

MEDICINE

Gland Removal Aids Muscle Weakness Disease

Besides Offering More Permanent Relief for Patients, Operation Throws New Light on the Thymus Gland

ENCOURAGING results in treating the muscle weakness disease, myasthenia gravis, by surgical removal of the thymus gland in the chest are reported by Dr. Alfred Blalock, Dr. A. McGehee Harvey, Dr. Frank R. Ford and Dr. Joseph L. Lilienthal, Jr., of the Johns Hopkins Medical School and Hospital (*Journal, American Medical Association*, Nov. 1).

Out of six patients on whom the operation was performed, one died. Dramatic improvement in strength continues in three, operated on in July and August of this year, and these patients are getting along without any medicine. Improvement in the other two patients so far is less striking.

Besides offering hope of more permanent relief than medical treatment for these patients, whose muscle weakness often progresses to the point where they cannot swallow and breathing is a tremendous effort, the results of the operation throw new light on the little understood thymus gland. They suggest that the thymus, which usually shrinks in size as the body grows, is a

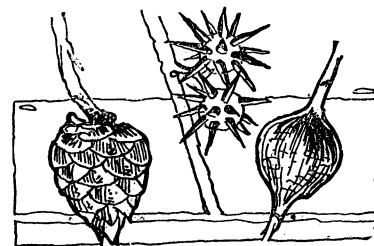
gland producing an internal secretion, as do the thyroid and other endocrine glands of the body, and that it may have a definite function to perform.

Myasthenia gravis, the Hopkins scientists point out, presents in some ways a picture similar to that of curare poisoning. This suggested that some tissue in the body of these patients might be producing a substance similar to curare, the chemical which was once used as an arrow poison by the Indians.

The thymus gland came under suspicion because about half the reports of post mortem examination of myasthenia gravis patients showed tumors, enlargement or persistence of the thymus gland and because in one patient removal of a tumor of the gland was followed by complete recovery of the patient who has remained well for four years.

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Cotton-padded tarpaulins for *bee hives* are found effective comforters for cold weather, and durability tests are being made.



Plant Defenses

PLANTS defend themselves against attacks of enemies by a wide variety of devices, some of which are described in a recent symposium book. In many cases what we commonly describe as the disease really consists of the defense mechanisms operated by the plant against the real disease (*Reviewed, SNL, this issue*).

Gray, cork-rimmed holes in leaves of cherry trees are referred to as shot-hole disease. Actually, Dr. F. W. Went of the California Institute of Technology points out, they are signs of the plant's successful defense against the invading fungus. It has walled it off with a layer of cork that has prevented further spread, and permitted the tissue already killed to slough away. The whole performance is to some extent analogous to the encystment of parasites in animals, or the formation of the enveloping limy wall around a knot of tubercle bacilli.

The formation of cork is a very general type of defense in plants. Cork in trunk bark is a natural, normal growth, but the cork that forms around wounds develops only through the action of a hormone, present apparently in all living cells but released for duty only when the cells are destroyed. Again taking a somewhat remote animal analogy, it is a little like the emergency reaction of blood clotting.

Tumor-like swellings and other outgrowths, like witches'-brooms on some kinds of trees, are usually reactions to injury or attack by some outside organism. Sometimes, as in the case of plant galls produced by the thrusting of insects' eggs into the twig tissues, they benefit the parasite by producing an abundant and rich food supply for the larvae. In other cases, as in the bacterial disease known as crown gall, the plant tumors yield no known benefits to the invader.

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Plants are even able to make the attacker serve them, it is pointed out by the writer of another chapter in the book, Dr. W. C. Price of the Rockefeller Institute for Medical Research. Numerous researches by various investigators have shown that if a plant is invaded by a certain virus disease, like tobacco ringspot, and recovers from the attack, the virus remains in the plant in more or less attenuated form, and that as long as it is present the viruses of related diseases are unable to gain a foothold. It sounds a little like the time-honored inoculation procedure of Jenner, in which cowpox voluntarily contracted conferred immunity against smallpox.

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MEDICINE

Synthetic Sex Hormone Now Safe For General Use

PRESENT restrictions on the general medical use of the synthetic female sex hormone, diethylstilbestrol, should be removed, now that two and one-half years of careful tests show the synthetic hormone is both safe and effective, four St. Louis physicians advise (*Journal, American Medical Association*, Oct. 11). The physicians are: Dr. Cyril M. MacBryde, Dr. Dante Castrodale, Dr. Ellen Loeffel and Dr. Harold Freedman.

The synthetic hormone is as effective as female sex hormone preparations from natural sources in relieving the hot flushes, emotional instability, headache and insomnia of young women whose ovaries have been removed or of middle-aged women whose glands have stopped supplying them with this hormone.

