographical Review* a study of 317 of the oracle bones which refer to weather and months of the year in connection with hunting, war and crops. It may be that the world was somewhat warmer in the fourth, third, and second millenia before Christ. Such studies as this will settle that argument.

In spring and autumn, ancient China's war lords consulted the oracle, hoping for dry weather for military exploits. Dr. Wittfogel suspects that another angle of springtime war was the fact that peasant armies could be mobilized better then, when millet fields required less attention.

Fighting weather was dry weather, and military leaders petitioned accordingly. But anxiety for rain for the crops is shown in other petitions of early months of the year. This may indicate that then, as now, peasants of north China desired more rain than they got.

The oracle questions were written on animal bones, and then the bone was heated. The line of cracking of the heated bone provided the oracle answer. And ancient China made war and planted its fields accordingly.

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MILITARY SCIENCE

Details of New 90-mm. Gun Not Disclosed by Army

DETAILS of the new 90-millimeter anti-aircraft gun just adopted as standard weapon for the U. S. Army are being kept under wraps for the present, but known facts about similar weapons used in the armed forces of other nations can give at least an approximate idea of what it is like.

The famous Swedish armament firm of Bofors has a weapon of slightly less caliber, 88 millimeters. This piece throws a 22-pound shell, as compared with the 15-pound shell of 75-millimeter guns. Carrying a larger explosive charge, it has a correspondingly larger danger zone around its bursting point. Its range is somewhat greater than that of the corresponding 75-millimeter weapon.

Rate of fire is somewhat less: a maximum of 20 rounds per minute, as compared with 28 rounds per minute for the lighter gun. Naturally, the larger weapon weighs more and therefore puts more of a load on roads and bridges when on the march.

Just before the present war broke out, the British army had adopted an anti-aircraft gun of 3.5-inch caliber. This is very close to the caliber of the new American weapon: 90 millimeters equals 3.54 inches. Performance data on the British gun have never been made public.

It is to be assumed that since the American gun is of later design than the foreign weapons of equivalent caliber, its performance will at least equal, and probably surpass, that of the others in its general class.

The 105-millimeter howitzer, whose adoption as a standard field piece was announced at the same time as that of the new anti-aircraft gun, has already been given public demonstration. Its 33-pound shell is more than twice the weight of the 75-millimeter projectile, and its range and accuracy of fire are at least as great as those of the famous "soixante-quinze." It is mounted on thick pneumatic tires, so that it can be towed over roads and through fields as fast as the fastest truck can move.

There has been a decided tendency in all armies lately to back up their field guns with howitzers that throw heavier shells on a more curved trajectory, in order to deliver a plunging fire on troops in entrenched positions which are difficult to reach with the flatter fire of the high-velocity field pieces.

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