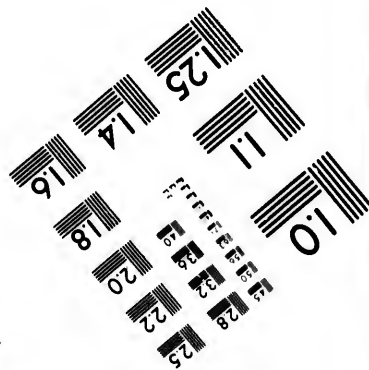
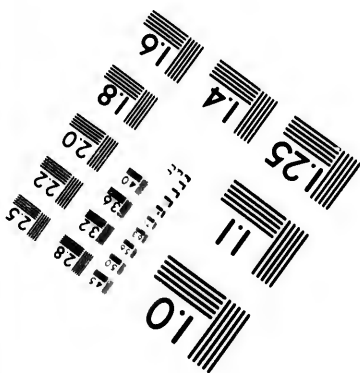
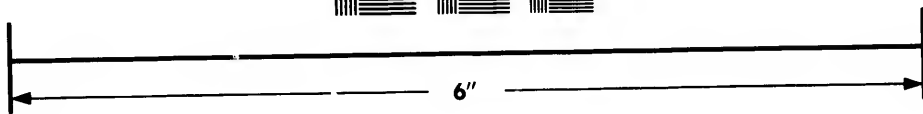
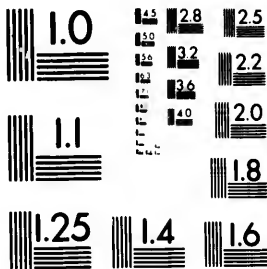


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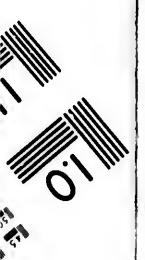


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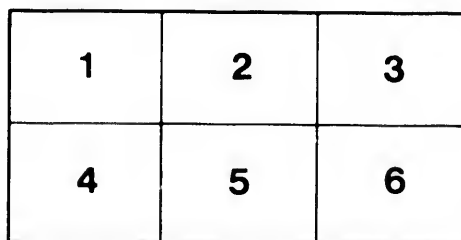
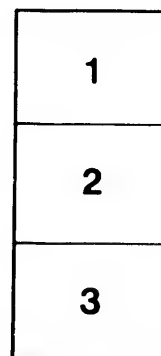
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3. *American Ornithology; or the Natural History of the Birds of the United States.* By Alexander Wilson and Charles Lucien Buonaparte. Edited by Robert Jameson, Esq., F. R. S., &c. 4 vols. Edinburgh. 1831. (Printed in Constable's *Miscellany*.)
4. *Fauna Boreali-Americana; or the Zoology of the Northern Parts of British America.* Part Second.—The Birds. By William Swainson, Esq., F. R. S., and John Richardson, M. D., F. R. S. 4to. London. 1831.

AN accurate knowledge of natural history is rarely advanced by the publication of general systems, for there are few minds at once so laboriously persevering, and of such comprehensive power, as to be enabled to acquire, combine, and communicate the total results which lie scattered over the surface of so vast a field. But either the elucidation of a particular department of the science, viewed under all its known relations, or an exhibition of the science itself, considered in its universality only so far as regards a particular country, is a more attainable object, and one more likely, from the comparative ease of execution, to be attended by a successful issue. Still more judicious are those authors who prescribe limits, not only to the subject which they embrace, but to the localities with which that subject is connected,—and hence the higher value of works like those before us, compared with the more ambitious efforts of the system-maker: the one class is the result either of personal observation, where such has been possible, or of very careful and assiduous comparison of written records;—the other is too often a hasty and ill-concocted amalgamation of statements, generally erroneous in their first announcement, and in no way rendered less fallacious by the lapse of time, or the frequency of repetition.

In no department of intellectual exertion is the propriety of the division of labour more necessary to be kept in remembrance than in that of natural history; and in none is the adherence to a clear and consistent system of arrangement so indispensable. A prejudice has no doubt arisen in the minds of many general readers against the systematic compendiums of modern naturalists, on account of the repulsive form in which their

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Incubations are too often presented. In like manner, and with equal reason, the systematic student, who seeks for precise and distinct definitions, finds no satisfaction in those vague and misty declamations wherein the *mirage* of a lively imagination raises from their proper position, and magnifies into undue dimensions—(under the misused name of popular science)—a few facts, which are probably of no essential value even when seen under their natural aspect, and become worse than useless when gazed on through that deceptive medium. As well might a Sicilian mariner, while witnessing the delusive glories of the *fata morgana*, endeavour to secure a local habitation in that world of 'gorgeous cloud-land,' as the student of natural history expect to obtain a knowledge of nature's works from those other equally unsubstantial, though printed, pageants. We can easily indeed imagine 'what conjuration and what mighty magic' would ensue from a combination of the higher powers of genius with those more exact and discriminating habits of observation which are essential to the naturalist,—and how beautifully the attributes of the poet might be blended with those of the philosopher.—

'Recompensing well

The strength they borrow with the grace they lend.'

As the appropriate business of poetry, according to Mr. Wordsworth, is to treat of things not as they are, but as they appear to be,—not as they exist in themselves, but as they seem to exist to the senses and the passions of mankind,—there might, no doubt, be some danger of a rather spurious offspring rising upon us, were any science of observation thus 'married to immortal verse.' Still, however, we hope to see at least the dawning of that better day, when works of science shall be accurate and popular at one and the same time,—when the rigid observer of facts shall not disdain to dress them in a pleasant and even ornamental garb,—when dull detail shall no longer be substituted for graphic description,—and when, instead of the repulsive features of morose and jealous system-makers, we shall continually behold what Milton has beautifully called 'the bright countenance of truth shining amid the still air of delightful studies.

We see indeed, with unfeigned regret, that those vain disputations, which we had fondly hoped would have found a sufficiently extended space in the soiled arena of politics, or through the tortuous and hollow ways of polemical discussion, are now spreading their baneful influence over the peaceful domains of science, where—

'More pellucid streams,

An ampler ether, a diviner air,

And fields invested with purpureal gleams,'

might have been permitted to escape the contamination of such a pestilence. But we greatly fear, that so far from doing all things, as we are commanded, we are unable to do anything whatever without 'murmurings and disputings.' And, no doubt, when the war of words is carried on by accomplished disputants, and the point at issue is one which accords with the more passionate sympathies of mankind, there may be an intellectual pleasure in witnessing the thrust and parry of two practised wranglers; but such contentions are really alike uncalled for and unwelcome on the part of naturalists:—the greater proportion of that limited class being in truth very worthy and well-meaning men, totally unskilled in the use of controversial weapons, they handle them too feebly to inflict any damage on their opponents—and all that either party gains is the derision of the public:—

'Put up your bright swords, else the dew will rust them.'

We have said that the vast materials of which the science of natural history is composed, rendered the methodical arrangement of its subjects indispensable. This would be true even were our efforts confined to the formation of arbitrary or artificial systems, the principal merit of which consists in the facility they afford in ascertaining the name by which a species had been previously recognized by others; for nomenclature, though not so much a department of natural history as a convenient instrument by which the science may be more successfully cultivated, is yet indispensable to the 'common good,' so long as men are desirous to avail themselves of the labours of their predecessors and contemporaries—in other words, so long as they are not insane through egotism and conceit; but it becomes a still more important truth when we look upon system, both as a means and an end, which it will assuredly become, in the hands of him who discovers a key to the natural order and affinities of existing things, or who, by the power of a more exact and universal knowledge than any one individual has ever yet acquired, shall exhibit the final result of a successful investigation of the mysteries of nature.

An artificial classification of animals in natural history may be likened to an alphabetical arrangement of words in a dictionary. In the one case, a few unimportant, though easily-ascertained characters, which lead to no general results in relation to the habits and economy of the species, are selected as the bond of union, as in the other the initial letters form the accidental basis of connexion; and we might as reasonably expect that the highest manifestations of the literature and philosophy of a language should consist in marshalling together all the words which begin with the same letter, as that our knowledge of nature should be rendered perfect through the medium of an artificial system.