Good relief of symptoms were obtained by the synthetic hormone treatment in 128 of 150 women, the St. Louis doctors report, with fair relief in 18 and poor results in four.

The synthetic hormone can be given by mouth instead of by hypodermic injection. For most patients the best method is to give a daily dose for two weeks each month, with a two weeks' interruption of the treatment each month. This method, the St. Louis doctors point out, reduces the amount of hormone that must be given and thus cuts the cost of the treatment. It also imitates the normal cycle and presumably would simulate the normal ovarian effects on uterus and breasts and reduce any tendency to stimulating cancerous growth.

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New Machines And Gadgets

Novel Things for Better Living

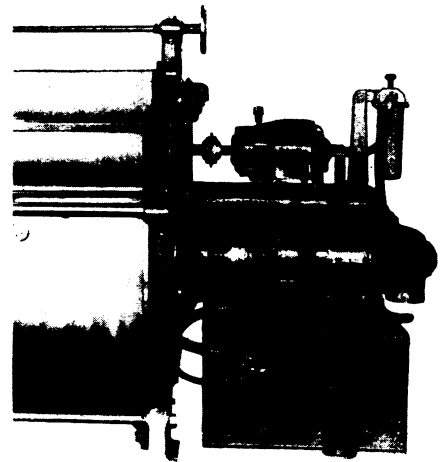
A transparent film, one-quarter of a wavelength of light, or about five millionths of an inch in thickness, is being applied to lenses and movie projectors to diminish reflections. Ordinarily about 4 per cent. of light falling on a glass surface exposed to air is reflected back and does not pass through the glass at all. In a lens combination containing eight such surfaces the light loss would amount to more than 30 per cent. In a projector, much of this light eventually reaches the screen, where it tends to wash out the picture. Hence the use of coated lenses in a double way increases the clearness and brightness of the picture.

Setting radio tubes to control the motion of heavy machinery, to keep it smooth and uniform, may seem like setting an ant to regulate the pace of an elephant. Yet they are very useful for this purpose, because of their sensitivity, high amplifying power and practically instantaneous action. The slightest variation in speed is at once detected and the proper machinery set into operation to correct it. Prompt correction is particularly necessary in paper-making machinery where the paper, wet at first, must pass over and under innumerable rolls. A slight change in speed will tear the paper. Imagine the tenderness of wet tissue paper.

Gummed sealing tape that does not stick or does not stick strongly enough, is not to Uncle Sam's liking. So—the Bureau of Standards has a machine for testing the stick-to-it-iveness of such tape, from which specifications for government purchases can be drawn up. No tape that does not have the required sticking power need apply.

What color of lips best suits milady's complexion, her type, her mood of the moment and the rest of her ensemble? Selection of exactly the right delicate nuance of shade is made easy by an ingenious mirror just patented. In it, you may see your face. But just where your lips would appear, the silver on the back of the mirror has been removed in a manner conforming to the outline of your lips. You see through this opening a color disc which can be revolved to bring different shades into view, so that the one which looks the very best on you can be quickly and easily selected.

Unwinding cloth from one roll and winding it up on another, meanwhile passing it through a dyeing vat, is not so simple a matter as it might seem. The dyeing process requires that the



cloth travel with constant speed while other considerations demand that it be subjected to constant tension. But the roll that unwinds diminishes in diameter; for constant speed of the cloth, it must turn faster and faster. The roll that winds up increases in diameter, must turn more and more slowly. The motor that winds must increase its effort (torque) in proportion as the diameter increases. Quite a problem! However, engineers have devised motors that have just the right characteristics. One motor winds while the other acts as a drag on the unwinding roll to maintain the proper tension. They are reversible, so that the cloth can be wound back on the original roll if desired.

To prevent slipping on icy pavements, spikes are effective, but pretty uncomfortable. To the rescue comes a lady from Nebraska with a patented invention, a sort of rubber cuff of ribbed construction, wider at one end than the other. It slips snugly over the toe of the shoe and offers an excellent non-skid tread.

If you want more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., N. W., Washington, D. C., and ask for Gadget Bulletin 78.

ENGINEERING

50,000,000 Watts of Power For New York City Area

See Front Cover

FFIFTY MILLION more watts of electrical power will be available for New York's metropolitan area when the partly built turbine generator, shown on the front cover of this week's SCIENCE NEWS LETTER, is finished and installed. Shown in the illustration are the 90-ton outer frame and its windings, within which a rotor will spin at 3,600 revolutions per minute. The generator is being built by Westinghouse.

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