

tute of Industrial Research, Pittsburgh. The microscopically fine cellulose fiber of cotton, wood pulp or other natural material is built of long, slender molecules, more or less aggregated into crystals, together with a high content of linked oxygen-hydrogen atoms. Cellulose molecules are not kinked as are wool and rubber molecules, which ac-

counts for the lower degree of stretchiness and bounce to be found in cotton and similar materials. Understanding of these submicroscopic structural details is important in present day efforts to find suitable cotton or other substitutes for hemp, silk, nylon and other "war-short" fibers.

*Science News Letter, May 2, 1942*

MEDICINE

## Early Cancer Diagnosis With Electrical Test 85% Accurate

### Cancers of the Stomach Distinguished from Ulcers By Measuring Potential Differences Across Membranes

**D**ISCOVERY of an electrical test that may become the long-sought means of diagnosing stomach cancer in an early, curable stage was revealed for the first time when the National Advisory Cancer Council approved a grant of \$2,400 for further study of the test.

The test has been developed by Dr. Edmund N. Goodman, but the grant was made for continuing work on it under the supervision of Dr. Allen O. Whipple, of Columbia University, be-

cause Dr. Goodman is now in military service.

So far the test has been 85% consistent in distinguishing between cancer and ulcer of the stomach. The earlier the cancer, the more accurate the test. It has been used in only about 150 cases and Cancer Council authorities caution against expecting too much from it at present.

The test is made by measuring electrical potential differences across human

stomach membranes when milk is in the stomach. Dr. Goodman, an American, working with Dr. Gilbert Adair and Dr. John Ryle in the Cambridge University laboratories of Sir Joseph Barcroft, had previously discovered a constant change in electrical potential across human stomach membranes when milk was in the stomach. Further investigations along this line led to the cancer test just reported.

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PSYCHOLOGY

## Beauty of Music Depends On Notes, Not Just Taste

**S**CIENTIFIC evidence that what we treasure as beautiful or good is decided by something more than irrational whim or prejudice was cited by Dr. Carroll C. Pratt, of Rutgers University, before the Second American Congress for Aesthetics in Washington, D. C.

Results of experiments reported by Dr. Pratt are opposed to the Nazi doctrine that there is no logic, no objectivity, no fact anywhere in the realm of value, he said.

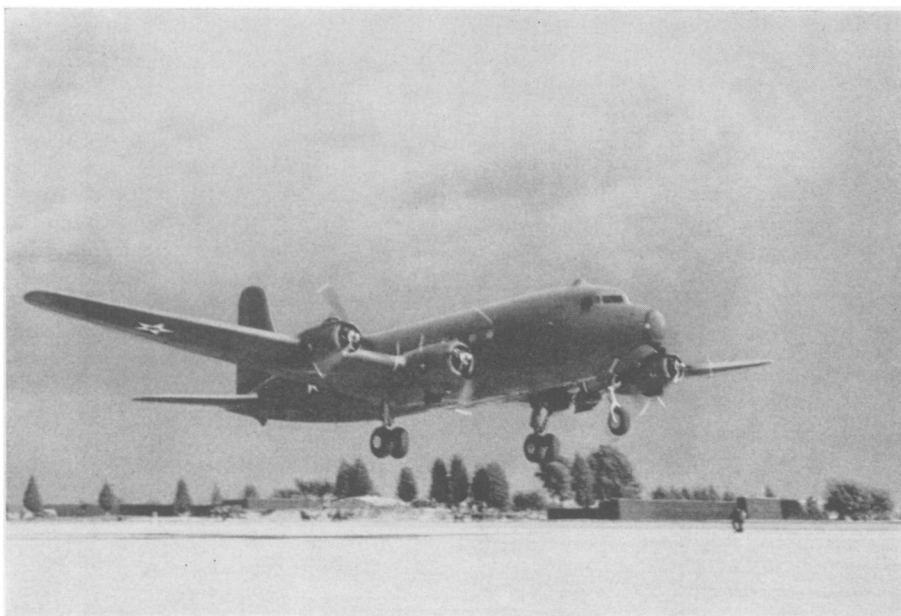
"Pseudo-philosophers like Rosenberg (Nazi spokesman) insist," said Dr. Pratt, "that the way of life chosen by any people is merely the result of irrational wish and fortuitous circumstance. The only method to defend one's way of life is therefore to fight for it—to pull the trigger first."

The evidence in conflict with such a doctrine was found by Dr. Pratt in the field of music. Such qualities as stateliness, melancholy, wistfulness, gaiety, and agitation, he said, have been found experimentally to be intrinsic properties of the tone patterns themselves, not fanciful projections on the part of the listener. "The listener may supplement the sounds with all sorts of unpredictable associations and emotional fillings, but if he has ears to hear, the basic musical qualities are still there in the sounds themselves, just as pitch and loudness are there."

Great works of music are so complex, Dr. Pratt said, that the ear is forced to listen selectively and what one person hears may not be the same as what another person hears. But when methods were devised to insure that different listeners paid attention to the same thing, disagreement about the beauty dropped almost to the vanishing point.

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*Cockroaches* have been on earth at least 250 million years.



**GREAT TRANSPORT**

*The Douglas C-54 is a commercial plane improved and converted to Army transport use. This four-engine plane will carry 50 armed men, the manufacturer says. On the front cover of this week's SCIENCE NEWS LETTER is another Douglas plane, the Navy's Dauntless, shown in a dive as it must have looked to many a Japanese.*