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The words in the one case, and the characters in the other, constantly lead us to things which bear no necessary or essential relation to each other. But a natural classification, or such an approximation towards it as our finite capacities or means of information permit us to attain, resembles a finely methodised arrangement of the subjects of human knowledge, in which, not the accidents of literal resemblance, but the essentials of a natural and indestructible connexion, form the only true basis of a philosophical system. An assiduous and long-continued study of nature forms, of course, the best precursor to a successful system of arrangement according to the natural order; and when we bear in mind, that in the formations of most systems an opposite course has been pursued, and that animals, so far from being classed in accordance with their structure and attributes, are at once submitted to certain arbitrary rules, established *à priori* as a mere matter of convenience, we need scarcely marvel at the results,—or that the words of Locke, in reference to another subject, ‘a vast expansion given over to night and darkness,’ should apply to so many ‘systems’ of natural history.

A brief glance at the numerical amount of species, in a few of the great classes of the animal kingdom, will suffice to shew what an incomprehensible and unmanageable mass they would present, were not their parts divided and defined in accordance with the rules of system.

There are supposed to be above 20,000 species of insects in Europe alone; and the southern quarters of the globe are proportionally still more prolific; for we find that cold is in general adverse to insect life, and that even temperate countries are in this respect much less productive than tropical and equatorial regions. It is probable, however, that the distribution of many northern insects is still unknown. It was formerly supposed, that in Iceland there were none, and that even in Norway there were very few; and their absence from those countries was attributed to excess of cold. Horrebow contradicted this opinion in regard to Iceland; and Linnaeus, Thunberg, Paykull, Gyllenhal, Schönherr, and others, have shown, that in Lapland, Sweden, and the North of Europe in general, insects are very numerous. Some of the finest of the coleopterous kinds (such as *Procerus tauricus*) occur in Siberia; and Pallas, Marechall de Birberstein, Steven, Severguine, Adams, and Fischer, among the northern writers, have made us acquainted with species which rival in size and splendour the most gorgeous products of the torrid zone. During Olafsen and Povalsen's residence in Iceland, one of these travellers, neither of whom had much knowledge of entomology, collected 200 different species in one small valley; Mr. Scoresby found two species of butterfly (*Colias palæno* and *Melitæa dia*)

in great numbers on the east coast of West Greenland, in north latitude 71° ; Mr. Kirby has described several insects, captured on Melville Island, which lies in the 75° and 76° of north latitude; while Captain Parry, on the last day of his attempt to reach the Pole over the ice, found a small species of aphid, in latitude $82^{\circ} 26' 44''$, about one hundred miles from the nearest known land. This may be stated as the extreme northern boundary of insect life.

The amount of *collected* species in the annulose classes, that is, the crustacea and insects, whether described or otherwise, is estimated by Macleay as exceeding 100,000; and it may safely be asserted, that but a small portion, compared with the entire amount of existing species, has been yet discovered. Our knowledge even of European entomology is, in many respects, imperfect and superficial; and when we consider that all the other quarters of the earth exhibit vast tracts of territory, with the great geographical features of which we are still unacquainted, we cannot marvel that the minute and less important, though scarcely less interesting, features of insect life should have remained unexplored. The great central deserts, woods, and mountains of Africa, and an extended portion of the south-eastern coast of that continent, the interior of New Holland, and the islands of the Pacific Ocean, the central and eastern parts of Asia, the western coasts of North America, and many of the mountain ranges and highly-elevated plateaux of the southern division of the New World, are almost entirely unknown, so far as regards their entomological relations.

Of the various tribes of insects, those of the coleopterous order have been the most assiduously and the most successfully studied. It is somewhere stated in a *popular* work, that beetles are of *two* kinds—the black and the brown. Fabricius appears to have been of another opinion; for in his ‘Systema Eleutheratorum,’ he has described 5250 kinds; and although that number presented a great accession to the amount contained in the preceding system of Linnæus, yet so rapidly has our acquaintance with the coleopterous tribes been extended since the period alluded to, that the collection of M. Dupont, junior, of Paris, contains about 10,000 species, and that of the Baron de Jean a still greater number. The known coleoptera of Great Britain alone amount to nearly 3,300 and every year furnishes additional species. The total amount of known British insects (according to the last *census*), is 10,012,* which is equal to nearly twice the number of ascertained birds, and to more than ten times the number of ascertained quadrupeds throughout the whole world.†

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* Systematic Catalogue of British Insects. By F. J. Stevens, Part II., p. 369.

† In regard to plants, Decandolle (‘Essai Element. de Géograph. Botan.’) intimates that

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Although Lacedpede did not describe many more than 2000 fishes, some years have elapsed since it became evident that the observed species of that class amounted to nearly twice the number; and Baron Cuvier has lately remarked, that the amount of known fishes may now be estimated at 6000.

Buffon was wont to complain of the difficulty of writing an ornithological history, because he was already acquainted with 800 birds, and he supposed that there might actually exist 1500, or even 2000 species. Nearly 6000 of that class have likewise been ascertained, and many new species are in the course of being added every year.

'In the animal kingdom,' says Berkenhout, writing about the year 1789, 'the number of species of the class mammalia hitherto discovered is about 350; of this number 54 only are inhabitants of Britain.' Many foreign quadrupeds have been so obscurely and inaccurately described, that it is by no means easy to ascertain with precision their actual amount; but we doubt not that between 800 and 900 mammiferous species have fallen under the observation of naturalists.* The British species, as might be supposed in a limited insular district, have not been greatly increased by recent observation. Dr. Fleming, in his compendium, gives 60 as the amount of this class, including, of course, the cetacea and seals; and his work appears to contain all the species yet known in Britain, with the exception of a few bats. Mammiferous animals, in general, that is to say, quadrupeds and whales, may be located over the earth's surface (approximately) as follows:—There are about 90 species in Europe; 112 in Africa; 90 in Madagascar and the Isle of France; 80 in Southern Asia and Ceylon; betwixt 50 and 60 in the islands of the Indian Archipelago; from 40 to 50 in Northern Asia; above 100 in North America; nearly 190 in South America; and from 30 to 40 in New Holland and Van Diemen's Land. 30 species of seals and cetacea inhabit the northern seas; 14 the southern; and about 28 species of these tribes occur in the intermediate latitudes. There are probably about 60 species which are strictly aquatic:—viz. the cetacea;—20 species, such as the seals and morses, may be called amphibious, in as far as they come frequently on shore,

their probable number as amounting to somewhere between 110,000 and 120,000. Botanists are already acquainted with 60,000 species; but of the phanerogamous kinds there are not above 1500 indigenous to Britain. We have, therefore, in this country, nearly seven insects to each phanerogamous plant; so that if it were allowable to regard the relative amount of the two classes in Britain, as representing that amount over the entire surface of the globe, and admitting the existence of only 100,000 phanerogamous species, we should come to the conclusion that there were nearly 700,000 different kinds of insects in the world. How truly 'manifold' are the works of Omnipotent Wisdom!

* Monographies de Mammalogie. Par J. C. Temminck, tome i. 1827.

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part II., p. 369.
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although the saline waters of the ocean are their more familiar and accustomed homes; about 100 are able to support themselves in the air with bat-like wings; perhaps a dozen more can skim from a greater to a lesser height, as it were upon an inclined plane, by means of the extended fulness of their lateral skin; 15 may be said to be web-footed, and inhabit, for the most part, the waters of lakes and rivers: nearly 200 dwell among trees; 60 are a subterranean people, and dwell in the crevices of rocks, or in the holes of the earth; about 120 ruminating and pachydermatous, and more than 150 of the carnivorous and gnawing tribes (glires) wander through the forests without any particular or permanent habitation, and are generally endowed with the power of rapid movement. In relation to their nourishment there are about 330 mammiferous animals of an herbivorous or frugivorous disposition; about 80 whose habits are omnivorous; 150 which are insectivorous, and 240 carnivorous in various degrees.* Among living authors the fullest summaries of the class mammalia are given by Desmarest, Griffith, and M. Lesson.

