

The Story of the Evolution of Life

BY T. F. PALMER.

(Continued from last issue)

Partridges, grouse, and hares are all protectively colored, and it requires the practiced eye of the poacher or gamekeeper to detect them when at rest. Then there are the remarkable phenomena of seasonal coloration in which the coloring of the animal during summer is quite different to that of winter. The summer attire of the stoats, mountain hares, Arctic fox, and various other creatures resembles that of the surrounding vegetation and soil, but in the northern winter, when the ground is mantled with snow, these animals change their color to a pure white. All such transformations possess utility value whether to mammals or birds as a means of concealment, or to the carnivorous fox in permitting him to approach his prey unseen, and protective coloration is made even more efficacious than it would otherwise be by the close correspondence which obtains between this deceptive adornment and the instinctive actions of its possessors. Many most instructive instances of this may be seen in the splendid exhibits of colour adaptation and mimicry in the South Kensington Museum. Various insects are shown so perfectly resembling the leaves and twigs they frequent, that it is necessary to indicate the spot on which the creature is at rest. Many ground birds so closely resemble the rough surfaces on which they repose that one may walk into them unawares. Not only are the shade and pattern of their plumage most wondrously like their surroundings but the birds habitually rest in such a way as to increase the resemblance.

Obviously, any pronounced variation in habit or colouring, would prove a serious disadvantage to the animal manifesting it, if it served to render the creature more conspicuous to its foes. Such a varying form would soon be weeded out by Natural Selection, whereas those organisms which developed a variation still more closely resembling their customary dwelling place would run fewer risks, and would therefore be preserved. Constantly arising as they do, such helpful and harmful variations teach us how the truly marvellous adaptations of organisms to their environment have been gradually perfected.

As if for the express purpose of utterly exploding this evolutionary explanation of protective coloration it was ascertained that various animals scorn concealment and ostentatiously parade themselves to all the world. Quite unlike those caterpillars that so completely resemble their feeding plants that even a hungry bird might miss them, there are others that are very conspicuously coloured. Nor is this phenomenon confined to caterpillars, although the study of these has served to solve the seeming anomaly. Caterpillars protectively coloured seek to escape the persecution of their enemies. Now, insect-eating birds, though never known to refuse these were found to reject the gaudily coloured kind. The distinguished naturalist, Wallace, had previously suggested that some caterpillars were boldly coloured to serve as a warning to insectivorous enemies, and when this theory was put to the test of experiment it was proved that conspicuously coloured caterpillars are distasteful to birds. Thus, the more noticeable the warning colour, the more the danger from attack decreases, and therefore the more these caterpillars vary in the direction of higher coloration the greater their chances of turning into moths, or butterflies.

Even more amazing are the variations developed which serve the purpose of outwitting enemies. These assume a wonderfully deceptive character. Such examples of imitative shading and structure relate to the copying in color and outline of one species by another, so that the mimicking form may be mistaken for its model. The species mimicked usually enjoys immunity from attack, and it is therefore an advantage to the species counterfeiting it to look as much like its model as possible. As we have seen, those gorgeously marked caterpillars

which advertise their unpalatability escape molestation, and it is equally profitable to well-flavoured caterpillars to carry the outward and visible signs of inward nauseousness. Mimicry has evidently served its practitioners well, and the height of deceptiveness to which it has been carried creates astonishment even in the mind of the field naturalist, accustomed as he is to the wiles and stratagems of the living world. There is usually no close relationship between the imitated and imitating forms and their marked resemblances cannot be due to descent from a recent ancestor. In his "Evolution Theory," Weismann adduces a large number of mimetic cases, and the subject has been brilliantly handled by Bates, Wallace, Poulton and others.

Among the various instances of mimicry we find a non-poisonous species of snake mimicking a highly venomous species. Aggressive ants, again, are mimicked in a most remarkable manner by another insect. In this example, ants inhabiting the Amazon region possess the quaint instinct of stripping leaves from trees which they carry like green flags to their dwelling place. In the same area resides an insect which so closely mimics the ant in appearance that one might easily pass for the other. In this case the body of the mimic has been so modified in form and colour that the insect seems to be carrying a leaf.

