ORNITHOLOGY

More Ducks Fly South

Estimated 150,000,000 waterfowl will migrate this season—greater number than for any year since 1910. Most go in October.

➤ MORE DUCKS and other migratory waterfowl are flying southward this year than any time since 1910, Dr. Ira C. Gabrielson, director of the U.S. Fish and Wildlife Service, reports.

As many as 150,000,000 ducks, geese and other waterfowl are expected to hasten southward, it is estimated. This figure is in marked contrast with the mere 27,000,000 which were believed to have participated in the annual migration seven years ago.

River ducks such as mallards, pintails and widgeons have been among the species showing the greatest increase in number. Diving ducks on the other hand, particularly the redhead, have been slow in coming back.

The annual southward migration usually begins in August with the males of some species. The largest flights, composed mostly of females and their young, occur in October after storms and cold have driven them from their summer breeding grounds.

Migrating birds do not make a beeline flight southward. They follow certain great paths in the air known as "flyways," and once having chosen a flyway, continue to travel that particular route year after year.

One of the principal North American flyways guides the fowl down the great central valley of the Mississippi river and its tributaries. Another, roughly parallel, is over the western Great Plains, along the east foothills of the Rockies. The Atlantic and Pacific flyways, as their names indicate, lie roughly between the ocean and the nearest high mountain ranges, although subsidiary migration routes spread inland.

A number of theories have been advanced to explain the seasonal migration of the birds, one of the outstanding ones being based on the changing length of the daylight hours.

A pioneer observer of this phenomenon of the birds traveling southward when the days grow shorter and northward when they grow longer was Henry Seebohm, a widely traveled English ornithologist. Actual experiments were conducted with birds under day-lengths which were changed artificially by Prof. W. Rowan of the University of Alberta. Prof. T. Hume Bissonnette of Trinity College, Conn., showed that as the days grow shorter or longer, certain important changes take place in the glands which control the bird's behavior.

Science News Letter, October 16, 1943

PHARMACY

New Uses for Bismuth

A new series of bismuth compounds shows promise in treating cases of advanced syphilis. It may also prove helpful for less serious ailments such as warts.

➤ EFFECTIVE treatment of certain types of syphilis may result from an entirely new series of bismuth compounds which can be taken by mouth instead of the intramuscular injections now ordinarily used. A few less serious ailments, such as warts and a persistent inflammatory skin disease called lichen planus, are also expected to be amenable.

Preparation, properties and clinical trial of the new drugs were reported to the meeting of the American Pharmaceutical Association in Columbus, Ohio, by Dr. Larry M. Wheeler, Dr. R. A. Kuever, Dr. E. G. Gross and Dr. R. Nomland of the State University of Iowa.

"Preliminary clinical studies in the Department of Dermatology and Syphilology revealed encouraging results following oral administration of dihydroxypropyl bismuthate to syphilitic patients," the researchers reported. Only advanced cases in the second and third stages were available for experimental treatment.

Beneficial results were also obtained in cases of latent syphilis of the central nervous system. "Measurable benefit" was obtained in patients suffering from warts and lichen planus.

A separate report on 15 months of clinical trial of the drug will soon be issued. Meanwhile animal experimentation indicates "that several other members of the series (of compounds) are suitable as therapeutic agents."

Solutions of the new drugs are neutral, unaffected by mild acidity or alkalinity and are stable in all body fluids. This stability allows the compounds to pass through the stomach and remain soluble in the normally alkaline intestinal fluids.

"This property makes possible intestinal absorption in amounts previously impossible," the researchers stated. "It now appears that wider margins of safety, as well as high and more uniform blood levels of bismuth are possible during oral administration as compared to the standard intramuscular route previously employed."

Science News Letter, October 16, 1943

Sulfa Drugs Used Externally

➤ MORE EFFECTIVE germ-fighting sulfa drugs for external use seem probable through discovery of new compounds reported by Dr. Paul Goedrich of the New Jersey College of Pharmacy, Rutgers University.

Interacting iodine with a series of the well-known sulfonamides, Dr. Goedrich obtained adsorption compounds which showed germ-killing power against a wide range of germ types. Unlike the regular sulfa drugs, they did not seem to be choosy about the kinds of germs they attacked.

"The most striking feature of these compounds," Dr. Goedrich reported, "is seen in the fact that when the total iodine is removed from the sulfonamide-iodine compounds, they still demonstrate a germ-inhibitive and sometimes germ-killing action, in vitro [the test tube], whereas the unchanged, original sulfonamides show no such action at all."

This shows that their unusual action is not due to the iodine alone. After iodine removal, the pharmacists were told, the drugs can still be recognized as sulfas by official test, but that chemical changes have occurred is demonstrated by comparative bacteriological testing.

