AGRICULTURE

Soviet Cotton Grows Red

Cotton grown in Russia has fibers naturally tinted red, brown and green. The fibers are short and coarse, but colors do not fade easily.

➤ SOVIET cotton fields are now producing experimentally naturally tinted fibers of brown, red, and green.

These cottons colored by nature fade less than white fibers that are artificially dyed and they have greater resistance against decay, it is claimed in a report prepared for Science Service by N. Konstantinov of the Soviet Scientists' Antifascist Committee.

In a number of cases the chemical nature of naturally colored cotton was established. The brown color of the fibers is caused by a special organic substance of tannin type, so-called catechol. On contact with oxygen in the air the tanning matter is oxidized and forms brown and red amorphous substances which give color to fiber.

Colored fibers have particularly high wax content. According to data of the Moscow Textile Institute, in green-fibered cotton plants this equals 7% to 10% and in white-fibered species 0.7%. The presence of tanning matter and fatty wax substances in fibers gives greater resistance against decay.

It is well known, the report says, that in artificially dyed white fibers the quality deteriorates. Hence fabrics manufactured from naturally colored fibers should be of relatively better quality. Finally, it has been established that such fabrics fade less than those made of artificially dyed white fibers.

The selection of cotton plants with naturally colored fibers was begun in the USSR with the study of such species met with in nature. From among a valuable collection of cotton plants, a fairly large number of species with colored fibers were chosen. These varied from cream through all shades of brown to almost black and included reddish and greenish tints.

Tests proved that in the majority of cases these fibers were short and coarse, and that crop yield was low. Plant breeders were confronted with the task of improving technological properties of naturally-colored fibers. In recent years considerable successes have been achieved in this direction.

By crossing American cotton plants with naturally colored fibers and white fiber plant of the same type, B. Straumal of All-Union Cotton Cultivation Research Institute succeeded in a comparatively short time in obtaining a number of brown-hued staples of excellent technological properties, closely approaching those of the best white-fibered varieties. Scientist Straumal's varieties ripen early and yield fairly good crops. The length of staple is 30 millimeters (⅛ inch); yield after ginning up to 35% and tensile strength six to seven grains.

A valuable property of these cotton plants is their good resistance to wilt, and these varieties are being propagated for cultivation in fields. Tests of the Straumal varieties showed that catechol when reinforced by salts of iron, copper and chromium gives color to fabrics in no way inferior to the best artificial dyes. Catechol makes it possible to vary shades and gives good decay-resisting properties to fiber. According to specialists, this fiber can be used without additional dyeing for manufacture of colored fabrics.

Of exceptional interest is work carried out by I. Maximenko, selectionist of Turkmenian Soviet Republic, on species of cotton plants with green fibers. As a result of crossing cotton plants of purpurescence type with American and American with (*Turn to page 143*)

Books of the Week

ADVANCES IN COLLOID SCIENCE: Vol. II: Scientific Progress in the Field of Rubber and Synthetic Elastomers—H. Mark and G. S. Whitby, Eds., *Interscience Pub., Inc.,* 453 p., tables and illus., $7. A book useful in assisting in the further study of synthetic rubbers and of elastomers generally, as well as of natural rubbers.

ADVENTURES IN TIME AND SPACE: An Anthology of Modern Science-Fiction Stories—R. J. Healy and J. F. McComas, Eds., *Random House,* 997 p., $2.95. A collection of thirty-four stories, wherein the caution of the scientist gives way to the imagination of the writer.

COLLECTION AND PRESERVATION OF INSECTS—*Government Printing Office,* 42 p., diagrs. and illus., paper, 15 cents. Information on the collecting, preserving, handling, mounting and labeling of insect specimens. U. S. Dept. of Agriculture Misc. Pub. No. 601.

EDUCATORS GUIDE TO FREE FILMS—Mary F. Horkheimer and John W. Diffor, Eds., *Educators Progress Service,* 303 p., $4.

ELECTRIC MOTOR REPAIR—Robert Rosenberg—*Murray Hill Books*—551 p., illus., $5. An intensely practical, non-theoretical book on electric-motor repair and rewinding that can be used by men with little background of electrical knowledge.

