

## PHYSICS

# "Yawn" and a Big Stretch Improves Rayon Fabrics

**J**UST as a wide open yawn and a healthy stretch awakens dormant strength in the human body, so textile chemists have discovered that by making acetate rayon (one of the newer artificial silks) "yawn" and then giving it a long stretch, it doubles and triples its strength.

Not only that, but they can make the acetate rayon fabrics more resistant to hot water and soap liquors so that it retains its luster and strength on laundering. A. J. Hall, British textile chemist, made the discovery and has patented the method (No. 1,709,470).

Since then the acetate rayon textile industry has carried out much additional research work, and numerous patents have recently been taken out on all sorts of improvements on Hall's discovery.

Today rayon manufacturers are increasingly using stretch as a force by which their products can be improved. And because of it milady now wears stronger, more wearable and beautifully dyed rayon fabrics.

Say the textile finishers: If a cellulose acetate fabric has become delustered, "yawn it" and stretch it. Presto! The luster comes back. Is it weak? "Yawn it" and stretch it and you

get new strength. Do you want to get novel dyeing effects in the fabric? "Yawn it" and stretch it. Interested in making crepe? Then take the yarn, twist, "yawn it," stretch it and finish twisting.

What is this "yawn it"? It's a sort of loosening up, a relaxation, of the internal forces of the fiber so that they become reduced and permit the yarn to be stretched, sometimes as much as five times the original length.

Yawning is accomplished by steeping the yarns and fabrics in chemicals like acetone, and acetic acid (familiar in the form of vinegar) which swell the yarns and make them soft and plastic. In this state the yarns can be stretched way out like so much taffy. Pairs of rollers, some moving faster than others, produce the stretch as the yarn speeds rapidly through the apparatus.

Formerly the susceptibility of acetate yarns to stretching was regarded by rayon dyers and finishers as a big disadvantage. Today they thank their lucky stars for it because they have learned how to put it to work in producing new fabrics.

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## PHYSIOLOGY-PSYCHIATRY

# Fitness Test for Aviators Used on Mental Patients

**A** PHYSICAL test linking the airplane pilot who has gone stale and lost his nerve with the mental patient who has developed "anxiety states" and can no longer stand up to the problems of life has now been found.

During the World War, aviators became familiar with the test contrived by Prof. E. C. Schneider of Wesleyan University to reveal "unfitness." They hopped up on chairs and down again, and had pulse counts and blood pressure readings made while standing and while reclining at ease. The pilots who were excessively fatigued or who had "lost their nerve" often rated below 7 on the Schneider scale for which the

bottom was minus 5 and the top plus 18. Thus it was found that the jittery aviator really suffered from inefficiency of his heart and circulation system.

Use of this same Schneider index to reveal the physiological unfitness of those who have "lost nerve" in facing life is now reported by Drs. Ross A. McFarland and James H. Huddleson of Columbia University.

The worried and anxious got lowest scores on tests given to over a thousand different individuals. Those diagnosed as psychoneurotic—suffering from anxiety states, neurasthenia and hysteria—averaged only 7.8 on the scale. More than half the men psychoneurotics and

nearly three-fourths of the women scored below 10. Patients with mental diseases like schizophrenia and manic-depressive psychoses averaged a little higher, 8.5. Those with organic diseases such as epilepsy or migraine scored 10.2.

For comparison with these abnormal persons, 134 athletes from Columbia University's track, swimming and basketball squads were also tested. They averaged 14.8. A "run-of-the-mine" group selected at random made an average score of 12.6.

## Organic Basis

The fatigue and exhaustion of the neurotic patient has an organic basis, these tests show, and are tied up with heart functioning just as is the aviator's "case of nerves." Sometimes friends, and even physicians, of neurotic patients wonder whether their worries and hysteria are not just "put on." A few thought to be malingering were tested by Drs. McFarland and Huddleson. Scores were revealing, averaging only 10.0 compared with the athlete's fitness rating of 14.8 and the 7.8 of the group certainly psychoneurotic.

Chronic emotional strain and stress of neurotic patients eventually impairs their circulatory system, unfitting them to meet the demands of life. This is the conclusion of Drs. McFarland and Huddleson (*American Journal of Psychiatry*, Nov. 1936).

It is difficult to say whether the unfitness is related to a hereditary predisposition brought to a head by precipitating emotional and mental conflicts, or whether the conflicts themselves are enough to account for the improper functioning of the circulatory system.

The scientists feel that the upset to heart and circulation probably goes back of the contributing causes of worry and fear to a basis in heredity.

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## STANDARDS

## New Definition of Noise By Standards Association

**M**OST textbooks define noise as a sound without definite pitch produced by an irregular succession of vibrations, but acoustical engineers have just set up a new classification according to the American Standards Association. Noise is now known as "undesirable sound," while a new term "unpitched sound" describes the textbook version of the term.

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