Beauty and Order

A FINELY illustrated article by Dr. P. Weiss in a recent issue of the *Scientific Monthly* (81, No. 6; December 1955) elaborates the regularity and consistency of design in living forms. The regularity is expressed in such features as symmetry, repetition and alternation of elements; and consistency, as in the use of curves, proportions, size gradients, and so forth, in subdividing space. The rule of order over randomness, of pattern over chaos, of law over accident is well brought out, while patterns in Nature are shown to be of both space and time. In the last analysis, each organic form has had its history and has come to be what it is through long sequences of developmental processes. Since all form is thus merely a momentary cross-section through a stream of formative and transformative processes, what is admired as order and beauty in the final form is only a product and an index of the measured orderliness of the developmental actions and interactions by which it has come about. Static form is only a precipitate of underlying and antecedent formative dynamics.

Population Structure in Salt-Marsh Song Sparrows

THE song sparrows (*Melospiza melodia*) that live on the salt marshes of San Francisco Bay, California, have attracted the attention of students of birds for the past sixty years. The principal reason for this has been their morphological distinctness from all other song sparrows, including those which live in areas close to the salt marshes. Such a pattern of differentiation and distribution has always raised the problem of how the salt-marsh populations maintain themselves as distinct entities. A study by Richard F. Johnston continues previous work on salt-marsh song sparrows to determine what characteristics of salt-marsh populations influence or have some relationship to the maintenance of their morphological and/or genetical integrity, and how these characteristics express themselves (*Condor*, 58, No. 1; January–February 1956). Factors influencing the initiation of breeding in the song sparrow are closely associated with the biological growing season and include the photoperiod, temperature of the preceding three months, and the amount and distribution of the winter rainfall; these also influence the amount and quality of the song sparrow's food, which may well be the most proximate factor. The inception of breeding seems not to be closely related to any 'temperature threshold' or 'warmth-sum'.

Breeding spans the period March–June; the peak of first nestings is at the end of March. This is more than two weeks earlier than in upland song sparrows at the same latitude and seems to represent an adaptation to marsh life, for the birds thus nest mainly during lower tidal conditions. It is not the absolute height of the tides that governs egg and nestling mortality, but whether or not the birds can nest early enough to escape the high run of tides in April to June; when they breed late, there is high mortality caused by the high tides. Male song sparrows set up territories during late autumn and winter and are completely territorial by late February. Territorial defence is lacking during July–September when the adults moult; autumnal territoriality is seen in mid-September. Adult birds rarely shift their territory from one breeding season to the next. Dispersal of juveniles occurs in the late spring and summer and halts in late August and September when territorial activity rises. The median distance of dispersal, hatch-site to breeding-site, for 34 song sparrows was 185 metres. The limited adult movement and restricted distance of dispersal of these song sparrows mark them as one of the most sedentary population of birds yet investigated.

Predator Control

THE *Bulletin of the International Union for the Protection of Nature* (5, No. 1; April 1956) includes an account of the effects of attempted predator control in America. On the Kaibab Plateau in north-western Arizona, an area so noted for its mule deer that it was made into a game reserve more than fifty years ago, cougars and wolves were trapped to ensure that the deer would be protected. Within a few years the deer population had increased to such an extent that pasture-land was exhausted and even the forest was damaged. As a result, thousands of deer starved because of loss of their food supply. On Valcour Island, in Lake Champlain, an investigation was carried out to test the possibility of augmenting game by means of successful predator control. This operation allowed the game, mainly ruffed grouse and hares, to increase during the first four years from a small to a moderately high level, and then the population began to decline. In the absence of predation, disease apparently became a major limiting factor. As the sick were no longer eliminated, unchecked epidemics ravaged the game which was to be protected.

A Virus Latent in Turnips

J. P. MACKINNON has reported on this phenomenon as follows (*Canad. J. Bot.*, 34, 1, 131; 1956). Green peach aphids reared on turnip stecklings acquired a virus that was transmitted to plants of *Physalis floridana* Rydb. and *P. pubescens* L., hosts used in potato leaf-roll studies. Symptoms on these hosts consisted of a yellowing of the veins of the leaves. *Nicandra physalodes* L., when infected, showed severe stunting and chlorosis. The virus was carried without symptoms on turnips and showed only slight stunting on several species of *Brassica*. It was not transmitted by mechanical inoculation, and it does not appear to be similar to any of the viruses previously reported in turnips. The aphid *Myzus persicae* (Sulzer) acquired the virus during a seven-hour feeding period, and after a latent period of approximately 23 hr., transmitted the virus during a one-hour test-feeding period. Once infective, aphids remained so for several days.

American Prairies

IT has long been held that the vast extent of grassland, which is almost treeless, extending from western Indiana to the eastern slopes of the Rocky Mountains was made by man and due to the 'fire hunting' of Indian tribes. Among many tribes, fire drives were used in the pursuit of bison and other large-game animals. Whatever their purpose, such fires ran unchecked until they reached a stream or other baulk. Repeated burning destroyed existing trees and prevented their replacement by new growth. This belief has now been challenged by an American archæologist, Dr. W. R. Wedel (Smithsonian News Release, Dec. 23). Studies of habitation sites show that there were great dust movements over the plains before there was any agriculture. The dust, he suggests, must have been picked up from dry uplands from which the grass had been killed by drought. Geological surveys also show that there