The migratory movements of animals frequently effect an interchange between the zoological productions of one country and those of another. These movements consist of two principal kinds, which may be called the irregular, or intermittent, and the periodical. Of the former kind, quadrupeds, such as the lemming (*Mus lemmus*, Linn.), and insects, such as various species of locust, present the most characteristic examples; whilst the nature of periodical migration is illustrated by the swallow and cuckoo among birds, and by the salmon and herring among fishes. Of the lemmings we have heard less of late years than might have been anticipated from the numerous accounts which last century furnished of their history. They are described as natives of the mountains of Kolen, in Lapland; and once or twice, in a quarter of a century, they appeared in vast numbers, advancing along the ground, and devouring 'every green thing.' Immense bands march from the Kolen, through Nordland and Finmark, to the Western Ocean, which they immediately enter, and, after swimming about for some time, perish. Other bands take their route through Swedish Lapland to the Bothnian Gulph, where they are drowned in the same manner. If they are opposed by the peasants they stand still and bark at them; and they themselves are not only barked at in return, but eaten in great quantities by the lean and hungry dogs of Lapland. The appearance of these vermin is regarded as the omen of a bad harvest. They are followed in their journeys by bears, wolves, and foxes, which prey upon them incessantly, and regard them as the most delicious

* Mammalogie, par M. Desmarest, part ii. Avertissement, p. vi.

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food.* These excursions usually precede a rigorous winter, of which the lemmings seem in some way forewarned. For example, the winter of 1742, remarkable for its severity throughout the circle of Umea, was comparatively mild in that of Lula, although situated farther to the north; the lemmings migrated from the former, but remained stationary in the latter district. Whatever may be the motive of these journeys, they are executed with surprising perseverance, and with the universal accord of the whole nation. The *officina murium* pours forth its entire hordes, and, for a time, scarcely a remnant is left in their ancient habitations. The greater proportion, however, perish before they reach the sea, and of course few survive to return to their accustomed homes. They do, however, endeavour to return; for the object of their travel to a far country, whatever it may be, is not to found a multiplied or more extended empire. This, indeed, is evident from the comparatively local restriction of the species, for the true lemming of the Scandinavian Alps does not appear to occur even in Russian Lapland; and the kind which inhabits the countries in the neighbourhood of the White and Polar seas, as far as the mouths of the Obi, is a species or strongly-marked variety, smaller by at least one-third, and of a different aspect and colour.† Their migratory propensities are, however, entirely the same in different countries, for the species which dwells among the northern extremities of the Ural mountains, emigrates sometimes towards Petzora, at other times towards the banks of the Obi, and is followed, as usual, by troops of carnivorous and insatiate foes.‡ The manners of the species are said to present this discrepancy, that the Norwegian lemmings lay up no provisions, and have only a single chamber in their subterranean dwelling-places, whereas the lesser kind excavate numerous apartments, and are provident of the winter season by storing up ample magazines of that species of rein-deer moss, called *lichen rangiferinus*.§

The immediate cause of those movements, which we class under the head of irregular migration, seems to be the excessive multiplication of the species, and the consequent want of a sufficient nourishment, which naturally leads them to seek elsewhere for a more abundant supply. Periodical migrations, such as those of many birds and fishes, are more probably produced by the desire which these animals experience of returning to their native haunts for the purpose of producing and rearing their young in the places most fitted for their reception and increase. Fishes always spawn in comparatively shallow waters; from which we may infer,

* See Dodsley's Annual Register for 1769. † Schreber, pl. 195. B.

‡ Pallas, Nova species Quadrupedum e glirum ordine.

§ Dict. Class. d'Hist. Nat., article *Campagnol*.

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that the influence of light and heat is, to a certain extent, necessary for the development of the germ of life; and thus, however far they may wander for a time into the depths of 'the blue profound,' they return again to their native shores before the commencement of the breeding season. The fry not only find their nourishment more abundantly in the bays and along the comparatively shallow firths of the sea, or among the sedgy banks and gravelly margins of lakes and rivers; but they are also in such situations less exposed to the attacks of their natural foes, just as the smaller tribes of birds seek protection from hawks among the branches of trees, or in the denser foliage of the shrubbery.

It is usually about the periods of the equinoxes that the principal migratory movements of birds are performed. At those periods strong winds are apt to prevail, and, no doubt, act their part in transporting these happy aeronauts to their destined homes. In consequence of such movements a regular intercourse is kept up between different countries, and a flux and reflux of feathered life maintained;—the countries situated near the tropics sending their inhabitants, on the approach of summer, into temperate regions, while the latter prepare for their reception by despatching a still greater number towards the polar circles. On the approach of winter again, the hyperborean regions are left nearly desolate by the migration southwards of their winged tribes, while the temperate regions are deprived of many beautiful songsters by a corresponding decrease of temperature, and consequent failure of insect food, by which they are forced once more to venture, without guide or compass, across stormy seas and desert wildernesses. By what unknown and mysterious calendar are they instructed?

'The God of nature is their secret guide.'—*White*.

Whatever theory of instinct may be finally fixed upon as the most correct and philosophical, it is obvious that we cut rather than untie the gordian knot when we talk of the foresight of the brute creation. We might as well talk of the foresight of a barometer. There can be little doubt that birds, prior to their migratory movements, are influenced by atmospherical changes, or other physical causes, which, however beyond the sphere of our perceptions, are sufficient for their guidance. That they are not possessed of the power of divination may be exemplified by the following instance. The winter of 1822 was so remarkably mild throughout Europe, that primroses came generally into flower by the end of December,—rye was in ear by the middle of March, and vines, in sheltered situations, blossomed about the end of that month,—so that an assured and unchecked spring was established at least four or five weeks earlier than usual;—yet neither the cuckoo nor the swallow arrived a single day before their accus-

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tomed periods.* They are, indeed, beautifully and wisely directed,
 —‘ Yea, the stork in the heavens knoweth her appointed times;
 and the turtle, and the crane, and the swallow, observe the time
 of their coming.’

It is evident, that of all natural agents climate is the most
 powerful in changing and modifying the external characters of the
 feathered race; and, therefore, to enable us to acquire such know-
 ledge as may render us competent to distinguish between specific
 difference and accidental variation, we ought to pay particular
 attention to the effects produced by local position; in other words,
 we must study the geographical distribution of the species. The
 influence of climate upon birds, and the mutual relations subsisting
 between the general characters of the plumage of many tribes, and
 the temperature and other physical qualities of the country in
 which such tribes are most abundant, although among the more
 interesting of the general speculations which the science of orni-
 thology admits, have as yet, we believe, but sparingly occupied
 the attention of naturalists. In fact, ornithology has hitherto met
 with scarcely any general or philosophical illustration, and may be
 said to have remained nearly stationary in those respects, during
 the recent progress of the higher branches of botany and mineralogy,
 and even of entomology, and other more nearly allied departments.
 Numerous species have been described, and numerous systems of
 classification (for better or for worse) have been invented; after
 which ornithologists have too often rested from their labours,
 mistaking the means for the end, and believing that all was ac-
 complished when only certain necessary steps had been taken, and
 the way cleared (though but to a limited extent) for the com-
 mencement of those more extended and more philosophical in-
 quiries, without which there is little interest, and no dignity, in
 any science.

Müller, in his paper on the geography of birds, has indeed
 treated of the habitation of upwards of 3800 species; † but, in
 the opinion of Humboldt, he has erred in viewing them according
 to their distribution over the five great divisions of the world,
 —a method, certainly, by no means philosophical, and little fitted
 for investigating the influence of climate over the development of
 organized beings; because, as all the continents, with the excep-
 tion of Europe, extend from the temperate to the equatorial
 regions, the laws of nature cannot manifest themselves when we
 group the phenomena according to divisions which are arbitrary,
 and which depend simply upon the difference of meridians.

* Gaspard, Memoire sur le Concou. Journ. de Physiol. Experim. Juillet. 1821.

† Tabellarische Uebersicht der vertheilung der vogel über die erde. Abhand-
 lungen der Königlichen Akademie der Wissenschaften in Berlin. Vol. iv., p. 221.

