PSYCHOLOGY

Link Moral Indignation To Suppressed Anger

➤ HOW DO you feel when a communist makes a speech to you about his beliefs? Does it make "your blood boil?" Are you angered by the person who avoids the draft because of "nervous" illness? Are you shocked by the way Hollywood stars change husbands or wives almost over night?

Such moral indignation is related to the way your parents treated you as a small child, Dr. Sidney M. Jourard of Emory University, Ga., reports in the *Journal of Consulting Psychology* (Feb.).

Parents almost inevitably rouse hostility in their children by their efforts to train them and turn them into socialized citizens, he explains. Some parents then allow the furious little boy, or girl, to shout his resentment and even to stamp a small foot and scream "I hate you!" Other parents clamp down firmly on any such outburst. In the latter case, the children may grow up into adults who never express dislike or disapproval of any traits of the parents.

In fact, no matter what the father or mother does, the son or daughter will tend to see him in "undifferentiated, uncritical almost magical terms," Dr. Jourard has observed.

Of 115 persons tested by Dr. Jourard, it was found that those who admit little criticism or dislike of parents are those who express the most violent "moral indignation" about communists, public figures with "loose morals," or individuals who shirk civic responsibilities or otherwise offend against the social mores.

Science News Letter, April 3, 1954

TECHNOLOGY

Machine Analyzes Sound As Aid to Mechanics

➤ A MACHINE has been developed that singers could use to analyze the pitch, tone, timbre, resonance, intensity, volume and range of their voices.

Unlike the music teacher who encourages his pupils with a bit of "white flattery" here and there, the machine renders an unemotional opinion of what it hears. If the singing is punk, the machine says so. And it say so with bits of information that pour in at the rate of 84,000 a second.

Although musicians could use the device for self-criticism, Raytheon Manufacturing Company engineers had the industrial man, the mechanic and the technical troubleshooter in mind when in Waltham, Mass., they created their "electronic ear."

The sound analyzer can dissect a mysterious throb in a car for a garage mechanic. It could tell whether the unnatural noise was due to loose bearings or an unbalanced crankshaft.

The engineers report their machine has a battery of "parallel elements" that permit it to examine an entire spectrum of sound frequencies at once. It takes these sounds apart for study and presents its findings as 84,000 bits of information a second.

In a split second it can analyze the crash made by a hammer blow, or an annoying squeak in machinery. It can provide scientific evidence that a violin is a Stradivarius, not a cheap fiddle.

The machine recently was displayed at the Institute of Radio Engineers meeting in New York.

Science News Letter, April 3, 1954

GENERAL SCIENCE

FTC Cracks Down On Battery Additive

➤ THE FEDERAL Trade Commission has cracked down on the battery additive, AD-X2, charging that advertising claims made for it are "false, deceptive and misleading."

Dispute over the alleged merits of this battery additive touched off a violent controversy resulting last year in the firing and subsequent reinstatement of Dr. Allen V. Astin as director of the National Bureau of Standards. The Bureau's work in storage battery testing was upheld by a special committee of the National Academy of Sciences when it found the battery additive AD-X2 to be "without merit." (See SNL, Nov. 28, p. 339.)

The Federal Trade Commission, in issuing the complaint, pointed out that the "controversial claims for the product" could be resolved at public hearings, now scheduled to be held in Washington on May 10.

The battery additive AD-X2 contains mainly magnesium and sodium sulfates, chemicals that have been tested for over 30 years at the Bureau and found ineffective in pepping up batteries. The Academy committee reported that there was "nothing mysterious or remarkable in the behavior of either AD-X2 or sodium or magnesium sulfates. In all cases the effects observed corresponded to well-known laws of physical chemistry."

Science News Letter, April 3, 1954

CHEMISTRY

Hydrogen Peroxide Destroyer of Draperies

➤ A STRANGE reaction between sunlight and certain yellow dyes has been blamed for causing some cotton or rayon draperies to come back tattered from cleaning.

The National Institute of Drycleaning, Silver Spring, Md., reports that certain yellow dyes, when exposed to sunlight and moisture usually present in drapery fabrics, speed the formation of hydrogen peroxide, the chemical that is famous for making blondes out of brunettes.

The hydrogen peroxide attacks the fabric to weaken it. At the end of merely one summer, the material may be so weakened that ordinary handling for dry cleaning will cause the drapes to rip and tear where the yellow part of the pattern was printed.

