MEDICINE

Injections of Vitamin A Stop Corn Pain

➤ INJECTIONS of vitamin A under painful corns have been able to stop the pain after all other forms of conventional treatment have failed, Dr. Bernard Drummer, a Bronx, N. Y., podiatrist, told SCIENCE SERVICE.

In a trial series of 21 patients with painful corns, the vitamin A preparation was injected around the corn and eliminated all symptoms of the condition. Before the injections, many of the foot sufferers had needed regular attention at short intervals in spite of silver nitrate applications, anesthetic injections of procaine and the like.

Corns are caused by an irritation that stimulates the growth of the skin in the outer, or horny layer. The vitamin A injections cut down this growth and cause the corn to shrink in size and sometimes disappear altogether. Even if the corn is not completely eliminated, the pain stops almost immediately, Dr. Drummer said.

The actual skin lesion can often be eliminated by proper balancing of the foot but many times the pain is still there after balancing. The fastest and best results have come from the use of proper foot balancing along with the vitamin injections.

The vitamin A preparation, trade named Keramin, is produced by the Campbell Pharmaceutical Co., New York, which studied the vitamin's effect on skin growth in animals.

Dr. Howard A. Jewell, of the company, and associates found that in rabbit skin the vitamin injections slowed down the death of the skin cells which normally progress outward to the surface and then die and become horny. The vitamin permitted cells to accumulate in the tissue and the skin actually increased four or five times in thickness.

Dr. Jewell's findings are published in the *Proceedings of the Society of Experimental Biology and Medicine* (Oct.).

The clinical studies of the Keramin injections, done by Dr. Drummer, will be published in a forthcoming issue of the *Journal of the National Association of Chiropodists.*

Science News Letter, January 4, 1958

PUBLIC HEALTH

Smog Irritation Is Relieved by Ammonia

➤ THE ILL EFFECTS of two injurious gases possibly found in smog can be eliminated by adding either ammonia or magnesium oxide smoke to the atmosphere, Dr. Van M. Sim, Army Chemical Center, Edgewood, Md., and Richard E. Pattle, Porton, England, report in the *Journal of the American Medical Association* (Dec. 14).

Healthy volunteers were exposed to a number of possible smog irritants including sulfur dioxide gas and sulfuric acid mist. They breathed the irritants through an oxygen-type mask or from the atmosphere inside a sealed chamber.

The sulfur dioxide gas caused watering eyes, runny noses and a high-pitched musical rale in the chest, while the sulfuric acid mist created these conditions as well as long-lasting symptoms of bronchitis.

The effects of the sulfuric acid mist were counteracted by adding ammonia to the atmosphere. When it was used in the chamber along with the acid mist, it caused almost immediate relief from the smog symptoms.

The sulfur dioxide gas could also be counteracted in the same way by using either ammonia or by burning magnesium ribbon in the chamber. This destroyed the irritating properties in the atmosphere.

Experiments with sulfuric acid mist should be approached with caution, the scientists report.

The concentration of a mist of this acid in fog is sometimes as much as three times as great as that of sulfur dioxide. It may have been one of the important toxic agents of London's "killer" fog of 1952.

During this fog, the death rate from respiratory diseases was over five times the normal rate.

Science News Letter, January 4, 1958

MEDICINE

Drug Stops Worm Infections

➤ A SINGLE drug that can stop five different types of human worm infections, including whipworms, roundworms and pinworms, is reported by a group of southern scientists in the *Journal of the American Medical Association* (Dec. 21).

The drug's name is dithiazanine and is called a "broad spectrum anthelmintic" since it acts against various intestinal parasites similarly to the way broad spectrum antibiotics, like penicillin, work against several types of bacteria.

Worm parasites affect millions of people throughout the world. There are an estimated 355,000,000 cases of whipworm, 679,000,000 from two types of roundworm, 208,000,000 of pinworm, and 456,000,000 of hookworm, the scientists report.

The new drug is especially valuable against whipworm infections and those caused by the roundworm, *Strongyloides stercoralis.* There has been no practical and effective treatment against them up to now.

Dithiazanine is a blue powder that will not dissolve in water. It is placed in delayed-release capsules that do not open until they have passed through the stomach. Depending on what types of worms are involved, the drug takes between three and twenty-one days to act. It is effective in cases of mixed infection and can be used for whipworms without hospitalizing the patient.