Science Service, Inc. is collaborating with JSTOR to digitize, preserve, and extend access to The Science News-Letter. www.jstor.org

The new sulfa-iodine compounds showed definite germ-killing action against tough spore forms of germs such as those which cause tetanus, gas gangrene and anthrax. Similar results were obtained with vegetable forms, such as the ball-shaped staphylococci and the rod-shaped typhoid bacillus of the gram-negative type.

These experiments do not imply a care-all for such infections, but serve to make Dr. Goedrich's point that the compounds "seem therefore to be non-selective in their bactericidal action."

Since such drugs should "retain a germ-killing action in the presence of organic matter, as present in wounds," tests were conducted under similar conditions.

Difficulties of using the regular sulfa drugs in wounds and various local applications have been pointed out by other investigators and their use questioned unless the physician knows with what combination or strain of germs he is dealing.

"Highly trained bacteriologists and well equipped laboratories are of paramount necessity to establish which type of organism is involved and which kind of the many sulfa drugs would be best suited for treatment," Dr. Goedrich stated. "Such facilities are rarely readily available to the average physician in an emergency, and hardly so at far-off outposts of our armed forces. It appears therefore that indiscriminate use of sulfonamides would mean taking a chance of 'hit or miss'."

Hence the need for a sulfa drug for local application, such as the promising new compounds which would be effective against all types of bacteria, including the resistant spore-bearers. Research is continuing.

Science News Letter, October 16, 1943

PHARMACY

Many Pharmacies of Future Will Be in Clinics

➤ FEWER drug stores as we know them today, more medical supplies dispensed through prescription shops and pharmacies in medical centers and group clinics, and better care for low wage groups were possible post-war changes foreseen in a report to the American Pharmaceutical Association in Columbus, Ohio, by Dr. Robert P. Fischelis, chairman of the Social and Economic Relations Committee.

The medical center idea, developing in many war production communities, is probably here to stay, the committee believes, and will have its effect upon private practice in both pharmacy and medicine. More pharmaceutical service through such agencies is considered likely either with government sponsorship or without it. Some plan to provide more adequate medical care and supplies for people with low incomes is certain, the report predicted. Fewer pharmacists may be available for corner drug stores as need for pharmacists increases for group service and in hospitals.

"The corner drug store will probably be confined more and more to towns which can support only one pharmacist and to neighborhood communities," Dr. Fischelis said. "This will open the way for more pharmacists to earn their living out of strictly professional practice.

"The pooling of patents now going on is resulting in a more liberal distribution of the right to produce important drugs, such as the sulfonamides, and may help to change the emphasis from brand names to the basic drugs themselves."

Need was foreseen for still more efficient cooperation between the pharmacist and physician to maintain top-notch medical service, since there are likely to be fewer physicians after the war. The more than 45,000 physicians in military service will not all return at once and as many as a third are expected to remain in the Army, Navy or U. S. Public Health Service. Many will serve in foreign lands to rehabilitate peoples who have war ills of mind and body.

Science News Letter, October 16, 1943

GENERAL SCIENCE

Reason Not Sufficient

Sentiments and different backgrounds due to language and different experiences are important factors in post-war world and peace, Harvard anthropologist states.

➤ ANY APPROACH to world peace that is purely geographic or economic is doomed to breed new confusion, Prof. Clyde Kluckhohn, Harvard University anthropologist, warned the Fourth Conference on Science, Philosophy and Religion meeting in New York.

Anthropologists agree, he said, that geographical position, natural resources, present degree of industrialization, illiteracy rate and countless other factors are important, but that many other factors must be taken into account.

The American public views the problems of the post-war world too exclusively in the light of reason, Prof. Kluckhohn said. Faith in reason is a glorious American tradition, but we must not ludicrously overestimate how much reason can accomplish in a limited time. Many of our acts are determined by sentiment and not reason. The sentiments of various peoples are determined by their peculiar historical experience.

The fact that various peoples have different languages causes them to arrive at different conclusions and actions when they start with the same set of conditions and facts.

"What we notice, what we talk about, what we feel as important is in some part a function of our linguistic habits," he said. "Because these linguistic habits tend to remain as unquestioned 'background phenomena,' each people tends to take its fundamental categories, its unstated basic premises for granted. It is assumed that others will 'think the same way,' for 'it's only human nature.' When others face the same body of data but come to different conclusions, it is seldom thought that they might be proceeding from different premises. Rather, it is inferred that they are 'stupid' or 'illogical' or 'obstinate'."

Science News Letter, October 16, 1943