AGRICULTURE

New Hybrid Cotton Better Than Pima

BETTER even than the famed Pima variety of cotton, is the claim made for a recently developed hybrid, as yet known only by the convenience-symbol "S x P," produced jointly by T. H. Kearney, R. H. Peebles and E. Gordon Smith of the U. S. Department of Agriculture.

In S x P cotton, East meets West, for the cryptic initials signify that it is a cross (whence the "x") between the Sakel variety of Egypt and Pima, originally evolved by Indian cultivators of the arid Southwest. It belongs to the long-staple class of cottons, especially desired for use in automobile tires, lisle hose, etc.

Among points of superiority claimed for S x P are yield, evenness of maturing, size of bolls, ease in ginning, lighter lint color and greater strength. The lint is not so long as that of Pima cotton, but it is more uniform in length. Sample spinnings of S x P yarns yielded a smoother, better-appearing product, the three government scientists state.

In total yield, S x P produced 5% more seed cotton per acre than Pima in the tests, but ginning increased the advantage markedly. Total lint per acre showed a differential of 13% in favor of the new variety.

Science News Letter, June 8, 1940

ZOOLOGY

Real Dogs of War Aid In Sentry and Patrol Duty

THERE are real "dogs of war." The French army has a dog service which is a definite part of the military forces. The Ontario Research Foundation, investigating Canada's resources for similar aid to British forces, tells of war work done by dogs.

Sentinel dogs mount guard with their masters at lonely posts and are invaluable owing to their acute hearing and sense of smell. They give warning by growling when someone approaches but are trained not to bark. Not only this but they are ready to attack an enemy if ordered to do so.

Liaison dogs perform much the same service as carrier pigeons, though the liaison dog can actually do better than the pigeon because he has been trained to obey two masters; to deliver a message and return with the reply. They can carry messages, both night and day, more rapidly than men on foot. The messages are enclosed in small cylinders attached to the collar.

Patrol dogs work on a long metal leash and accompany patrol parties. They go ahead and nose out the enemy, if he is in ambush. They are trained not to bark and will attack if necessary.

Watch dogs are used in munition depots, aviation fields and prison camps to keep unauthorized persons from entering the premises.

"Chiens de recherches" are dogs trained to follow the tracks of persons who are wanted, and are used in hunting out spies. These dogs must have good noses and the best of them will probably have bloodhound ancestry. Though these dogs will follow human tracks with accuracy, they are not the kind to attack fiercely and will have to be reinforced by other types of dogs and men runners.

Science News Letter, June 8, 1940

MEDICINE

Volunteers Immunized Against Influenza

HUMAN beings have been given protection against influenza by means of a vaccine prepared from the internal organs of ferrets sick with a combination of influenza and distemper, Drs. Frank L. Horsfall and Edwin H. Lennette of the Rockefeller Foundation have reported (*Science,* May 24).

Last March, Drs. Horsfall and Lennette announced the discovery of a double vaccine that would protect ferrets. It was partly the result of a chance natural infection of distemper, that invaded a group of ferrets which had already been inoculated with a strain of influenza virus for experimental purposes. When a vaccine was prepared from their bodies for the protection of other ferrets against distemper, it was discovered that the same vaccine also gave the ferrets protection against influenza.

Then small groups of human volunteers received doses of the vaccine, and subsequently were found to have an increase in antibodies against influenza.

It is emphasized that large-scale preparation of anti-influenza vaccine is somewhere in the future. Thus far, the only way that has been found to prepare the vaccine used in the experiments of Drs. Horsfall and Lennette has been by double infection of ferrets with influenza and distemper. Efforts to make it either on chick embryos in laboratory glass vessels or by inoculation of ferrets with the two diseases separately have not been successful.

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IN SCIEN

MEDICINE—MILITARY SCIENCE

American Doctors Learn Defense Against Gas

INSTRUCTIONS on the physician's role in national defense against chemical warfare are given to American doctors (*Journal, American Medical Association,* June 1)

Details of "gas discipline," necessary in caring for victims of war gas and incendiary bombs, first aid requirements, and a warning that fear of poison gas is its greatest menace are given in a report by Dr. Leon Goldman and the late Dr. Glenn E. Cullen, of Cincinnati.

Science News Letter, June 8, 1940

PHYSIOLOGY

Rats Like Alcohol, But Not Very Much of It

RATS like alcohol, but not very much of it at a time, experiments at the Johns Hopkins Hospital indicate. The researches are reported (*Science,* May 24) by Dr. Curt P. Richter and Kathryne H. Campbell of the Henry Phipps Psychiatric Clinic.

Dr. Richter and Miss Campbell gave their laboratory rats two drinking bottles in each cage. At first both contained only water. Then alcohol in gradually increasing percentages was added to one of the bottles.

The animals showed a decided preference for the alcohol mixture in concentrations of from 1.8% to 4.4%. From there on up, their taste for "liquor" slumped sharply, and above 6% concentration they took very little of any of the alcohol mixtures, staying on the "water wagon" practically all the time.

In terms of beverages favored by humans, this would limit the rats' choice to beer or to twice-watered wine. Only one rat in a group of 17 was a complete teetotaler, always preferring water to even the weakest of the alcohol solutions.

