

On early spring mornings, when there is still frost in the air and the buds on the fruit trees have scarcely begun to swell, bands of pinion jays that forage over the gravelly juniper-pinion foothills of the Sangre de Cristo Mountains of northern New Mexico where I live come to a feeder in my back patio. Soon they will be starting courting activities, pairing, and nest building, and then these flocks will disappear only to return late in summer after the new generation of jays is fully fledged.

In 1976, following a winter away from home, I hung the feeder from a dwarf apple tree growing beside a small goldfish pond which is heated against freezing during the cold months. The water is as great an attraction for birds as is the food; robins drink from and bathe in the pond all the year around, together with finches and sparrows. The latter quickly discovered the feeder and it was their bustling activities along with the splashing of the robins that caught the ever-alert eyes of the jays.

Their first appearance shortly after sunrise was like an invading army; they pre-empted every place a bird could occupy on and around the apple tree. The smaller birds vanished; only three or four intrepid robins were able to hold their own on the far side of the pool against the hoard of jays. The tree was loaded with dark gray-blue birds; they swarmed over the feeder, pushing and shoving and pecking at one another each intent on holding his place, and on the ground other jays crowded shoulder to shoulder to gobble up the seeds that rained down, spilled by the greedy ones above.

Because of the large size of the flock and the over-crowding at the focus of attraction a continuous change of the

took place at the feeder and on the surrounding branches between the surfeited birds and the unsatisfied ones insisting on a share. The exchange did not occur without conflict. Amid a cacophony of expostulatory sounds, mewings, cluckings, and chattering those holding favorable perches fought back against the attempts of their comrades to displace them. In the back-lighting recently risen sun the flashing wings of fluttering birds, of the ones planing in for a landing and others departing, produced a lively commotion that filled the apple tree with a scintillation of light from translucent feathers washed of all color.

As I watched this incredibly beautiful display of aerial agility I thought how wonderful are birds, each species so perfectly adapted to life in the atmospheric medium according to its needs from the albatross to the hummingbird. Unlike our clumsy mechanical inventions they seldom meet with accidents attributable to malfunction or to uncoordinated flight. Only when confronted by the structures and traps and poisons of men, to which they are as yet unaccommodated do they suffer mishap. On this earth they have adapted to ^{many} ~~and~~ possible combinations of environments in the course of evolution. There are the frigate birds at home almost exclusively on the wing; there are the petrels that divide their time equally between air and water with only minimal use of land; there are the oilbirds that live in the perpetual darkness of caves from which they emerge only at night; there are the gallinaceous birds which live in marshes for whom flight seems to have become an increasing effort as it has for the roadrunner, a ground inhabiting cuckoo; there are the penguins that have abandoned flight in the atmosphere for what can best be described as flight in the sea; and there are the odd

flightless species found around the world - many now extinct - that live exclusively on land of which ostriches and kiwis are representatives.

In the flow of species evolution birds have adapted to innumerable habitats and ecological niches. Given sufficient time, assuming that the class survives a period of human interference, they presumably will continue to develop ways of life adjusted to conditions different from and more adverse than any they have yet been able to accept. Consider as examples of faunal plasticity the great class of fishes to which belong types that grow lungs, climb trees, and fly, albeit for no great distance as yet; and consider the mammalian species- the cetaceans - that have returned to the sea, abandoning all dependance on land. Is it not reasonable to expect that birds in the perspective of evolution certain families of birds may become viviparous, incubating their eggs internally and thus be able to assume an entirely aquatic mode of life? Possible candidates for such a trend are the grebes and penguins.