Dr. Laurence Irving Becomes Advisory Scientific Director

A shift in gears but not in direction is the way you might sum up a new job for Dr. Laurence Irving of the University of Alaska's Institute of Arctic Biology.

He has stepped out of his role as institute director and into a post as advisory scientific director of the institute.

The change will be a shift from administration into research and study – pursuits that have occupied nearly 20 years of his life as he has investigated the adjustments made to Arctic life by people, animals and plants.

Dr. Irving had directed the institute since 1962. He will continue to head the Institute's laboratory of zoophysiology in addition to working in arctic research.

Regarding his work in Alaska, he feels that the state's natural environment provides a unique advantage for scientists, since bird and animal populations are comparatively intact.

By studying these populations, a good idea can be obtained of the conditions that existed through their natural development rather than through civilized contact.

While there has been an increase in biological information about the arctic, there is still a deficiency in wintertime information, Dr. Irving points out.

"We have, by living here, a great advantage in that we can observe things in a natural situation. This makes up for higher costs and the greater difficulty of living in Alaska."

One of Dr. Irving's studies concerns heat regulation of marine mammals–"a very interesting problem."

Most of these mammals, numerically, live in cold or Arctic waters without any fur covering–yet remain warm-blooded and carry on reasonably well–"extraordinarily well, judging from their productivity," he notes.

"The usable information we get is very small in quantity, but very good, because the contrast and comparison with land animals is so clear. Even with a small amount of information we can come to some pretty good generalizations."

Dr. Irving is contributing information on body heat of marine mammals to a study undertaken by Norwegian scientists.

He began one of his longest, single interests many years ago at the University of Toronto. The study concerns the "diving" animals, such as seals and whales, and the physiological reaction that enables these animals to suspend breathing for a long time.

"This study is being prosecuted actively and profitably today with new methods," he explains, "and things that we saw intuitively then are now

Dr. Laurence Irving

capable of being measured."

There is a marked heart slowdown when animals dive, yet the animal remains completely alert.

"Capability to dive is not due to unusual oxygen capacity but because these animals utilize oxygen differently by shutting off circulation to most of the body and allowing it to be used in the brain and heart. Selective regulation of circulation enables diving animals to go for long periods of time without breathing–periods that would asphyxiate land animals."

There is a great interest in studying a variety of animals other than the usual laboratory animals, or even people, according to Dr. Irving.

"Had we only looked at people, we would never have known about the diving animals."

One of Dr. Irving's earliest arctic interests was in studying the migration and nutrition of the Arctic Willow Ptarmigan, a study that is being carried on at the Institute today.

Another current Institute study involves both cold and warm-blooded animals and the changes that occur in them as temperatures approach freezing.

"Many cold-blooded animals that actually do freeze during the winter must seize the opportunity of the short interval of an arctic summer to get ahead in their life processes.

"In cold weather, the extremities of warm-blooded animals are often very cold, even approaching freezing, yet the animals are not only dormant, but alert and active. We examine nerves, muscles and extremities of these warm-blooded animals and what their operational capability is near freezing."

Dr. Irving continues: "In some of these animals, the extremities might cool as much as 35 degrees centigrade and then suddenly warm up. No cold-blooded animal would tolerate that much and that sudden a change."

Dr. Irving has contributed material on the adaptability to arctic life to a book by Canadian scientists.

He now hopes to do some field work in Alaska's unique environment.

Referring to his many years of scientific work in Alaska, he says modestly, "A fresh track through new snow is easy to follow and make."