A Swiss naturalist, some time ago, endeavoured to illustrate the laws according to which the birds of Europe are distributed over our continent. The country in which a bird produces its young is regarded as its proper one, and all the species which may occasionally occur there, but do not breed, are classed as birds of passage. According to this view, such species as are birds of passage in one country are not so in another, although they equally depart from and return towards it, as the temperature declines or increases. Thus our native species (in Britain), in addition to our constant residents, are the swallow, the redstart, the willow wrens, the nightingale, and other *summer* visitants; whilst the fieldfare, redwing, wild swan, &c. which visit us during the *winter* season, are the only true foreigners, in as far as they were born and bred in another country. The proper country of a migratory bird is certainly that in which it has been born and bred; for, although it is forced, by the changes of the season, to sojourn for a great proportion of the year in regions which enjoy an almost perpetual summer, it never ceases to obey the periodical calls of that beautiful instinct, that *amor patriæ*, or by whatever other name it may be called, by which it is made, as it were, to discern a renewal of the genial spring in those far distant northern countries where it had its birth. The knowledge of a few general facts seems to have resulted from the investigation now alluded to. The nearer we approach the poles, the more do we find the species proper to those regions, and the fewer are the foreign species which make their appearance. Greenland has not a single bird of passage, that is to say, none which has not been produced in that country; Iceland has only one, which remains during winter, and departs in spring for still more northern countries; Sweden and Norway have several more birds of passage, and they increase in number as we advance towards the centre of Europe. The amount and nature of the species bear a relation to the quality and quantity of the food by which they are sustained. Spitzbergen produces scarcely more than a single herbivorous species; for there the sea presents almost the sole source of nourishment, and all the rocks, and cliffs, and icy caverns, the

‘ Earthquake-rifted mountains of bright snow,’

are inhabited by aquatic fowls, ravens, and a few hawks. In the frigid zone a much greater number of marsh birds breed than in any of the warmer countries of Europe. Even in regard to domestic species, each country, according to Schinz, has its peculiar varieties of poultry.*

* New Inquiries into the Laws which are observed in the distribution of Vegetable Forms. Edinburgh Philosophical Journal, vol. vii., p. 49.

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But it is time that we should turn our attention rather more directly to the subjects named at the head of this article. Although we cannot be said to have acquired a perfect knowledge of the ornithology of North America, we yet possess, in the beautiful work of Alexander Wilson, and in the important publications of succeeding writers, such an accurate and ample history of the birds of the United States, as to warrant the belief that no very striking feature of the science remains to be discovered, at least in these districts. It is otherwise, however, in regard to the western coast, and the extended chain of the Rocky Mountains, which, presenting an infinite variety of hill and dale, 'dingle and bushy dell,' for the most part well watered, and enjoying, especially among its western slopes and valleys, a long and continuous summer, may be expected to yield, not only several species peculiar to and characteristic of its own localities, but also a considerable variety of the southern birds of passage from Mexico, and the more tropical regions of the new world. It has been long ascertained, in regard to the species of the United States, that the southern migratory birds ascend to much higher latitudes on the western than on the eastern side of the great Alleghany chain of mountains; * and from what we know of the fine climate which characterizes the basin of the Columbia, and other portions of the western territory, we may fairly infer that many species from Yucatan, and other peninsular portions of the Isthmus, will be found to spread through Mexico, and even to extend their migrations northwards as far as the Gulph of Georgia, and its neighbouring lakes. Indeed, it is an established fact, that many birds of Mexico, entirely unknown in the Atlantic territories of the United States, are met with in the interior of the country, and especially along the range of the Rocky Mountains, in latitudes of considerable elevation. A species of water-ouzel (*Cinclus Americanus*), found by Mr. Bullock in Mexico, has also been received by M. Bonaparte from the shores of the Athabasca Lake, which lies under 60° of northern latitude; † and Kotzebue informs us that during the summer season the ruff-necked humming-bird (*Trochilus collaris*), occurs along the shores of the Pacific Ocean as high as the sixty-first parallel. The Californian vulture does not occur to the east of the Rocky Mountains, and the black vulture (*Cathartes atrata*) attains to much higher latitudes along the western shores than among either the central or eastern territories. Several South American species likewise occur in the Union (such as *Falco dispar* and *Columba leucocephala*), but the generality of these are confined to the southern states.

* Barton's Discourse on the Principal Desiderata of Natural History, p. 21.

† American Ornithology, vol. iii. p. 1.

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There is, indeed, no region out of Europe, of equal extent, of which we possess so ample and correct an ornithological knowledge as we do of the United States. Of the three writers, however, to whom we owe this debt, we are not sure that even one was a native of America. The first, Alexander Wilson, an emigrant from Paisley, a poet by birth, though a pedlar by profession,—one who, realizing the peculiar fancy of Wordsworth—

‘plodded on,
Through hot and dusty ways, or pelting storm,
A vagrant merchant bent beneath his load,’

was also the author of the most delightful collection of ornithological biographies with which we are acquainted.* He described the birds of the United States in a manner which had either been previously unattempted, or, if attempted, had signally failed of success; and, detailing the history of their haunts and habits with an accuracy and animation which relieved the subject of its accustomed aridity, he rendered a work of genuine science as interesting to the general student as to the devoted naturalist. His book formed, in fact, a new era in the history of the feathered tribes; and, lightening the subject itself of the opprobrious weight under which it had long laboured, it placed that opprobrium on the shoulders of those who chose to continue their ‘damnable iteration’ of technical details, to the exclusion of the spirit of life which pervades the beautiful originals. Wilson died as he had lived—in poverty. He appears to have been a man of strong feelings, and of a somewhat morbid, if not irascible, disposition; loving his own pursuits ‘not wily, but too well;’ and either unable or disinclined to check those asperities of temper which are apt to arise in the minds of men whose feelings and opinions are diametrically opposed to those of the world around them. The day-star of his life, which, under happier auspices and a more prudent zeal, might have led to emolument as well as honour, was regarded by almost all by whom he was surrounded as nothing more than a delusive meteor,—a sort of ‘Will o’ the Wisp’ which could never lead to good. In truth, he came into the world (particularly the new world) at least half a century too soon. Had he

* *American Ornithology, or the Natural History of the Birds of the United States.* By Alexander Wilson. 9 vols. 4to. Philadelphia. 1808—14. The descriptive portion of the last volume (the plates of which were prepared prior to Wilson’s death in 1813) was written by Mr. George Ord. More than one subsequent edition of the entire work has been published in America, from the original plates; and we rejoice to see that these pleasant volumes (combined with Bonaparte’s Supplement, and other valuable matter) have been republished in ‘Constable’s Miscellany;’ where the whole, besides being presented in a cheap and portable form, has been methodically arranged, with notes and additional references, by a highly distinguished naturalist, Professor Jameson.

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survived to later days, and been aided, as he assuredly would have been, (like the Drummonds and Douglasses now exploring the western wilds,) by the patronage of our public societies and of our private cultivators of science, so as to assure him that the result of his researches would not only be eagerly received and highly prized by enlightened men in all countries, but fairly remunerated, even as a commercial speculation,—then his dubious path through the unvisited forest, or over the wide-spread prairie, would have been cheered and enlightened, and his occasional heart-sinkings consoled by the knowledge that his labours would not be altogether in vain. As it was, he lived and died in poverty; and may now be added as another name, and one of the brightest, to that melancholy muster-roll which the ingenious D'Israeli has recorded in his historical catalogue of 'Unfortunate Naturalists.' It is some consolation, however, to those who may be still struggling with the 'res angusta domi,' to reflect, that although Linnaeus commenced his life, or at least his manhood, by mending his own shoes, he died surrounded by honours, and in the enjoyment of competent, if not abundant, wealth; the companion of princes, and the father of a school of natural history, which, however various may be the opinions of methods and systems, or however great the numerous and undoubted improvements of modern times, afforded the steadiest and most continuous light which has ever directly resulted to zoological science from the labours of a single individual.

A supplement to the work of Alexander Wilson has been published by M. Charles Lucien Bonaparte, an accurate, assiduous, and intelligent naturalist: *—

'Peace hath her victories no less renowned than war;—

and although the most comprehensive circle of ornithological fame would scarcely have sufficed to satisfy the dazzling expectations which at one period might have been not unreasonably entertained, even by the youngest and least aspiring relative of Napoleon, yet it is well that one who fills the station of a private gentleman in a respectable and unassuming manner, should seek to associate feelings of a milder and more humanising character with his immortal name. M. Bonaparte's work is carefully, though somewhat too laboriously, engraved. The plates are done by the same artist who executed Wilson's; and although we cannot agree with M. Bonaparte, that Mr. A. Lawson is the 'first orni-

* American Ornithology, or the Natural History of Birds inhabiting the United States, not given by Wilson; with Figures drawn, engraved, and coloured from nature. By Charles Lucien Bonaparte. 3 vols. 4to. Philadelphia. 1825—28. Only the land birds have been yet published.

thological engraver of our age,' we have no special objection to the high and minutely-finished filling up of the plates, except that it must necessarily increase the price without enhancing the value of the publication,—at least in a corresponding degree; for the truth of nature in all large subjects, such as the generality of the feathered tribe, is, in fact, given with better effect by a less laboured manner. When every feather is finished off so as to represent, not the aspect of nature as it appears when the subject is looked at as a whole, but rather the appearance which each individual plume presents when examined apart, and in disconnection from its neighbours, the result is to produce a degree of flatness of surface, and hardness of outline, which are displeasing in art, principally because they are unknown in nature. However, the work is highly creditable to all connected with it, and forms a most valuable addition to our knowledge of ornithology.

