

MEDICINE

New Light on Arthritis

Adrenal glands seen as playing important role in causing rheumatic fever and other rheumatic conditions; cold, other glands may be involved.

► THE ADRENAL glands, vital organs lying just above the kidneys, may play an important part in causing rheumatic fever and other rheumatic conditions, Dr. Hans Selye, Miss Octavia Sylvester, C. E. Hall and Dr. C. P. Leblond, of McGill University, Montreal, declare. (*Journal, American Medical Association*, Jan. 22)

Overdosage with the hormone produced by the outer part of these glands under certain conditions produces a polyarthritis in rats which resembles that seen in acute rheumatic fever in humans, they report. Arthritic joint changes are more readily produced in the rats if, before the overdosage with the hormone, they have had their adrenal glands or their thyroid glands removed, especially if they are exposed to cold.

The effects of cold and of removal of thyroid and adrenal glands are in accordance with reports of the effects of

cold and glandular disturbances in human rheumatic conditions, or of arthritis occurring during gland disorders, the Canadian scientists point out.

Exposure to cold, to infectious diseases, to emotional shock or similar non-specific damaging agents may, they believe, stimulate the adrenal gland cortex to pour into the blood more of its powerful hormone. This is probably a defense mechanism, since the adrenal cortical hormone or hormones increase resistance in general.

Under certain conditions, however, the defense reaction may defeat its own purpose and produce changes in the joints or predispose the patient to rheumatic fever or to arthritic joint changes.

Whether and how this new knowledge can be used to treat or prevent arthritis and rheumatic fever is not stated in the report.

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ORDNANCE

Tanks Going Out?

► ARE TANKS on the way out?

These steel dragons that, teamed with swooping dive-bombers, enabled Hitler's hosts to slash successively through Polish, Franco-British and Russian armies, may have had their day, suggests Col. H. W. Miller of the University of Michigan engineering faculty. (*Army Ordnance*, Jan.-Feb.) Colonel Miller is a veteran student of ordnance, and is especially known for the research he conducted after the first World War on the long-range guns that shelled Paris in the spring of 1918.

Colonel Miller was moved to raise his challenging question by the fate of the Nazis' third summer campaign, which was intended to drive through and capture Moscow early in 1943. In two terrific weeks of fighting last June, 3,000 of the massive German tanks that spearheaded the attack were smashed, the loudly heralded campaign broke down, and the Red Army began the series of counter-offensives that are still in progress.

Successful defense against tanks may

be put up with a variety of weapons, but in the use of all of them one prime factor is involved: soldiers with nerve and coolness enough to let the tanks get up close, or even to go through their lines, before letting fly. Molotov cocktails and sticky bombs are hand-flung weapons with a range of only a few dozen feet; bazooka rockets and 37 millimeter anti-tank guns are good for at most a few hundred yards. Even the high-velocity artillery pieces of three- and four-inch caliber, with potential ranges of six or eight miles, usually hold their fire until their clanking targets have closed to within a thousand yards or less.

It is useless, in Colonel Miller's opinion, to think of putting on thicker armor, for armor heavy enough to stop all attacks would emasculate the tank by reducing its speed, fire power and ability to cross soft terrain until the once mobile weapon has reached a point of near-uselessness.

To his question, "What follows the tank?" Colonel Miller does not offer a

direct answer. His analysis shows that the tank, in World War I, offered the first promise of adequate protection to highly vulnerable human bodies advancing directly against hostile fire since the invention of gunpowder made personal armor useless. If that value of the tank has already been lost, as he suggests, tacticians are again confronted with the riddle they faced a generation ago: the apparent supremacy of the defense.

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2½-Pound Stone Removed From Man's Bladder

► THE CASE of a man who had a two-and-one-half-pound bladder stone removed and recovered completely is reported by Dr. Frank J. Lepreau, Jr., and Dr. Ralph H. Jenkins, of Yale University. (*New England Journal of Medicine*, Dec. 16, 1943)

This is the largest bladder stone ever removed with complete recovery, so far as the doctors could find from an extensive search of medical records. The next largest on record weighed two pounds, six and one-half ounces. The record of this case did not state how the patient got along after leaving the hospital.

Largest bladder stone removed during life weighed four pounds, but the patient died 36 hours later.

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PHYSICS

Echo Sounder Locates School of Fish in Sea

► ECHO sounders are now used to locate schools of herring swimming 500 feet or more below the surface of the sea.

Primarily designed to sound depths for sea-going ships while navigating in shallow coastal waters, the echo sounders are now being tested for this use in British Columbia waters. They have already been in use for some time in Atlantic waters.

The echo sounder consists of a recording unit, a contactor unit, a transmitter and a receiver of high frequency sound impulse. Whether the sound impulse echoed from the school of fish is reflected from the bodies of the fish, from the mass of scales which are being shed, or from air bubbles which are given off continuously, is not yet known.

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