Reporting on the drug were Drs. J. Clyde Swartzwelder, William W. Frye, John P. Muhleisen, Joseph H. Miller, Robert W. Sappenfield and Mr. Stanley H. Abadie, New Orleans, La.; Dr. Ralph Lampert and Samuel O. Anthony, Alexandria, La.; and Dr. Antonio Pena Chavarria, San Jose, Costa Rica.

Science News Letter, January 4, 1958

IN SCIEN

PSYCHOLOGY

Wearing Helmet in Bed Aids Sleep Study

➤ A METHOD for determining how deeply a person sleeps, that is more sensitive than recording his body movements, is reported by Dr. Ogden R. Lindsley, Behavior Research Laboratory of Harvard Medical School at Waltham, Mass., in *Science* (Dec. 20).

The subject goes to sleep in a comfortable bed wearing an aviator's helmet. Inside the helmet is an earphone through which comes a pure tone.

By a motion of his thumb, the sleeper can turn the sound off by activating a microswitch that has been taped to his hand. If he keeps working the switch fast enough, he can completely eliminate the sound. If he works it slowly, he reduces the sound to moderate intensity and if he fails to operate it at all, the sound reaches its full intensity of 30 decibels.

A record of the number of responses the sleeper makes shows how deeply he is sleeping throughout the night. Similar records made of his body movements were found to be much less sensitive.

The new method should enable scientists to study sleep more effectively and investigate the effects of drugs, brain surgery and sleep deprivation as well as the types of stimulation that cause awakening.

Science News Letter, January 4, 1958

PHYSIOLOGY

Research Throws Light On Tranquilizers' Action

➤ SCIENTISTS at the University of California at Los Angeles have provided new information on how tranquilizing drugs act on the brain.

The research, carried out by Drs. Thomas Haley of the Atomic Energy Project and S. R. Dasgupta of the UCLA Medical School, is described in a recent project report.

In animal studies it was found that reserpine by itself acted directly on certain brain areas to bring about its tranquilizing effects. These effects are apparently brought about by an action of the drug on regulating mechanisms in the brain stem.

One of the mechanisms affected by the drug is a center called the RAS (reticular activating system) which is known to regulate how "awake" we are.

It had previously been thought that reserpine stimulated the flow of serotonin, a substance thought to be a neuro-hormone, which in turn acted on the brain.

But apparently the action of reserpine itself on the brain brings about the tranquilizing effects. Also, only a very small amount of the drug is needed.

Science News Letter, January 4, 1958

CE FIELDS

AGRICULTURE

Find Way for Growing Hybrid Cotton Plants

➤ THE POSSIBILITY of growing cotton, a discovery which may rival the development of hybrid corn in its impact on world agriculture, has been reported.

Experiments at the University of California College of Agriculture, Riverside, resulted in the creation of male-sterile strains of cotton, indispensable for obtaining hybrid plants.

The majority of cotton plants now being grown commercially are self-pollinated, pure-bred strains. They lack what scientists call "hybrid vigor."

It is this hybrid vigor that leads to higher yields and greater disease resistance. On the basis of hybrid corn data, it is possible that cotton yields could be increased 10% through hybridization.

By inducing male sterility in one cotton strain with a chemical spray applied about a week before flowering, the California scientists obtained hybrid cotton seeds with the characteristics of two separate strains. Four cottons, two American-Egyptian and two upland varieties, were tested under field conditions and each produced hybrid seed.

Achieving a good method for producing hybrid cottonseed, reports Dr. Frank M. Eaton of the College's department of soils and plant nutrition, will generate intense world-wide interest in evaluating the combining abilities of world cottons.

Called "selective gametocide," the method as reported in *Science* (Dec. 6) involves using salts of chlorinated organic acids to produce sterility. It is foreseen that this same hybridization method may prove useful for cross breeding other crops and improving strains of economically useful ones.

Preliminary tests were initiated at the Texas Agricultural Experiment Station, College Station.

Science News Letter, January 4, 1958

BIOLOGY

Germ Dye Found To Help Against Cancer

➤ METHYLENE BLUE, a widely used dye for staining bacteria to make them show up well under the microscope, can cure fast-growing cancers in small animals, R. T. Pursell, a veterinarian from New South Wales, reports in *Nature* (Dec. 7).

The dye has been used since 1941 to treat cancers in dogs brought to his small-animal clinic and was most successful against rapidly growing cancers in which most of the main growth had been removed surgically. It was not any help against slowly growing types of tumors, nor against those which had severely affected internal organs.

"A number of cases are in good health and have survived without apparent recurrence of the tumor for up to five years, although at the time of treatment the growth was doubling itself in size every two weeks," the scientist reports.