But the most signal publication on American birds is that of Mr. Audubon, which, indeed, far exceeds, in size and splendour, all its predecessors in any department of zoology. The dimensions of this work are such as to enable the author not only to represent the largest birds of the United States, of the size and in the attitudes of living nature, but to figure them in family groups so admirably conceived and executed, as really to form historical pictures of the greatest interest, and of the highest utility to the student of ornithology. In these and other respects, neither his predecessors nor his contemporaries can be named as his equals, either in Europe or America; for we know of no one who has at all in the same degree combined accuracy of individual representation with lively and energetic portraiture of general forms. We know that several of the greatest artists that ever lived were much attached to animal painting, and excelled in that department; and although the professed painter has higher objects in view than to pride himself on the accomplishment of a laboriously-detailed copy of individual nature, yet the student of science, who combines the minuter observance of natural objects with the love of whatever is picturesque or beautiful, cannot fail to be frequently offended by the discrepancies exhibited in imaginative works of art, where, the greater difficulties having been overcome, it would have been easy, by condescending to a little commonplace inquiry and attention, to avoid errors which are only not glaring because of the ignorance of those who witness them. If a painter were to represent a greyhound pointing a covey of moor-game on the side of a highland mountain, the mistake would be thought egregious; and as soon as the instinctive habits and acquired powers of the feathered tribes become as generally known as the sporting propensities of the canine race, then Somerset

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House shall cease to see lords and ladies afield with hawks upon their wrists, which the naturalist detects as pertaining to the smaller short-winged tribes, and which he consequently knows to be incompetent to achieve the purposes which they are represented as about to accomplish.

Nor is it the illustrative portion of Mr. Audubon's work which is alone deserving of the highest commendation. In addition, and as an explanatory accompaniment to his magnificent volume of illustrations, which now consists of one hundred plates, he has just published a volume of letter-press description, which abounds with amusing historical narratives of the habits of the feathered race, from the blood-thirsty eagle,

‘Upborne at evening on resplendent wing,’

which the increasing population of the United States is probably, every year, driving westward from its ancient eyries, to the accomplished and delightful mocking-bird, the acknowledged leader of whatever tuneful band may gladden the silence of the American woods.

We bear in melancholy remembrance the fate of such a man as Le Vaillant, who devoted his life, and exhausted his fortunes, in the completion of his ornithological labours, and then died neglected and in poverty, in the midst of those whose admiring love of science might have consoled, in his hours of sorrow, that ‘old man eloquent,’ who, in the ardour of his youthful years, had added so much of what was beautiful and unknown to their former stock of knowledge; and who, surviving a lengthened sojourn beneath the burning sun of Africa, and returning unscathed by the fangs of wild beasts, and the poisoned arrows of wilder bushmen, little dreamed, that in the centre of European civilization his hopes should reap such a harvest of affliction, that his grey hairs should rue even the lion's mercy which had spared him in his youth:—

‘For homeless, near a thousand homes, he stood;

And near a thousand tables, pined and wanted food.’

But, believing that a far different and brighter destiny awaits our American ornithologist, and, delighting to think that our own pages may be, in some measure, subservient to his success, by extending the knowledge of a publication which necessarily labours under disadvantages from its rather unwieldy dimensions, we shall endeavour to increase the interest which we hope the reader already feels in his favour, by here recording a brief sketch of his history, and that of his great work, with which, we doubt not, the enthusiastic author is prepared to sink or swim.

Mr. Audubon, it appears, is a citizen of the United States, but of

of French parentage, if not of French birth also. For twenty years of his manhood, his life was a succession of vicissitudes. He attempted various branches of commerce, all of which proved unsuccessful, chiefly in consequence of his mind being pervaded by a single passion,—the desire of exploring the wilderness of nature, and of endeavouring to express, with his pencil, what he and many other lovers of nature must have often felt to be indeed inexpressible. From his earliest years, the productions of nature, which, in the western world, are impressed with features of singular magnificence, lay scattered around him. He was fortunate in possessing a father who deeply felt and revered the grandeur of the works of omnipotent wisdom, and who took delight in directing his youthful mind to their contemplation.

‘He spake of plants, divine and strange,
That every hour their blossoms change
Ten thousand lovely hues!
With budding, fading, faded flowers,
They stand the wonder of the bowers,
From morn to evening dews.

He told of the magnolia spread
High as a cloud, high overhead!
The cypress and her spire,—
Of flowers, that with one scarlet gleam
Cover a hundred leagues, and seem
To set the hills on fire.

And he of green Savannas spake,
And many an endless, endless lake,
With all its fairy crowds
Of islands, that together lie,
As quietly as spots of sky,
Among the evening clouds.’

No wonder, then, that the love of nature and of nature's work should, in after years, have haunted him like a passion.

‘They soon,’ says Mr. Audubon, in his introductory address, ‘became my playmates; and before my ideas were sufficiently formed to enable me to estimate the difference between the azure tints of the sky, and the emerald hue of the bright foliage, I felt that an intimacy with them—not consisting of friendship merely, but bordering on frenzy—must accompany me through life; and now, more than ever, am I persuaded of the power of those early impressions. They laid such hold upon me, that, when removed from the woods, the prairies, and the brooks, or shut up from the view of the wide Atlantic, I experienced none of those pleasures most congenial to my mind. None but aerial companions suited my fancy. No roof seemed so secure to me as that formed of the dense foliage under which the feathered tribes were seen to resort, or the caves and fissures of the massy

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A vivid pleasure shone upon those days of my early youth, attended with a calmness of feeling that seldom failed to rivet my attention for hours, whilst I gazed with extacy upon the pearly and shining eggs, as they lay embedded in the softest down, or among dried leaves and twigs, or were exposed upon the burning sand or weather-beaten rocks of our Atlantic shores.'

He next describes his initiation into the mysteries of the art of painting:—

I grew up, and my wishes grew with my form. These wishes, kind reader, were for the entire possession of all that I saw. I was fervently desirous of becoming acquainted with nature. For many years, however, I was sadly disappointed; and forever, doubtless, I must have desires that cannot be gratified. The moment a bird was dead, however beautiful it had been when in life, the pleasure arising from the possession of it became blunted; and although the greatest cares were bestowed on endeavours to preserve the appearance of nature, I looked upon its vesture as more than sullied, as requiring constant attention and repeated mendings, while, after all, it could no longer be said to be fresh from the hands of its maker. I wished to possess all the productions of nature, but I wished life with them. This was impossible: then what was to be done? I turned to my father, and made known to him my disappointment and anxiety. He produced a book of *illustrations*. A new life ran in my veins. I turned over the leaves with avidity; and although what I saw was not what I longed for, it gave me a desire to copy nature. To nature I went, and tried to imitate her, as in the days of my childhood I had tried to raise myself from the ground and stand erect before nature had imparted the vigour necessary for the success of such an undertaking.'—Introduction, p. 7.

For many years he felt sorely disappointed when he saw that his own productions were worse than those in the work which his father had exhibited:—

My pencil gave birth to a family of cripples. So maimed were most of them, that they resembled the mangled corpses on a field of battle compared with the integrity of living men. These difficulties disappointed and irritated me, but never for a moment destroyed the desire of obtaining perfect representations of nature. The worse my drawings were, the more beautiful did I see the originals. To have been torn from the study would have been as death to me. My time was entirely occupied with it. I produced hundreds of these rude sketches annually; and for a time, at my request, they made bonfires on the anniversaries of my birth-days.'—p. 8.

