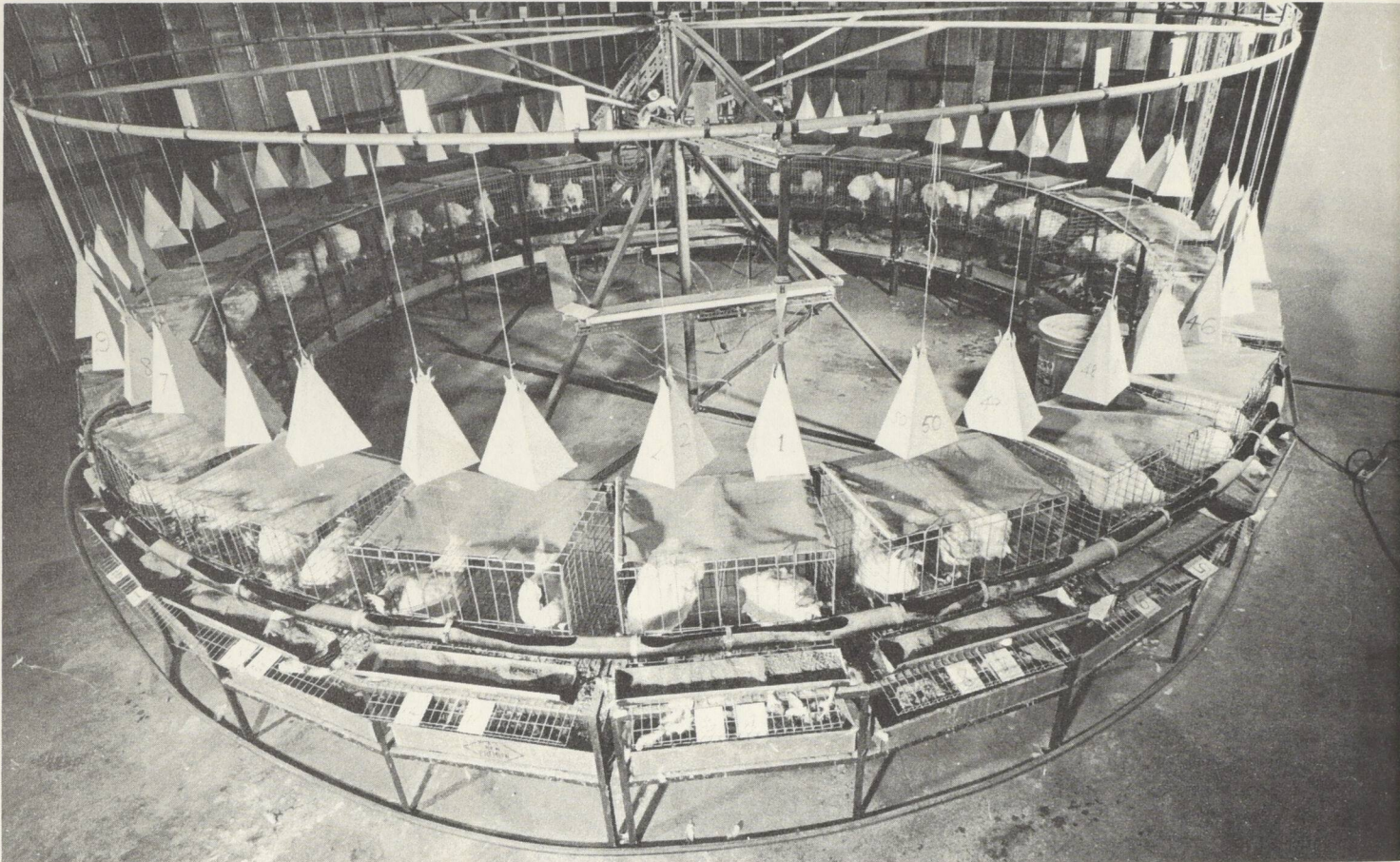


Wavelengths of birds



Carousel of cages used in microwave study. Only one "cone" is the radiating antenna; all the others are dummies.

Les cages sont montées en carrousel. Seulement l'un des "cones" sert d'antenne, les autres étant des leurres.

the abnormal flight pattern.

Whether these changes are due to peripheral effects, such as local changes in the skin, or physical changes in the behavior of the animal such that feedback of the motor activity is modified, have yet to be determined.

What physiological mechanism, for instance, associated with feathers may be activated by a microwave field?

"This particular study," says Dr. Tanner, "proved to be one of the most productive."

The reaction of chickens whose tail feathers only were subjected to microwave radiation was explored in the laboratory together with the effects of radiation on defeathered birds. In the case of the former, when radiation was switched on, the bird immediately ceased what had been a moderately inquisitive exploration of its cage. After a period of 10 to 20 seconds, it showed mounting signs of distress vented in the form of vocalization, defe-

cation and the initiation of flight. Repeated periods of exposure produced the distress reaction in a shorter time. Tests on members of the same species produced the same results. In each case, when the field was switched off, a bird responded by fluffing its body feathers and actively preening. The feathers alone appeared to be responsible for this reaction.

With plucked chickens, exposure to microwave radiation for two minutes every day produced little or no reaction until the twelfth day. At this time, it was observed that new feathers had started to grow and their tips protruded from the surface of the skin.

However, similar experiments conducted on chickens that had been defeathered by cutting the feathers revealed apparent indifference to the microwave field up to 30 days following defeathering.

"It seems evident," points out Dr. Tanner, "that feathers serve in a sen-

sory role. The physical properties of quill tissue and particularly the piezoelectric properties, which are fundamental to living tissue, point to a multiple physiological role and suggest sensory mechanisms that hitherto have been overlooked."

In the light of the laboratory's current results, microwaves do appear to have promise in the solution of the problem of bird hazards to aircraft on the ground as well as in the air.

"A microwave beam of appropriate frequency and intensity used to scan a runway", states Dr. Tanner, "could provide a safety corridor for aircraft and it is quite possible that existing radar equipments could be modified and used to do this. However, before any such scheme is implemented we must gain a better understanding than exists at the present time of the effects of microwaves on man and, in fact, on all forms of living tissue. The question of pollution is a very serious one."