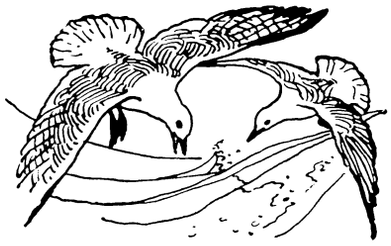
ORNITHOLOGY

NATURE RAMBLINGS



Seagulls

➤ VOYAGERS OVERSEAS often have the monotony of the world's greatest desert—the open ocean—relieved by the sight of seagulls far out from shore. These birds have the habit of following departing ships and of meeting incoming ones, frequently some hundreds of miles from the nearest land. Sailing vessels, which go more slowly and less relentlessly than fast steamers, sometimes have gull companions all the way.

It isn't just friendliness that brings the gulls. Like all living things, they have to have food, and the gull is a follower of the humble but useful calling of garbage collector. It watches most closely the galley portholes, and can be depended on not to let any edible morsels fall into the water unattended to.

Fishing fleets are even more ardently followed by gulls than are passenger boats. They throw overboard quantities of offal and unmarketable fish, which are as so much manna to the hovering birds. Sometimes they make themselves nuisances by alighting on the decks and stealing such fish as they are able to make off with.

So used are we to gulls as sea birds that "seagull" has become a single word. Most of us say "seagull" when we mean "gull." When we hear of seagulls against a background of prairie, or desert, or Rocky Mountain peaks, at first it causes us to blink, and to doubt the seriousness of the speaker.

Yet gulls—real seagulls—are commonplace sights around the shores of a number of our large inland lakes, apparently quite as much at home as ducks or snipe or herons. They forage along the waterfronts of Chicago and other Great Lakes cities, and being indefatigable scavengers, they find congenial pickings. Even in winter they remain on this chain of American Mediterraneans, apparently little discouraged by snow on shore and pack ice on the water.

Presumably their winter casualty list is high, but there are always enough survivors or new immigrants to keep up the gull population.

The gull population of the Great Salt Lake and of Yellowstone Lake is not permanent. Gulls there have become migrants, as regular in their seasons as robins or bluebirds. They go to the Gulf of California in winter, it is said, as do also the pelicans with whom they compete for fish in these upland waters.

If you visit Salt Lake City, the Mormons are sure to show you the Seagull Monument in the Temple grounds. Seagulls played the role of robins, as insect destroyers, at a very critical period in the history of the Mormon colony, and they are treated with an almost religious reverence in Utah now.

Science News Letter, August 18, 1951

BIOCHEMISTRY

Light on Brain Processes

Glutamic acid, chemical that has raised intelligence level of some feebleminded children, prevents mice deaths from sound-caused fits.

➤ GLUTAMIC ACID, remarkable chemical that has raised the intelligence level of some feebleminded children and has improved the learning ability of rats, now has been used on mice to prevent deaths due to sound-caused fits.

This research, which throws light on the chemical processes of the brain and may help explain why glutamic acid sometimes makes people brighter, was conducted at the R. B. Jackson Memorial Laboratory in Bar Harbor, Me., by Drs. Benson Ginsburg, of the University of Chicago, Sherman Ross, now of the University of Maryland, Mildred J. Zamis and Agnes Perkins.

At the Jackson Laboratory, mice have been bred which are specially susceptible to noise. When these mice are put in an ordinary galvanized iron washtub, eight out of ten will go into convulsions at first sound of a doorbell. And up to nine out of every ten of those with fits may die.

Giving the animals glutamic acid does not prevent the noise-caused fits to which they have inherited sensitivity. But it does prevent many of the deaths. Recoveries are increased by 39%. Surprisingly, the lives saved by the chemical are chiefly those of males.

Glutamic acid is an amino acid which is made in considerable amounts in the bodies of mammals. It is a non-essential in diet.

In attempting to explain theoretically the action of this chemical, the investigators reason that it acts as it does precisely for the reason that it is a non-essential. A small surplus of glutamic acid added to a satisfactory diet favors a higher concentration in the brain cells of a related chemical, alpha-ketoglutaric acid, thus increasing the energy output. Glutamic acid is one of a large number of chemicals capable of affecting brain metabolism and it acts through the chemical process known to biochemists as the tricarboxylic acid cycle. This is a dynamic cycle in brain metabolism about which little is actually known scientifically; it is important in providing oxygen to the brain cells.

The effects of glutamic acid on intelligence may depend upon the same metabolic events, it was suggested. Reason for the conflicting results that have been obtained when glutamic acid was tried in an effort to boost intelligence may be that the different investigators did not use genetically uniform subjects. Individuals probably differ in their inherited ability to respond to this chemical.

Science News Letter, August 18, 1951

INVENTION

Low-Lead Glass Designed To Use in Television Tubes

➤ A LOW-LEAD glass suitable for use in television image tubes, and other glass bulbs or tubes used in the electrical field, has been awarded a patent. It contains much less lead than the types now used and is, therefore, lighter and less costly.

