

white men. They more likely represent a general primitive stock, older than any of the present-day well-differentiated races.

These Ainu were brave warriors, but they could not stand against the more numerous and better armed Mongoloid invaders from the mainland who arrived about 2,000 years ago. However, the resistance they put up had much to do with the development of the Japanese as a warrior people. There is also a

strong Ainu strain in the modern Japanese ruling class. Only about 20,000 pure-blooded Ainu remain, mostly on the island of Yezo.

A third racial strain, also strongly in evidence in the Japanese ruling caste, came later from China, partly direct and partly via Korea. This second wave of mainland incursion brought with it much of the basis from which Japanese culture developed.

*Science News Letter, May 16, 1942*

## CHEMISTRY

## Curare Is Now Isolated In Pure Crystalline Form

In this Condition It is Four Times as Powerful as In Extract and Strength Can Be Maintained Uniform

ONE of the deadliest of all poisons, used by South American Indians on their arrows to kill both game and enemies, will be made more reliable in medicine as the result of studies reported at the meeting of the American Chemical Society by O. Wintersteiner and J. D. Dutcher of the Squibb Institute for Medical Research.

The poison is known as curare, or more specifically as tube curare. It has long been known through study of arrow poisons obtained from the Indians, but because its source was uncertain, and because it was mixed with snake venoms and other foreign substances, its composition has remained a chemical puzzle and its medical use has been less dependable than physicians would like.

Like many other poisons, curare is a beneficial medicine when used in small enough doses. It is valued as a counteractant to metrazol, the shock-treatment drug now popular in medical circles, for "jolting" insane patients out of their unhappy state. Curare is also used in certain paralytic cases, to relax tightened muscles.

Messrs. Wintersteiner and Dutcher have succeeded in isolating the active principle of tube curare in crystalline form, which means they have obtained it chemically pure. In this condition it is four times more powerful than it is in the extract from which it was obtained. It is a white powder, and its chemical composition is expressed in the formula  $C_{36}H_{44}O_6N_2Cl_2$ . In such pure form, it is easily tested and its strength and

uniformity of action can be maintained.

Tube curare is obtained from a vine of the upper Amazon and Orinoco valleys, known as *Chondodendron tomentosum*. It has no common name, but it is related closely to the ordinary moonseed, a wild vine frequently found in American woods.

A second kind of curare, known as calabash curare, quite different from tube curare, comes from an unrelated group of plants, another species of which is the source of the common poison, strychnine.

*Science News Letter, May 16, 1942*

## Manganese Strengthens

MANGANESE, the alloy metal that makes steel stronger, performs a like function in bone formation, it is indicated by researches reported to the American Chemical Society in Memphis by Willis D. Gallup of the Oklahoma Agricultural Experiment Station.

Poultry and game birds reared in confinement often develop a crippling disease known as leg-weakness or hock disease, which seriously damages their market value. This, Mr. Gallup has shown, is due to a lack of manganese in their diet. Manganese lack also causes a falling off in egg production, and an increase in the number of eggs that fail to hatch. Restoration of manganese to the birds' rations will not cure the disease once it has become established, but it will prevent its development. It will also raise the number of eggs produced and increase hatchability.

There is no danger of poultrymen and feed processors running into priority troubles on account of manganese, for very little of it is needed for poultry-feeding purposes. Exact ratios have not yet been determined, but the requirement seems to be less than ten parts of manganese in a million parts of feed. In this again, the role of manganese resembles the part it plays in steel production, where a few spoonfuls make radical differences in the quality of a batch of many tons.

Manganese in bone-strengthening foods does not even have to come from ores. Small traces of the metal exist in most soils, and become concentrated in green feeds and the outer coatings of grains.

Earlier researches by other workers have already shown that manganese has something to do with the formation and utilization of the B and C vitamins, also that an extreme manganese lack causes a lapse in the maternal instinct in animals. Because of the latter phenomenon, it received some years ago the nickname of "mother-love element."

*Science News Letter, May 16, 1942*

## Vitamin May Harm

NICOTINIC acid, the vitamin that saves lives by preventing and curing the disabling "hard times disease", pellagra, can work harm as well as good, it has been shown in experiments reported by Prof. Jakob A. Stekol of the Vanderbilt University School of Medicine.

Prof. Stekol fed young male rats on a synthetic diet short in casein, one of the important protein foods. At the same time he gave them enough nicotinic acid to make up one per cent of their rations—far more of this vitamin than goes into the normal diet of either human beings or any experimental animal. The rats' growth was stunted. Curiously enough, parallel treatment of young female rats had no effect on their growth.

