

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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