At a later period of his life, when his drawings had assumed a more perfect character by a nearer approach to the ease and brilliancy of nature, an accident occurred which might well have

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damped the ardour even of such an enthusiast as Mr. Audubon. Having occasion to leave the village of Henderson in Kentucky, where he had resided for several years, and to proceed to Philadelphia on business, he deposited all his long-cherished drawings in a wooden box, and consigned them to the care of a friend. After an absence of several months, one of his earliest pleasures, on returning home, was to open his box,—

‘The box was produced and opened;—but reader feel for me—a pair of Norway rats had taken possession of the whole, and had reared a young family amongst the gnawed bits of paper, which, but a few months before, represented nearly a thousand inhabitants of the air! The burning heat which instantly rushed through my brain was too great to be endured without affecting the whole of my nervous system. I slept not for many nights, and my days passed like days of oblivion, until the animal powers being recalled into action, through the strength of my constitution, I took up my gun, my note-book, and my pencils, and went forth to the woods as gaily as if nothing had happened. I felt pleased that I might now make much better drawings than before; and when a period, not exceeding three years had elapsed, I had my portfolio filled again.’—p. 13.

With such a zealous and unwearied determination not to be baffled, we can scarcely wonder that his efforts were eventually crowned with the most signal success. During his boyhood he was sent for a time to Europe, and at the age of seventeen he returned from France to America. Meanwhile, David, the great French painter, had guided his hand in tracing objects of a large size:—

‘Eyes and noses belonging to giants, and heads of horses represented in ancient sculpture, were my models. These, although subjects for men intent on pursuing the higher branches of the art were immediately laid aside by me. I returned to the woods of the new world with fresh ardour, and commenced a collection of drawings which I thenceforth continued, and which is now publishing under the title of “The Birds of America.”’

So entire was Mr. Audubon’s devotion to his favourite pursuits, and so much did he love the study of natural history for itself alone, that it was only within these few years, on becoming accidentally acquainted, in Philadelphia, with Charles Lucien Bonaparte, that he began to have anything in view beyond the simple enjoyment of the sight of nature, and the practice of his art. After visiting Philadelphia and New York, he ascended the Hudson river, and crossing over some of the great lakes, he explored many of the pathless and gloomy forests which border the margins of those magnificent waters.

‘It was in these forests that, for the first time, I communed with myself

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myself as to the possible event of my visiting Europe again; and I began to fancy my work under the multiplying efforts of the graver. Happy days, and nights of pleasing dreams! I read over the catalogue of my collection, and thought how it might be possible for an unconnected and unaided individual like myself to accomplish the grand scheme. Chance, and chance alone, had divided my drawings into three different classes, depending upon the magnitude of the objects which they represented; and although I did not at that time possess all the specimens necessary, I arranged them as well as I could into parcels of five plates, each of which now forms a number of my Illustrations. I improved the whole as much as was in my power; and as I daily retired farther from the haunts of man, determined to leave nothing undone, which my labour, my time, or my purse could accomplish.—p. 11.

The preceding extracts will suffice to show that Mr. Audubon is one of those men who so determinately devote themselves to a single purpose, that life and health being vouchsafed, it is almost impossible for them not to succeed in its attainment. The natural consequence has been, that, from a romantic and unknown woodsman, with as forlorn a hope of European celebrity as could well be imagined, he has now become, and is acknowledged to be, the first ornithological draftsman of his age.

'L'académie,' says Baron Cuvier, in a recent report to the Royal Academy of Sciences, 'm'a chargé de lui rendre un compte verbal de l'ouvrage qui lui a été communiqué dans une de ses précédentes séances par M. Audubon, et qui a pour objet les oiseaux de l'Amerique Septentrionale. On peut le caractériser en peu de mots, en disant que c'est le monument le plus magnifique qui ait encore été élevé à l'ornithologie. L'exécution de ces planches, si remarquable par leur grandeur, nous paraît avoir également bien réussi, sous les rapports du dessin, de la gravure, et du coloris. L'histoire des oiseaux des états-unis de Wilson égalait déjà en élégance nos plus beaux ouvrages d'ornithologie. Si celui de M. Audubon se termine, il faudra convenir que ce sera l'Amerique qui, pour la magnificence de l'exécution, aura surpassé l'ancien monde.'

Mr. William Swainson, the author of 'Zoological Illustrations,'* and the coadjutor of Dr. Richardson in the ornithological department of his North American Zoology, has added his testimony to the surpassing merits of Mr. Audubon's publication:—

'It will depend on the powerful and the wealthy, whether Britain shall have the honour of fostering such a magnificent undertaking. It will be a lasting monument, not only to the memory of its author, but to those who employ their wealth in patronising genius, and in supporting the national credit. If any publication deserves such a distinction, it is surely this, inasmuch as it exhibits a perfection in the

* First Series, in 3 vols. 8vo., 1820—1823; Second Series, still in progress.

higher attributes of zoological painting never before attempted. To represent the passions and feelings of birds, might until now have been well deemed chimerical. Rarely, indeed, do we see their outward forms represented with anything like nature. In my estimation, not more than three painters ever lived who could draw a bird. Of these, the lamented Barraband, of whom France may be justly proud, was the chief. He has long passed away; but his mantle has at length been recovered in the forests of America.*

This testimony, so freely accorded, is the more creditable to Mr. Audubon, as Mr. Swainson himself is an ornithological draftsman of the greatest skill, and eminently qualified by fine taste and a long experience to appreciate the relative merits of the painter naturalists. His own illustrations are assuredly remarkable for accuracy and elegance; and, being almost all drawn on stone by himself, they have the additional advantage over the generality of copper etchings, that no third party is interposed between the original draftsman and the public.*

We shall here enter into a brief investigation of the probable amount of the species of birds in North America. The first list, with any pretensions to extent or accuracy, was published by Mr. Jefferson (whose neglect of Alexander Wilson would have induced us to look for him under any other character than that of an ornithologist), and contained the names of only 109 species.† It was followed by Mr. William Bartram's, which enumerated 215 different kinds;‡ and notices of some additional species are given by Dr. Belknap, § Dr. Barton,|| and Dr. Williams.¶ In the twelfth edition of the *Systema Naturæ*, which professed to contain all the birds then known to inhabit the United States (Catesby and Edwards being his principal sources), Linnæus assigns only 193 to North America:—

'It is true,' says M. Bonaparte, 'that he was acquainted with several other North American birds, which also inhabit other countries,—those common to Europe especially; but as many of the 193

* As fine examples of the lithographic art, applied to ornithological representation, we may mention the work entitled 'A Century of Birds from the Himalaya Mountains,' by Mr. Gould, of the Zoological Society. We regret the absence of explanatory letter-press in a publication of such interest, both from the novelty of its subjects and the beauty of its execution. We are aware that we are promised the descriptive and historical portion from the pen of Mr. Vigors; but our assurance that in such hands it will be most ably performed, only increases our desire that the corresponding letter-press should accompany the delivery of each fasciculus of the illustrations.

† Notes on Virginia. 1782.

‡ Travels through North and South Carolina. 1791.

§ History of New Hampshire. 1791.

|| Fragments of the Natural History of Pennsylvania. 1799.

¶ History of Vermont. 1809.

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are merely nominal, we may allow them to counterbalance those omitted. Of the entire number, 103 are land-birds, all of which we have verified either as real or nominal, four excepted, of which *Picus quinquecoloratus* alone (a real species) may have escaped Wilson and ourselves. Of the three remaining, two, *Janius Canadensis* and *Loxia Canadensis*, are now well known to be South American birds, given as North American by mistake; and the third, *Sylvia trochilus*, of Europe, may have been reckoned as American, on account of the resemblance between it and the female of some American warbler, probably *Sylvia trichus*.*

Since the time of Linnaeus, several real, and a still greater number of apparent, additions have been made to American ornithology. Wilson described 270 species. In the *Index Ornithologicus* of Latham, not fewer than 464 names are enrolled as indicative of birds native to North America; but so greatly surcharged with nominal species is that lengthened list, that notwithstanding the numerous and well-established additional species which have since been described by American and other writers, the actual number of clearly ascertained species did not, a few years ago, amount to 400. 'Per ora,' says C. L. Bonaparte, writing in 1827, 'si amoverano 396 specie nell' America Settentrionale;' and we may add, that 382 of these occur in the United States. Now the number of birds in Europe may be stated as not less than 395; but as its ornithology is in a more advanced stage than that of North America, and consequently less remains to be effected in the way of further discovery, there can be little doubt, that when the latter country shall have been more thoroughly explored, its feathered tribes will be found considerably to exceed those of Europe. We may mention a single fact, *en passant*, with a view to illustrate the extraordinary zoological riches of more southern climates. In the Cape of Good Hope district alone there are above one hundred more species of birds than are found throughout the whole of Europe, 500 species having been ascertained to inhabit that colony.* Great Britain and Ireland produce only 277 different kinds of birds, of which 142 are land-birds, and 135 are water-birds and waders.†

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* South African Quarterly Journal, No. I, p. 10.