*Science News Letter, May 16, 1942*

## Poison Cures Poison

A LITERAL case of poison against poison was laid before the Society by A. L. Moxon and H. D. Anderson of the South Dakota Agricultural Experiment Station. In parts of the Northwest, selenium poisoning is a serious problem in the livestock industry. The poisonous element exists in the soil, gets into plants which the animals eat, and cripples or sometimes kills them.

In careful experiments, Mr. Moxon

and Mr. Anderson have found that selenium poisoning can be stopped by giving the animals very small amounts of arsenic, in their food or drinking water, or in the salt which ranch cattle

eagerly seek. Concentrations as low as 12 to 25 parts per million were found effective in the treatment of dogs, chickens and cattle.

Science News Letter, May 16, 1942

● RADIO

Saturday, May 23, 1:30 p.m., EWT

"Adventures in Science," with Watson Davis, director of Science Service, over Columbia Broadcasting System.

Dr. Lionel S. Marks, professor of mechanical engineering, emeritus, of Harvard University, will discuss the main sources of power immediately and practically available in the world of today.

Tuesday, May 19, 7:30 p.m., EWT

Science Clubs of America programs over WRUL, Boston, on 6.04, 9.70 and 11.73 megacycles.

One in a series of regular periods over this short wave station to serve science clubs, particularly in the high schools, throughout the Americas. Have your science group listen in at this time.

PSYCHOLOGY

# Sensitive Rats Made Immune To Fit-Producing Noises

## Preceding Seizure-Causing Noise With Another To Which Rats Are Not Sensitive Protects for a Week

PSYCHIC "vaccination" against the nerve-shattering effects of war noise is a future possibility, it is suggested by a report to the Midwestern Psychological Association meeting in St. Louis.

Noise-sensitive rats that ordinarily would be thrown into fits similar to epileptic seizures by certain shrill or irritating noises have been made immune to the seizure-producing sounds, Dr. Norman R. F. Maier, of the University of Michigan, told the meeting. The immunity lasted for several days.

The protecting treatment consisted merely of preceding each seizure-producing noise with another to which the rat is not sensitive. Continuation of this procedure with daily tests for about two weeks makes it possible to expose the rats to the seizure-producing sounds without harm.

After a week without tests, the animal is again susceptible.

Fatigue and a lowering of body temperature by swimming in cold water also prevented the seizures in all susceptible animals.

The noise-induced seizures in rats are due, Dr. Maier concludes, to nervous tensions, and if enough preparation is given the organism can adjust. In states

of low energy the tensions are not sufficient to break through and get control of the animal.

Just how closely the noise-induced fits of susceptible rats resemble the jumpy, jittery nerves produced in some humans by the explosive blasts, shrieking shells, and roaring dive bombers of modern war is not yet known to psychologists.

But the fact that a means has been found for protecting the rats by this sort of psychological immunizing process raises hope that some similar method may be developed for helping humans to protect their nerves against war damage.

Science News Letter, May 16, 1942

## Monkeys Sort By Quality

MONKEYS are capable of some of the abstract thinking which has been considered an exclusive ability of humans, Dr. Benjamin Weinstein, of the University of Wisconsin, revealed.

He told of teaching a monkey to distinguish objects on the basis of their qualities, apparently working with such "human" concepts as mobility or color.

The monkey was first permitted to handle and examine pairs of objects, one of which was movable and the other fixed. Later he was shown a tray of objects containing replicas of the samples he had seen. He learned to select always the duplicate of the movable object and leave untouched the duplicate of the fixed object—regardless of position on the tray or other similarities.

Science News Letter, May 16, 1942

The presence of lactic acid gives sour milk its characteristic taste.

The human thigh-bone (femur) is the strongest, heaviest, and longest bone in the skeleton.

ETHNOLOGY

## Eskimo Women Are Making Boots For Alaska Troops

UNDER the flickering Northern Lights of Alaska, hundreds of Eskimo women are stitching reindeer and seal-skin into the world's warmest boots for American doughboys stationed at this country's northernmost defense bases.

The Army Quartermaster Corps has arranged through the Interior Department for purchase of reindeer boots "guaranteed" to keep a soldier's feet from freezing in the Arctic snow.

The Eskimo women are the same who helped to equip the Byrd expeditions, and are at work from Nome to the northernmost Army stations.

The bottom or foot section of the boot is usually made from Oogruh or "big seal" skin, while the upper portion is of soft reindeer hide. All sewing is by hand with reindeer sinews.

In making a boot, the Eskimo women crimp the edges where seal and reindeer hide join with their teeth, which become sharp as razors and wear down to the gums.

About a year ago, the Army purchased \$15,000 worth of furs and footwear from these women, and found the clothes exceptionally warm, well-fitting and long-lasting.

Science News Letter, May 16, 1942



## WYOMING

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