In many examples of mimicry the mimic and its model possess in common certain basic likenesses in structure to which in the course of their transformation a few finishing touches have been added to complete the resemblance. We have a quite common instance of mimicry in England in the insect known as the drone fly, owing to its likeness to the hive bee. Now, not only are honey bees respected by a considerable number of potential enemies because of their stinging powers, but they are also distasteful. Bees are consequently avoided by insect eating birds. The drone fly, however, is quite defenceless, and is not unpleasant to the palate, and the presumed advantage to the drone fly in its deceptive likeness to the formidable honey bee has been verified by a series of experiments. Prof. Lloyd Morgan, for instance ascertained "that young birds which had tasted and rejected workers of the hive bee as unpalatable subsequently refused to taste not only drones, which have no sting, but also drone flies."

Our story is now at an end. It might have been longer, but enough has been said to convey a general idea of what the doctrine of organic evolution implies. There is every reason to believe that the wondrous wealth of living forms of the tropical, temperate, and even polar regions, as well as the floral and faunal populations of stream, lake, and sea, have all been developed by the purely natural forces of the Universe. As Darwin observed in concluding his "Origin of Species":—"It is interesting to contemplate a tangled bank, clothed with many plants of many kinds, with birds singing in the bushes, with various insects floating about, and with worms crawling through the damp earth, and to reflect that these elaborately constituted forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us."

(The End)

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THE POLITICS OF CAPITALISM

(Continued from page 1)

shameless oppression and debauchery. They and their servants wielded a sinister and corrupt influence in domestic politics, and were the prime instigators of war with the governmental patrons of rival traders, whether Dutch, French or Spanish. Trading, privateering and war were almost indiscriminately the business of the 17th and 18th century sea-captains and shipowners. Slave-trading was a lucrative and honourable traffic indulged and shared in by the shipping, mercantile and landed classes. Many a respectable family in the neighbourhood of Liverpool, Lancaster, Bristol and Glasgow swelled its rent-rolls and gains of commerce with the profits of the negro-market and the indenture money of kidnapped English and Irish labourers. Their politics were directed towards enforcing the exclusive trading rights of British and Colonial shippers between the several parts of the British Dominions, protection and bounties for the native corn-growers, and measures calculated to make the West India plantations, the colonies and Ireland buyers of British manufacturers and sources of supply of raw materials. The entire landed, mercantile and financial elements of this country utilised the political power which their property placed in their hands to promote what they deemed to be their economic and social interests, whether affecting the tenure of their land, the incidence of taxation, the increase of the public debt, the conduct of foreign trade or the confiscation of the properties of those who had no political standing and no social capacity for organised resistance.

Ireland in Labour's History.

Throughout the seventeenth and into the eighteenth century, these interests, not excepting the Cromwellian "fighters for freedom," robbed the Irish people of their tribal lands, swept them into the wilds of Connemara, Donegal and Kerry, and made of the Emerald Isle a great domain of the English ruling class, of such hereditary exploiters and reactionaries as the Castlereaghs of Londonderry and the Lascelles of Lansdowne. From that time onwards, the Irish problem became the bane and increasing curse of British politics. When, in addition, the English manufacturing and mercantile interests used their political power to cripple and almost to destroy the woollen manufactures of Ireland, and the landed class insisted on the unfailing export of Irish corn to pay their rents regardless of the famine that stalked abroad, the Irish proletariat was driven to Lancashire, to Lanarkshire and to the slums of London and the mining areas to act as "blacklegs," and to spread racial and religious strife (a strife which the cotton-masters of Glasgow and the iron-masters of Monmouthshire deliberately fomented) amongst the working class. In Scotland, the land owners, having degraded the colliers into serfdom by Parliamentary enactment, set themselves to cultivate the linen industry and flax-growing by private and, then, by public subsidy, first in the Lowlands and then in the Highlands, which they "cleared" (i.e., stole) from 1745 onwards. "In the 18th century," says Marx, "the hunted-out Gaels were forbidden to emigrate from the country, with a view to driving them by force to Glasgow and other manufacturing towns."

So, in England, in Scotland, and in Ireland the landed class, farming or leasing their estates for profit, robbed the peasantry of their clan properties, of their holdings, and of their commons by force or legal fraud, threw farm to farm, and drove the rural population to the towns and cities, exported them (if we are to credit Defoe) compulsorily to the West Indies, to North America, or else recruited them into the Army and the stinking hulks of the Navy to police their fellows and widen the bounds of their masters' "Liberty"—the liberty to exploit!

(To be continued in next issue.)