Science News Letter, April 3, 1954

IN SCIEN

ENTOMOLOGY

June Bug Larvae Damage Young Pine

➤ WHITE GRUBS, the larvae of June bugs, cause the losses in pine seedlings that were previously blamed on dry weather.

This discovery, the Atomic Energy Commission reports, is expected to "benefit all growers of pine" in the South. Now that the grub menace has been brought to light, forest experts can cope with the losses the larval form of June bugs is causing, John Hatcher, U. S. forester at the AEC's Savannah River H-bomb plant, Aiken, S. C., said.

A total of 10,000,000 young pine trees were planted on about 10,000 acres of unused land at the project during the winter of 1952-53. By last fall, the seedlings on over 8,000 of these acres had been severely damaged by the white grubs.

Forest experts must now determine, Mr. Hatcher and entomologist J. G. Watts urge, "whether a sudden change has occurred in the feeding habits of the grub, or whether the problem has existed previously but has escaped detection."

Science News Letter, April 3, 1954

ENGINEERING

Liquid Gas to Kill Odor From Bus Exhaust

➤ TRANSIT OFFICIALS in three cities have handed "walking papers" to smelly exhausts from their buses.

Officials of transit companies in Chicago, Wichita and San Antonio reported to the Society of Automotive Engineers meeting in New York that liquefied petroleum gas, such as propane, burns to an odorless, smokeless exhaust, yields quiet bus operation and cuts costs.

However, a report from Harrisburg, Pa., revealed that costs of liquid petroleum gas, or LPG, which is an oil well and refinery by-product, were too high there to prove economical.

Furthermore, the Harrisburg company had to pay almost as much for LPG buses as they would have to pay for ordinary diesels. The Chicago Transit Authority, on the other hand, bought 500 LPG buses at $3,000 less per bus than it would have had to pay for diesels.

Where LPG fuel prices are substantially lower than diesel fuel or gasoline, the advantage of bus operation on such gases increases. Other than operators' salaries, fuel costs are the major expenses of a transit company. Other economic and technical details of LPG operation are reported in the *Journal of the Society of Automotive Engineers* (March).

Science News Letter, April 3, 1954

CE FIELDS

MEDICINE

ACTH Works When Snuffed Up Nose

➤ ACTH, PITUITARY gland hormone famous for the relief it brings in arthritis and numerous other ailments, is effective when snuffed up the nose, tests at the Civic Hospital, Ottawa, Ont., have shown.

Heretofore, ACTH has had to be given by hypodermic injections. It was not effective when given by mouth or by aerosol spray. In the recent tests, a highly purified ACTH in powdered form was used.

Dr. J. B. R. McKendry of Ottawa, Dr. Herbert Schwarz, now at McGill University, Montreal, and Dr. Murray Hall, now of Sunnybrook Hospital, Toronto, report in *The Canadian Medical Association Journal* (March).

The ACTH powder has now been given to more than 60 patients. All but three of the first 17 so treated were benefited by it. Their ailments included gouty arthritis, rheumatoid arthritis, bronchial asthma and allergic rhinitis.

One of the rhinitis-hay fever patients had suffered for eight years without getting relief from antihistamines or desensitization treatments. On the first day of treatment with the ACTH snuffed up the nose, her head and nose felt better and she said she could taste her food for the first time in six years. On the second day, she could breathe perfectly well, her head felt clearer than it had for years, and she was not affected by a visit to the country which usually made her feel much worse.

She is now snuffing ACTH powder every three or four days and remains free of symptoms.

Science News Letter, April 3, 1954

AGRICULTURE

Farmers Must Use Modern Practices

➤ FARMERS MUST learn to use the methods developed by years of agricultural research or they will go broke, in the opinion of informed observers.

A recent survey of Michigan farms showed that costs of producing five crops could be reduced significantly by adopting the practices recommended by state and federal agencies.

Improved farm practices cut the farmer's cost of producing a bushel of wheat from $1.65 to $1.28, of oats from 90 cents to 69 cents, and of corn from $1.21 to $1.02, U. S. Department of Agriculture and Michigan Agricultural Experiment Station experts found.

Recommended practices lowered the costs of producing a ton of alfalfa-brome grass hay from $16.80 to $13.30, and a ton of sugar beets from $11.21 to $8.19.

