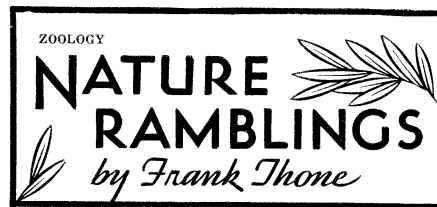


He can use a glycerine substitute that looks poor, if it has suitable properties otherwise. In contrast, a cosmetic manufacturer wants a glycerine substitute that is light in color, has "body" and is hydroscopic. Taste, in this field, matters little.

The point is that each problem of find-

ing a substitute needs to be tackled individually. If the various substitutes in all fields, which have been created by American ingenuity and offered to American manufacturers, are tried with an open mind and with a desire to make them work, they will more than repay the time invested in them.

Science News Letter, February 10, 1940



Vanishing Herd

BISON are being killed by the thousand at Buffalo National Park near Wainwright, Alta., in the greatest slaughter of these shaggy plains animals since the days of Buffalo Bill. The range must be cleared of all animals before spring, by order of the Canadian government at Ottawa. It is needed for other purposes, though official silence is preserved on what these purposes are. Rumor says the area is to be used as a great aviation training area, for the education of thousands of flying fighters for duty overseas.

Before the hunters began the slaughter, there were more than 3,000 bison on the range, besides 1,500 elk, 500 deer, 125 moose and 35 imported yak from Tibet. The elk are being given to Indians on reservations as they are killed, the bison carcasses will be butchered and the meat and hides sold on the market.

Wiping out of the Wainwright herd will not, of course, mean the end of bison in Canada. The largest herd of these animals in the world, some 30,000 head, are kept on a tremendous range of 17,000 square miles of wooded country, in northern Alberta and southern Mackenzie provinces.

A considerable surplus of animals from the Wainwright herd were sent to the great range some time ago, and smaller surpluses have also been distributed to other ranges and parks in Canada. Canadian conservation officials state that the range at Wainwright has deteriorated through over-grazing, so that it would be inadvisable to keep so many animals there regardless of other possible uses for the land.

The Wainwright herd had its beginnings a generation ago, when the Ca-

PSYCHOLOGY

Rats Aid the Study of Underlying Causes of War

IN THESE WAR DAYS when bombings and poison gases and torpedoes monopolize newspaper front pages, the pitifully small expenditures in research on war prevention receive scant notice.

But at Yale's Institute of Human Relations, rats as laboratory animals are contributing to a possible eventual world peace by revealing the underlying basis of animal aggression.

These rats were taught by Dr. Neal Miller and his assistant, Miss Maritta Davis, to spar with each other in a manner natural to rats. The training was by a simple trial-and-error method—the discomfort of a mild electric shock was applied but abruptly turned off whenever one rat would cuff the other. In such a way a bad child might learn to bite or scratch to get what he wants.

When the training of the rats was completed, the turning on of the electric current was a signal for instant blows.

Next step in the research was to remove one of the sparring partners and replace it with a little celluloid doll. Now the electric current was a signal for pitching into the "innocent bystander".

This is what Freud would call "displacement." It is the same mechanism that permits hunger-ravaged, freedom-starved peoples to vent their pent-up

wrath upon some scapegoat or to blame all their troubles on "international bankers," or "encircling enemies."

But it is also what the psychologist would call "transfer of training" or "generalization." Thus is bridged the wide gap between the findings of Pavlov working with salivated dogs and Freud analyzing the bizarre dreams of neurotics.

Freud's theory goes farther, however. Not only can displacement occur between one object and another superficially like it, but it can occur between one drive and another. Thus, men drinking to excess may not be driven by thirst but by fear or sex desire. People have been known to worry themselves fat, overeating in an attempt to escape from fear, Dr. Miller recalls.

His rats confirmed this theory. Trained with the assistance of Jacob Goldstein to run down an alley to drink, they would run faster when hungry than when fed. And if hungry they would run to drink even though they had been satiated on water.

Science News Letter, February 10, 1940

Nearly half a million birds were banded last year in the U. S. Biological Survey's efforts to study migration habits of North America's birds.

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nadian government bought 700 head from Michael Pablo, a Mexican ranch-owner living in Montana. Mr. Pablo had built up his herd from a few survivors of the great slaughter on the Great Plains during the latter part of the nineteenth century. When the bison began to become too numerous for him, he offered his herd for sale to the United States government, but was turned down. The Canadian government then bought the 700 animals, at \$250 each, and moved

them to the Wainwright area, where the herd grew by natural increase to more than 3,000 head.