† The following summary of our feathered tribes, classed in accordance with the modern system, may not be uninteresting to the student of British Ornithology.

RAPTORES—27 species. Of these, two are recent acquisitions; viz., *Neophron percnopterus* and *Noctua (Stria) Tengmansi*, figured, through inadvertence, as *Noctua passerina*, in Mr. Selby's 'Illustrations of British Ornithology,' pl. 26, vol. i.

INSSESSANTS—103 species. Of these, eight are new; viz., *Currucula (Sylvia) Suecica*, *Cuculus sylvicola*, *Phenicura (Sylvia) Tithys*, *Accentor alpinus*, *Aethya Richardii*, *Lanius ruficollis*, *Emberiza hortulana* (the same as the green-headed bunting of Bewick's Supplement.) and *Plectrophenax Laponica*. *Cypselus alpinus*, a species of swift, abundant in the South of Europe, has been lately shot off the Coast of Ireland.

See

The species of Europe and of North America have been classed under 107 genera,* of which 64 are common to both countries; 19 (American) are foreign to Europe, and 24 (European) are equally unknown in America. Thus the genera of Europe amount to 88, and those of North America to 83.

For the sake of those who take an interest in such comparative views, we shall present an enumeration, in the subjoined note, of the genera of Europe and North America, in accordance with the arrangement of M. Bonaparte. † The land-birds of Europe

See Transactions of the Natural History Society of Northumberland, Durham, and Newcastle-upon-Tyne, vol. I., part 3, p. 291.

RASORES—12 species.

GRALLATOIRES—59 species. *Ardea alba* is probably not entitled to rank as a British bird, but its place may be supplied by Montagu's *Ardea aquinoctialis*, which, however, is not the American species, but Wagler's *Ardea russata*, a kind confined to the old world. The recent acquisitions in this order are *Scelopax Sabini*, and Mr. Yarrell's *Trianga rufescens* figured in Mr. Selby's Illustrations, vol. iii., pl. 27, fig. 4.

NATATOIRES—76 species. The novelties are, *Cygnus Bewickii*, *Lobornia rutula*, *Mergus eucallotus*, and *Fuligula rufina*. We believe that *Uria Bruinichu* has also been killed off one of the Shetland Isles.

* Tabella Analitica de Generi dell' Europa e dell' America Settentrionale. No. XXXIII. Del Nuovo Giornale de' Letterati.

† The North American genera not found in Europe are followed by the letter a. The European genera which do not occur in North America, are followed by the letter e. The remaining genera are common to both Continents.

ORDER ACCIPITRES.

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|---------------|-----------------|----------|
| 1. Vultur (e) | 3. Gypsetus (e) | 5. Strix |
| 2. Cathartes | 4. Falco | |

ORDER PASSERES.

- | | | |
|----------------------|-------------------|--------------------|
| 6. Psittacus (A) | 22. Bombycilla | 38. Regulus |
| 7. Coccothraux (A) | 23. Caprimulgus | 39. Troglodytes |
| 8. Cuculus (e) | 24. Cypselus | 40. Certhia |
| 9. Yunx (e) | 25. Hirundo | 41. Tichodroma (e) |
| 10. Picus | 26. Muscicapa | 42. Sitta |
| 11. Alcedo | 27. Icteria (A) | 43. Upupa (e) |
| 12. Merops (e) | 28. Vireo (A) | 44. Trochilus (A) |
| 13. Nucifraga (e) | 29. Lanius | 45. Parus |
| 14. Sturnus | 30. Myothera (A) | 46. Alauda |
| 15. Icterus (A) | 31. Cinclos | 47. Emberiza |
| 16. Quiscalus (A) | 32. Turdus | 48. Tanagra (A) |
| 17. Oriolus (e) | 33. Sylvia | 49. Fringilla |
| 18. Coracias (e) | 34. Accentor (e) | 50. Pyrrhula |
| 19. Corvus | 35. Saxicola | 51. Loxia |
| 20. Pyrrhocorax (e) | 36. Motacilla (e) | 52. Columba |
| 21. Acridotheres (e) | 37. Anthus | |

ORDER GALLINÆ.

- | | | |
|-------------------|------------|-------------------|
| 53. Phasianus (e) | 55. Perdix | 57. Pterocles (e) |
| 54. Meleagris (A) | 56. Tetrao | 58. Turnix (e) |

ORDER GRALLÆ.

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|----------------------|------------------|-----------------|
| 59. Otis (e) | 63. Vanellus (e) | 67. Grus |
| 60. Cursorius (e) | 64. Streptopelas | 68. Cicocia (e) |
| 61. Oedicephalus (e) | 65. Icthyophaga | 69. Ardea |
| 62. Charadrius | 66. Glareola (e) | 70. Aramus (A) |

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Ticlorna rutula *annichia* has also

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scope in general exceed the water ones by about 90 species; those of the United States exceed the water-birds by towards 50; while, in Great Britain, (a fact to be expected from our insular position, and consequently extended shores, as well as from the number of our smaller islands,) the land-birds prevail over the water ones by not more than seven species.* The birds of the continental kingdoms of Europe exceed those of the British empire by nearly 120, while the common grouse or moor-game is the only species of which we can with certainty boast the exclusive possession.

We come now to the work which is placed last in our list, though it is by no means the least important in our estimation. All classes of readers are well acquainted with Dr. Richardson's claims to respect as surgeon and naturalist to two of the most remarkable expeditions which were ever planned and executed by the enterprise of Britons, and with his high merits as the intrepid leader of one of the exploring parties, and a chief actor and sufferer amid scenes of imminent danger and prolonged distress, which are scarcely paralleled in the annals of geographical discovery. In a preceding volume, (Part I., containing the *Quadrupeds*,) Dr. Richardson has very amply and accurately exhibited the present state of our knowledge respecting the mammiferous land animals of the northern parts of British America; and the beautiful volume now under consideration forms the second or ornithological portion of his very skilful work. He has, we perceive, availed himself of Mr. Swainson's assistance, both as an

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| 71. <i>Tantalus</i> (A) | 77. <i>Limosa</i> | 82. <i>Fulica</i> |
| 72. <i>Ibis</i> | 78. <i>Scelopax</i> | 83. <i>Phalaropus</i> |
| 73. <i>Numenius</i> | 79. <i>Rallus</i> | 84. <i>Recurvirostra</i> |
| 74. <i>Tringa</i> | 80. <i>Porphyrio</i> (E) | 85. <i>Platalea</i> |
| 75. <i>Totanus</i> | 81. <i>Gallinula</i> | 86. <i>Phenicopterus</i> |
| 76. <i>Himantopus</i> | | |

ORDER ANSERES.

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|--------------------------|---------------------------|--------------------------|
| 87. <i>Rhynchops</i> (A) | 94. <i>Mergus</i> | 101. <i>Podon</i> (A) |
| 88. <i>Sterna</i> | 95. <i>Pelecanus</i> | 102. <i>Podiceps</i> |
| 89. <i>Larus</i> | 96. <i>Phalacrocorax</i> | 103. <i>Colymbus</i> |
| 90. <i>Lestris</i> | 97. <i>Tachypetes</i> (A) | 104. <i>Uria</i> |
| 91. <i>Procellaria</i> | 98. <i>Sula</i> | 105. <i>Phalaris</i> (A) |
| 92. <i>Diomedea</i> (A) | 99. <i>Phaeton</i> (A) | 106. <i>Mormon</i> |
| 93. <i>Anas</i> | 100. <i>Plotus</i> (A) | 107. <i>Alea</i> |

It will be perceived that the preceding arrangement is somewhat in accordance with that of the *old school*, and that it excludes several of the new generic appellations. It will, perhaps, be not the less intelligible on that account to the generality of readers. In the *Appendix* to the 'Genera of North American Birds,' the following are added to those above enumerated, viz.:—*Garrulus*, *Thalassidroma*, *Puffinus*, *Anser*, *Cygnus*, *Fuligula*, and *Geronyca*. Of these, the greater number are formed by dismemberment of former groups, and the last is the only one of which the type is constituted by a new species. The total number of genera found in North America is also there stated as amounting to ninety.—See *Annals of the Lyceum of Natural History of New York*, vol. ii. p. 451.