Increasing numbers of farmers are learning and using the practices developed in experiment stations across the nation. Department of Agriculture spokesmen wryly point out that the economic pinch is persuading many farmers to use methods they formerly spurned.

Biggest single cost-cutting factor found on the Michigan farms was using recommended rates of fertilizer. Timely planting, adapted crop varieties, seed treatment, crop rotation, soil management, tillage and weed control also helped reduce costs.

With all five of the crops studied, production costs were lowest when all recommended fertilization and cultural practices were followed.

A preliminary report on fertilizer consumption for the fiscal year 1953 supports the Department's contention of better farming. An all time high of 23,000,000 tons of commercial fertilizer was used by farmers that year, 700,000 tons greater than the previous year.

Science News Letter, April 3, 1954

BIOPHYSICS

Find Oxygen Gives Radiation Protection

➤ DISCOVERY THAT oxygen can protect against ionizing radiation, such as that from A-bombs, H-bombs and X-rays, is announced by Drs. C. S. Bachofer and M. Aelred Pottinger of the University of Notre Dame, Ind.

This is the first "clear-cut case" of oxygen protecting organisms against ionizing radiations, they state.

The organisms protected in their experiments were the tiny particles of bacteriophage T1, strain B. This phage acts specifically against the microorganism, *E. coli*, or the colon bacillus as it formerly was called.

Oxygen protected these phage particles against both X-rays and cobalt-60 gamma rays.

Heretofore oxygen has been reported most often as sensitizing organisms to radiation, making them more susceptible to radiation damage.

Whether the oxygen protecting effect is specific for this particular bacteriophage is a fundamental question still to be answered. Oxygen may have the same effect in organisms of more complex organization, such as higher animals and even man, but its effect may be obscured in the more complex organization, the Notre Dame scientists suggest.

The presence or absence of oxygen may change the phage particles in some way, thus changing their resistance to ionizing radiations. Or the protective effect may be due to suppression or enhancement of certain products of irradiated water. The phage particles were suspended in water when irradiated in the tests.

These problems are "under consideration," the scientists state in *Science* (March 19).

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BIOCHEMISTRY

Penicillin Unequaled Among Mold Remedies

➤ PENICILLIN, FIRST antibiotic or so-called mold remedy, "remains unequaled" as a drug despite years of intensive research for newer and better antibiotics, Sir Alexander Fleming, its discoverer, declared at the meeting of the American Academy of General Practice in Cleveland.

In the future, he predicted, antibiotics may be used more for hastening growth of livestock than for medical purposes. Air, milk, water, soil and hundreds of plants have yielded antibiotic materials.

Dr. Fleming discovered penicillin in 1928 when he was doing influenza research at St. Mary's Hospital in London. He noted a bacteria-free circle around unwanted mold and from it prepared a crude culture fluid, only one-millionth penicillin, then found it would still destroy bacteria when diluted 800 times. By comparison, there is more gold in sea water.

Ten years of additional research were required to produce concentrated, purified penicillin. Early attempts were defeated by the unstable nature of the product. In addition, Sir Alexander Fleming said, no one at that time appreciated the extraordinary potency of antibiotic preparations.

Finally, in 1940, scientists at Oxford University found that freeze-drying would preserve the unstable concentrate. Additional research and clinical investigation proved penicillin a complete success. Today, a single injection contains more pure penicillin than was contained in ten quarts of the crude culture fluid with which Dr. Fleming worked.

Science News Letter, April 3, 1954

BIOCHEMISTRY

Fat Breakdown Products Found Cancer-Forming

➤ BREAKDOWN PRODUCTS of fat dissolved in sesame oil cause experimental cancers in mice, Dr. Fritz Bischoff, Guillermo Lopez and J. J. Rupp of the Cottage Hospital Research Institute, Santa Barbara, Calif., reported to the meeting of the American Chemical Society in Kansas City, Mo.

Two factors, neither in itself cancer producing, may react together to stimulate abnormal growth, Dr. Bischoff believes.

Chemical breakdown of cholesterol, a substance found in fat, gives products closely related to the sex hormones. Yet neither the cholesterol nor the hormones, nor the sesame oil in which they are dissolved, gives rise to cancer when injected separately into experimental animals.

By varying both the breakdown products and the solutions in which they are administered, Dr. Bischoff and his associates have found that the combination of chemical and oily solvent is probably the key to production of the cancers they have induced in their laboratory animals.

Science News Letter, April 3, 1954