Before the depression, surplus animals were shipped to the great northern bison range. When shipping costs became too much for the Canadian budget, the surplus was killed and marketed. The present wholesale slaughter is being handled by a modern packing firm which secured the contract on bid.

Science News Letter, February 10, 1940

PUBLIC HEALTH—PSYCHOLOGY

War Volunteers in Canada Show Effect of Unemployment

HOW economic depression and unemployment weaken a nation's man-power is being observed in Canada these days, as the Dominion inspects thousands of volunteers who step up for war duties.

"This is not a war in which crude man-power is demanded," said Miss Charlotte Whitton, C.B.E., in an interview in Washington, D. C. Initials after her name stand for the highly coveted British honor, Commander of the Order of the British Empire, conferred by the King for Miss Whitton's work as Executive Director of the Canadian Welfare Council and her activities on social problems at League of Nations headquarters in Geneva.

"In this war," Miss Whitton continued, "it is technical skills and economic and financial contributions that are wanted. A higher range of skill and stamina is required."

Yet less than five months of this war,

she said, have revealed this condition: "A solid corps of younger men who have never worked, and older men, who, unless reconditioned and trained, would not be acceptable to an army or to factories working under wartime pressures."

Canada's volunteers are coming up in far greater numbers than are immediately required. The effects of unemployment, therefore, have not given any urgent problem to military authorities—only new evidence that this machine-run war cannot expect to recruit inexhaustible supplies of men to step quickly into gaps in ranks.

Canada, with nearly two-thirds of her population in the wage earning group dependent on others for salaries, has become an industrial country to an extent very similar to that in the United States, Miss Whitton said; and many economic problems of the two countries are similar.

Science News Letter, February 10, 1940

ENGINEERING

Traffic Congestion Reduces Gasoline Mileage by Half

TRAFFIC congestion reduces gasoline mileage 50%, A. J. Bone, assistant professor of highway engineering at Massachusetts Institute of Technology, reported to the Highway Research Board of the National Research Council.

Prof. Bone has made studies in crowded down-town Boston which show that for his test car it takes seven minutes to travel a mile under ordinary conditions. Two and one-half minutes are spent waiting for traffic lights, a minute

and a half is used up in low or second gear, and three minutes of time in high gear.

His average gasoline consumption in city traffic was 12.1 miles to the gallon while on Sunday mornings, with traffic interference removed, his test car could get 18.2 miles to the gallon over the same route. Thus a 50% greater gasoline consumption must be charged up to traffic.

Prof. Bone estimates that if all cars behave in a way comparable to his test

car, traffic delays cost motorists some \$18,000 per mile per year for the routes he studied.

In another investigation Prof. Bone tested the gasoline consumption on boulevard parkways in New York and Connecticut (Hutchinson River and Merritt Parkways) against consumption on the Boston Post Road which runs parallel to them but which has stop-lights and much traffic congestion.

He found that he could go over 20 miles to a gallon of gasoline, averaging 38 miles an hour, on the parkways while on the busy Post Road he could average only 25 miles per hour and obtained only 18.4 miles to the gallon of gasoline while doing it.

"When the proposed easterly connection between Merritt Parkway and the Boston Post Road is completed," Prof. Bone said, "an estimated saving of 40 minutes in time and 3 cents in gasoline cost will be possible on the parkways between Pelham Manor, N. Y. and Milford, Conn. (55.5 miles) compared with the shorter, but frequently congested Post Road (53.5 miles)."

Science News Letter, February 10, 1940

When molten bell metal is poured into a mould, it may take several weeks for the resulting bell—if a large one—to cool.

There is only a pound of bromine in seven and one-half tons of sea water, but research found a way of getting it out.



GROW PRIZE-WINNERS CREATE UNHEARD OF PLANTS IN GARDEN - HOUSE - CLASSROOM

SOILLESS GARDENING (growing plants in chemicals) COLCHICINE (revolutionary chemical creates giant new unheard of plants and fruits, huge doubled and re-doubled flowers) PHOTSENSIN (makes plants vitally super-sensitive to light) VITAMIN B1 (produces giant, prize-winning "MYSTERY" flowers) INSULATED GREENHOUSES (electric lamps only heating plant required, use less glass makes greenhouses available to many)—the above mentioned articles plus page after page of SCIENCE and MEDICINE—and—

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