Earlier experiments with rats in the same laboratory have produced evidence that the animals actually use the alcohol supplied in weak solutions to meet a part of their food requirements. Given alcohol, they left uneaten some food.

Science News Letter, June 8, 1940

CE FIELDS

CHEMISTRY—MILITARY SCIENCE

Low Priced Noncombatant Gas Mask Perfected

SHOULD protection of American civilian life against gas become necessary, the Army's chemical warfare service, backed by a group of industrial plants, is ready with a new type of gas mask that can be produced in million-a-month lots at a cost of about $2 each. Educational orders have been placed with three manufacturing companies, and the Army's own gas mask plant at Edgewood, Md., has been enlarged to handle its share of the work.

The facepiece of the new mask is to be made of heavy gasproof cloth impregnated with synthetic rubber or gasproof plastics. In the canister will be absorbing blocks of activated wood charcoal made from Douglas fir wastes, replacing the scarcer and costlier coconut charcoal, to which it is also declared to be superior.

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AERONAUTICS

Ask U. S. to Build English Aircraft Engine

AS BRITISH troops battled in Flanders and Belgium with their backs against the wall to stop a Nazi drive which would secure the channel ports for an unprecedented invasion of the British Isles, the British Purchasing Commission presented to American aircraft manufacturers a plan to build in the United States a famous English aircraft engine.

The English would like American engine men to undertake manufacture of the 1,050-horsepower Rolls-Royce Merlin which powers swarms of British fighters.

Immediate reaction to the scheme was unfavorable, however, it was disclosed by key men in the industry which is now busy devising ways and means of meeting President Roosevelt's 50,000 planes-a-year schedule.

The Merlin is comparable to the American Allison engine, designed to fit new high-speed pursuits and fighters such as the Airocobra, the Lockheed P-38 and the Curtiss P-40. Both are 12-cylinder liquid-cooled motors in the same power class. It is the most important English aero engine.

Power plant of such famous Royal Air Force craft as the Hurricane and Spitfire fighters and the British mystery ship, the Boulton Paul Defiant, the Merlin is two years older than the Allison and is therefore considered that much better. It is commonly rated the finest "streamlined" in-line engine in the world.

Spokesmen for the American manufacturers declared that the Merlin could not be built economically or rapidly here because of lack of standardization with American equipment, for which our plants are geared, and because of several design peculiarities.

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PSYCHOLOGY—PHYSIOLOGY

Morphine Acts Before Effect Is Felt

MORPHINE dripping slowly into a vein in a patient's right arm can make his heart throb faster and his breathing slow — signals of important bodily changes—without his feeling any effect from the drug at all.

Helping to sort out the part played by the mind in drug addiction from the purely physiological part, three former morphine addicts and two post-graduate students who had never been addicted volunteered at the University of Kentucky to take part in a novel experiment. Results are reported by Dr. Ralph R. Brown. (*Journal* of *General Psychology.*)

Into the veins of these volunteers was poured a slow flow of a salt solution matched in strength to that natural in the body. At intervals something was added to this flow—a dose of morphine or more salt solution. The patient did not know which.

A continuous record was kept of pulse and breathing changes. The patient told of every change in feeling or bodily sensation.

Most interesting result was the speeding up of the pulse, which occurred before the patient was able to notice any effect from the drug. Morphine has been thought by physicians to slow the heart. Dr. Brown suggests that this depressing effect may possibly come not directly from the drug but as a result of the body's attempt to compensate for an exciting effect of the morphine. The speeding pulse was accompanied by slowed breathing.

Physiological changes were similar for the former addicts and the two non-addicts.

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MILITARY SCIENCE

"Chemical Warfare" Tried In Calais in Year 1410

CALAIS, recent scene of desperate fighting between Allies and Germans, was fought over long ago, when the English held it and the French were trying to get it back. In 1410, the Duke of Burgundy, according to Holinshed's Chronicle, prepared his own version of chemical *Schrecklichkeit:*

"For he had gathered together serpents, scorpions, todes, and other kinds of venemous things which he had closed and shut up in little barrels, that when the flesh or substance of those noisome creatures was rotten, and dissolved into filthie matter, he might laie siege to Calis, and cast the said barrels let out of engines into the town; which with the violence of the throw being dasht to peeces, might choke them that were within, poison the harnessed men touched therewith, and with their scattered venem infect all the streets, lanes and passages of the town."

The English, getting wind of the Duke's fragrant plans, did suborn a fifteenth-century fifth-columnist with much gold, to destroy the menacing munitions with fire. Their incendiary agent did so good a job that not only were the noisome little barrels burned up, but also all the Burgundian catapults and ballistas, and indeed the whole town where they were stored. So the English held Calais for a while longer (*Army and Navy Journal,* May 25).

Science News Letter, June 8, 1940

ENGINEERING

Sees Need Now for Tunnel Under English Channel

THE oft-proposed, but never begun, tunnel under the English Channel is discussed by the European correspondent of the *Army and Navy Journal* (May 11). His prediction is that construction of this underground route between Calais and Dover will be "the first great work undertaken after the present war."

If the tunnel existed now it would be possible to send 150 trains per day in each direction—transport two divisions of troops per day with all their materiel from England to France or from France to England.

As to the vulnerability of such a tunnel, the argument is that it would be safer than the Kiel canal, which has not suffered in the present war.

Science News Letter, June 8, 1940