When the dye does work, it apparently causes any remaining cancerous tissues to die and slough off, leaving a wound that heals completely.

There seems to be no doubt that intravenous injections of the dye can be a most valuable additional treatment during surgery for some cancers. The dye possibly interferes with a metabolic system in the cancerous cell which is more sensitive than that of a normal one, the veterinarian suggests.

While it may not be the most effective agent for doing this, the dye's action may help identify another "weak link" in the make-up of the tumor cell, he concludes.

Science News Letter, January 4, 1958

PHYSIOLOGY

Rat "Alcoholics" Debunk Theory About Heredity

➤ EVIDENCE AGAINST the theory alcoholics may drink because of an hereditary defect in their metabolism is provided by a cafeteria-feeding experiment with rats.

The rats were offered a complete diet which included a fountain full of alcohol. At first it appeared that some of them showed a marked preference for the beverage, Drs. R. J. G. Gillespie and C. C. Lucas, University of Toronto, report in *Nature* (Dec. 7).

The explanation seemed to be that the "drinkers" actually had an inborn body defect that made them want the alcohol, but suddenly most of the "alcoholic" rats became "teetotalers." Some of the "teetotalers" started to drink a considerable amount of alcohol.

The results surprised the scientists so much they decided they had made a mistake in their record-keeping. Repeated checks showed, however, that they had not done so.

"The mystery was solved when it was noticed that the relative positions of the food-dish, water-fountain and alcohol-fountain controlled, to an astonishing degree, the drinking pattern of some of the rats," they report.

In 20 out of 25 of the rats the position of the fountain affected their "preference." Two actually did appear to prefer the alcohol while nine others preferred the water. None of the rats ever appeared "stuporous," however.

One explanation for the fountain-position effect may be that the rats have right- or left-pawed preference, since most of them use one paw to hold up the fountain lids while they drink. Also, many rats like a drinking fountain that is in an uncrowded location.

The results provide a warning to other scientists studying rats and drinking that the type of cage and placement of food dispensers have much to do with their "preferences," the scientists conclude.

Science News Letter, January 4, 1958

PHYSIOLOGY

Wearing a Kilt Would Lessen Gene Mutations

➤ MEN MAY have to wear kilts if they want to reduce the number of defective genes they are producing, a group of scientists from Stockholm, Sweden, suggest in *Nature* (Dec. 21).

The trouble with the type of clothes worn by Europeans and Americans for the last several centuries is that they increase body heat around the male sperm cells. This heat speeds up the rate of mutation in the genes and the mutant genes could then cause defective children.

Tight clothing might explain almost half of the present spontaneous mutation rate, they said, basing their estimates on similar temperature effects in fruit flies.

In mammals, nature has placed the sperm producing cells outside the abdominal cavity because the temperature inside is three to nine degrees Fahrenheit too hot for them. Clothing, the researchers find, increases the temperature around the cells about five and a half degrees Fahrenheit, what it might be if they were still inside the abdomen.

"We thus see how modes of dress chiefly based on sexual taboos might imply genetical hazards 100 to 1,000 times greater than those estimated from different sources of radiation," the scientists report.

If the eugenists decide this increase is dangerous, then some changes will have to be made in the design of men's clothing.

The scientists suggest something similar to the Scottish kilt or else a pair of trousers fitted with a codpiece, a flap on the front of the trousers, as used in medieval Europe.

Reporting the research were Lars Ehrenberg and Gunter von Ehrenstein, University of Stockholm, and Arne Hedgran, Institute of Radiophysics, Stockholm.

Science News Letter, January 4, 1958

BIOLOGY

Leukemia in Mice Caused By Purified Nucleic Acid

➤ INJECTIONS of free nucleic acid have been found to create leukemia in mice, Drs. Esther F. Hayes, Norman S. Simmons and William S. Beck, University of California, Los Angeles, report in *Nature* (Dec. 21).

The purified nucleic acid was prepared from lymphatic tissues taken from a strain of mice known to have a high rate of leukemia. Part of the nucleic acid was taken from non-leukemic tissue and the other part was taken from leukemic tissue.

Both types of acid were able to produce an increased amount of leukemia when injected into newborn mice.

These preliminary results in hybrid mice suggest that free nucleic acid causes leukemia, although they do not rule out the possibility that a virus might be the active agent in the acid, the scientists report.

It is unlikely, however, that intact active virus could survive the chemical procedures used to isolate the nucleic acid.

Science News Letter, January 4, 1958