The usual high-lead glass is made from a mixture containing approximately 29.5% lead oxide. In the new product, silica and the other metal oxides are used but the lead oxide content employed is only approximately 11.4%. The inventors use a combination of lead oxide with barium oxide, using a relatively small amount of the latter. However, they use a larger amount of silica

Science News Letter, August 18, 1951

than included in ordinary lead glass. The result is a product that has about the same characteristics as the older lead glass it proposes to replace.

Patent 2,562,292 was issued to Harold R. Black and Lawrence V. Gagin, Toledo, Ohio, for this invention. Patent rights have been assigned to Owens-Illinois Glass Company, also of Toledo.

Science News Letter, August 18, 1951

PSYCHOLOGY

Eyes "Scan" While Fixating

➤ THE WAY your two eyes and brain work together in binocular vision is more complicated than scientists have thought, it is indicated by a report to the International Congress on Psychology in Stockholm by an American delegate Dr. Lorrin A. Riggs of Brown University.

The explanation previously accepted takes into account that your two eyes are always the same distance apart—about two and a half inches. The view of an object as seen by your left eye is therefore slightly different from that picked up by your right eye. The brain, combining these two views as the two photographs are combined in the old-fashioned parlor entertainment, the stereoscope, sees the objects with form and depth.

Now Dr. Riggs has found that your two eyes do not keep still when you are looking at an object. Instead they are constantly moving and their movement is not always synchronized.

Working under a contract with the Office of Naval Research, Dr. Riggs developed a very precise and delicate method for making an exact record of these movements when the individual was trying to fixate steadily on a particular point. Fitting contact lenses over the eyes in such a way that there was no appreciable slipping, he attached tiny mirrors to these lenses and focussed the reflections on a moving film.

There are relatively large involuntary drifts and jerks of the eye, Dr. Riggs found, and in these the two eyes are rather closely synchronized. But then there is a fine tremor, perhaps a natural result of the fact that the eyeball is balanced between pairs of antagonistic muscles. This tremor is fast, up to 90 movements per second and each eye moves independently.

This means that at any one instant, corresponding points on the retinas of your two eyes are not necessarily just two and a half inches apart; the separation may deviate from the average distance as much as 20 seconds of arc.

Therefore, concludes Dr. Riggs, the brain must do more than combine the images falling on two anatomical corresponding points on the retinas of the two eyes. Both the spatial and temporal patterns of impulses from the two eyes must somehow be combined centrally as the two eyes "scan" the object.

Science News Letter, August 18, 1951

ENTOMOLOGY

Mosquitoes Radiotagged

➤ TAGGING MOSQUITOES in northern Canada with radioactive phosphorus is helping U. S. Canadian defense research teams learn how to control the pest.

There are enormous numbers of mosquitoes in the timberline areas of northern Canada and Alaska, estimated at from one to several million adults per acre in some regions. These and other biting insects must be controlled if soldiers are ever to fight efficiently in infested places.

Drs. Charles C. Hassett and Dale W. Jenkins of the Army Chemical Corps loosed about 3,000,000 mosquitoes in the Warkworth region near Churchill, Manitoba, after feeding the larvae on radioactive phosphorus.

Then, for the next six weeks at distances up to about a mile from the release point, they collected mosquitoes in nets. Although about 3,000,000 radioactive mosquitoes were released, so heavily infested is the area that only 141 tagged pests were recovered.

These 141, combined with other observations made at the same time, were enough, however, for Drs. Hassett and Jenkins to conclude that the type mosquito they studied—*Aedes communis*—does not move very far from its breeding grounds, that it rests on leaves and that it does not attack human beings during the daytime.

The mosquito larvae, reared in specially prepared tanks at the release site, were fed finely ground dog food. Radioactive phosphorus, as a solution of potassium dihydrogen phosphate, was added to the tank breeding water.

The work was sponsored jointly by the Army Chemical Corps and the Canadian Defence Research Board.

Science News Letter, August 18, 1951

NUTRITION

Frozen Avocado Keeps Its Color

➤ A FROZEN avocado product that will keep its color long enough to be stored at least a year has been developed.

Made in the form of a spread, most conveniently packaged in collapsible metal tubes, the avocado product will be a means of using otherwise wasted surplus and spoiled fruit.

Avocados turn brown very quickly when exposed to air or when heated, and previous attempts to preserve slices and halves by heating or freezing have been unsuccessful. Housewives, however, have been able to make a popular spread called "guacamole," from pureed avocados, salt, onion powder, and lemon or lime juice. This product normally retains its color from four to eight hours.

By changing slightly the proportions and the added ingredients, Dr. E. A. Beavens, R. J. McColloch and B. W. Nielsen of the U. S. Department of Agriculture's Food and Vegetable Chemistry Laboratory, have obtained a more acid product that keeps its light green color and avocado flavor in frozen storage for at least a year.

Science News Letter, August 18, 1951