ELEMENTARY TEACHERS GUIDE TO FREE CURRICULUM MATERIALS—John Guy Fowlkes and Donald A. Morgan, Eds., *Educators Progress Service,* 204 p., paper, $3.50, third ed.

ELEPHANTS—Herbert S. Zim—*Morrow*—illus., $2. A book that tells with clear simplicity and accuracy all about elephants. It will appeal strongly to younger readers with its simple text and large, clear type, but it is also interesting reading for any age.

FIRST ANNUAL REPORT OF THE DIRECTOR-GENERAL TO THE FAO CONFERENCE—*Food and Agriculture Organization of the United Nations,* 45 p., paper, free.

THE FLAGELLATE SUBFAMILY OXYMONADINAE—Joy Barnes—*University of California Press,* 162 p., paper, $1.25.

GENERAL BIOLOGY—William C. Beaver—*Mosby*— 820 p., tables and illus., $4.75. A textbook which places emphasis on human biology, penicillin and the other antibiotics, viruses, economically important parasitic worms, the pronunciation and derivation of terms, and human diseases produced by parasitic fungi.

MUSIC IN HOSPITALS—Willem van de Wall—*Russell Sage Foundation*—86 p., paper, $1. A handbook for those who wish to make their musical contribution to hospitals.

NON-PROJECTIVE PERSONALITY TESTS—Roy Waldo Miner, ed., *The New York Academy of Sciences,* 147 p., paper, $1.75. Vol. XLVI, Art. 7.

OPINIONS ON GAINS FOR AMERICAN EDUCATION FROM WARTIME ARMED SERVICES TRAINING—M. M. Chambers—*American Council on Education*—78 p., paper, 50 cents. A report on the experience and observations of war-veteran students, pointing up some of the possible gains for American education from the huge wartime-training effort.

PERSONALITY PLUS—Sheila John Daly—*Dodd, Mead & Co.*—139 p., illus., $2. Hints on the correct behavior for teenagers by a teen-ager.

PREPARATION OF AMMONIUM NITRATE FOR USE AS A FERTILIZER—*Government Printing Office*—80 p., tables and illus., paper, 20 cents. U. S. Department of Agriculture, Technical Bulletin No. 912—June 1946.

REEF AND SHORE FAUNA OF HAWAII—Charles H. Edmondson—*Bernice P. Bishop Museum*—381 p., illus., paper, $3. A condensed pictorial treatise on the marine fauna of Hawaii. Special Publication 22.

WORLD FOOD SURVEY—*Food and Agriculture Organization of the United Nations*—39 p., tables and diagrs., paper, free. July 5, 1946.

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POLITICS

UN Committee Planning International Standards

➤ A LITTLE-KNOWN but potentially important United Nations organization is the UN's Standard Coordinating Committee that is planning international standards for such varied items as airfield lighting and textiles.

Newest of the 18 members of the committee is Russia, and the draft for a permanent international standards group is now being studied by the members in preparation for a conference in London in October.

Latest project submitted to the group includes 94 test methods for textiles, proposed by the American Standards Association.

Other projects for international standardization under consideration by the UN committee include: metal food containers; definition of the term rayon; manganese ore test methods; terms and definitions relating to the heat treatment of steel; plastics terminology; radio interference suppression; airfield lighting; simplification of shellac grades and methods of testing the properties of shellac; standard for sheet and wire gages; machine tools; automobile standards; building standards; and several other subjects for possible international definition and testing.

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Egyptian species, and of further careful selection of their offspring with differently colored staples, Maximenko succeeded in obtaining absolutely new shades hitherto unknown in nature. According to Maximenko's research, the green color of cotton fiber is not chlorophyl and differs in nature from brown coloring. This is indicated by the manner in which the colors appear. Whereas brown, according to Maximenko's observations, appears within 20 to 25 days of beginning of formation of ball, green appears within 30 to 40 days. It was also established that the green coloring changes easily under influence of external factors. For instance, given surplus moisture, green will become almost black and, on the contrary, with insufficient moisture it becomes lighter.

Outstanding shortcomings inherent to green fiber cotton plants are their low crop yield and weakness of fiber. These were successfully overcome by Maximenko. Varieties which he selected from hybrids are already yielding fiber with a higher tensile strength.

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