* In the above enumeration we class the *Grallatores*, or waders, along with the water-fowl, properly so called.

author

author and draftsman; and the result of their combined efforts presents a most important addition to our stock of knowledge.*

The very abundance of our materials, however, almost deters us from entering on the contemplation of so rich a field, and it would be difficult, within the usual bounds of a periodical essay, to undertake the discussion of more than a few of its varied and inexhaustible features,—indeed, we shall probably be thought to have already engrossed too much of our readers' time.

We may observe, in the first place, that, in the class of birds, the geographical distribution of individuals of the same species, is much more widely spread than that of quadrupeds—a fact to be anticipated simply from their possession of wings. But even the ostrich, which is so nearly deprived of those characteristic organs as to be incapable of raising itself from the surface of the earth, though confined to Africa, is yet spread over a great extent of that vast continent from the Cape of Good Hope to the Cyrenaik, and from the Cape de Verde to the straits of Babel-Mandel. The osprey, a species of fishing eagle (*Falco haliætos*), occurs identically the same in the north of Scotland, the south of Europe, and along the shores of New Holland. We have seen Chinese drawings of the goshawk (*Falco palumbarius*) entirely resembling our native species; and from what we know of its intermediate stations, we may safely conclude that it inhabits the whole of that vast tract of territory from the south-eastern extremities of Asia to the most western shores of Europe, and across the broad expanse of the North American continent. The lammer-geye (*Gypætos barbatus* of Storr), the largest, or at least the longest winged of all the European birds of prey, haunts the steeps o

* It is worthy of record that this is the first zoological work ever published under the immediate authority of the British government. It was found necessary, with a view to render the publication useful, that many of its subjects, more especially in the ornithological and botanical departments, should be illustrated by means of figures the expense of which would, however, have presented an insurmountable obstacle, had not his late Majesty's government lent a liberal aid to the undertaking. On an application which had the approval of the Secretary of State for Colonial affairs, the Treasury granted 1000*l.* to be applied solely towards defraying the expenses of the illustrations. Of that sum, 500*l.* was allotted to the quadrupeds and birds, and the other moiety to the fishes, insects, and plants. As the result of this enlightened patronage, we have already, in the former volume of the Fauna, twenty-eight admirable plates, drawn and engraved by Mr. Thomas Landseer, and fifty-two figures executed in lithography, with his accustomed skill, by Mr. Swainson, and beautifully coloured, adorn the present volume, which contains, in addition, above forty wood-cuts representing chiefly the heads and feet of species. We say nothing of the botanical department; but whoever is acquainted with the taste and talents of Professor Hooker, will not doubt that it will be achieved in such a manner as to do honour to the scientific character of Britain.

We shall not here do more than allude to an inadvertence which Mr. S. has committed, by allowing his enthusiasm for a favourite pursuit to lead him astray (as in this case it may be called) into another and more important subject, between which and his peculiar province we do not perceive the possibility of a connexion. (*Fauna Boreali-Americana*, Part ii. Introductory Observations on the Natural System, p. 56, the

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the Pyrenean mountains, and the central Alps, from Piedmont to Dalmatia. It was described as an Egyptian species by MM. Larréy and Savigny, and by Bruce as native to the Abyssinian mountains. It has also been seen sailing over the vast steppes of the Siberian deserts, and has more recently been transmitted to the Edinburgh Museum from the north of India and the range of the Himalaya. The peregrine falcon occurs in Greenland, Europe, North America, and New Holland. The short-eared owl (*Strix brachyotos*), common to Europe and America, has been sent to this country from Canton, in China; and the white or barn owl (*Strix flammea*) has been observed in all the four great divisions of the world, to say nothing of Madeira, Madagascar, and New Holland. The common cuckoo (*Cuculus canorus*), and the European water-hen (*Fulica chloropus*), are found in the Mauritius. The glossy ibis occurs in Europe, Asia, Africa, and America; and the golden plover is characterized by an almost equally extensive range. Lastly, for we have not here room for a more lengthened enumeration, the white-fronted or cliff swallow (*Hirundo lunifrons* of Say), discovered by Major Long in the vicinity of the Rocky Mountains, and more recently observed by Dr. Richardson at Fort Chepewyan, was lately exhibited to us in the Edinburgh Museum, as forming part of a collection transmitted some years ago by the Marchioness of Hastings from Bengal.

In regard to the American species, the gorgeous tribe of parrots, and the fairy family of the humming-birds, with both of which we are wont to associate the warmth as well as the lustre of the torrid zone, are now known to be much more extensively distributed than Buffon and some other writers of the last century supposed. It was the belief of Buffon that no parrot extended either northwards or southwards beyond the twenty-fifth degree on either side of the equator.

This illustrious author,' says Mr. Pennant, 'having resolved that no parrots should pass beyond the tropic of Capricorn, despises the authority of the Dutch navigator, Spilbergen, who was eye-witness to the woods of Terra del Fuego, the very southern boundary of the straits of Magellan, in lat. 44, being full of a species of these birds. He might have cited the evidence of Captain Hood, who saw a small parrot at Cape Famine; and he might have quoted Commodore Byron, who says that, notwithstanding the coldness of the climate, he observed parrots innumerable in the woods of the same harbour. Mr. Edwards, one of the surgeons, now living at Carnarvon, informed me that he saw them in abundance, and that they were of a deep green, probably the very species engraved in the "Planches Enluminées," No. 85. The Count treats with the same contempt the authority of the observant and veracious Captain Cook, who, in defiance of the Count's canon, had the hardiness to trust to the evidence of his own senses,

senses, and assert that he saw parrots in the isle of New Zealand, and even to suffer Captain Furneaux to blab out that parrakeets were inhabitants of Van Diemen's Land, the very extremity of New Holland—both of them countries interdicted by the illustrious naturalist to the whole parrot race. How greatly, again, has our able navigator aggravated matters by not silencing the learned Forster for proving more than one species to be found in the raw, wet climate of Dusky Bay, in lat. 46; and to make bad worse, to connive at several of the companions of his voyage bringing into this kingdom not fewer than eight species of this vagabond genus, which had dared to take up their residence beyond the genial limits of the torrid zone, which the Count de Buffon had so authoritatively decreed to them, and, like a great creator, had said, "Hitherto shalt thou come, and no farther!"*

The only representative of this family found in the United States is the Carolina parrot, of which the other supposed species (*Psittacus pertinax*) is the young. It inhabits the interior of Louisiana, and the shores and tributary waters of the Mississippi and Ohio, and extends even beyond the Illinois river to the neighbourhood of Lake Michigan, in the 42° north latitude.

'From these circumstances,' says Wilson, 'we might be justified in concluding it to be a very hardy bird, more capable of sustaining cold than nine-tenths of the tribe; and so I believe it is, having myself seen them, in the month of February, along the banks of the Ohio, in a snow-storm, flying about like pigeons, and in full cry.'†

It appears, however, to be more restricted on the eastern side of the Alleghany range, where it is seldom seen farther north than the state of Maryland, although a few stragglers are now and then met with in the vallies of the Juniata, or even about twenty-five miles to the north-west of Albany, in the state of New York. We may judge of the abundance of this species, even up to a recent period, from the statement of Vaillant, who assures us that he saw a packet, containing above six thousand skins of this bird, which were sent to a *plumassier* at Paris for the formation of ornamental dresses.‡ Mr. Audubon, however, informs us, that their numbers are now rapidly diminishing, and that, in some districts, where, twenty-five years ago, they were very plentiful, scarcely one is to be seen.

'At that period,' he adds, 'they could be procured as far up the tributary waters of the Ohio as the great Kenhawa, the Scioto, the heads of the Miami, the mouth of the Manimee at its junction with Lake Erie, on the Illinois river, and sometimes as far north-east as Lake Ontario, and along the eastern districts as far as the boundary line between Virginia and Maryland. At the present day, very few

* Index to the Planches Enluminées.

† American Ornithology, Constable's edition, vol. i p. 118.

‡ Barton's Fragments of the Natural History of Pennsylvania.

§ Histoire Naturelle des Perroquets.

are to be found in the mouth of the river. I should have been surprised to find the number of these birds.

The other species of the tribe, being distributed in the most remote parts of the continent, have been seen by Captain Cook in the temperate climate of the tiny tribe.

table-lands, and snowy mountains. Nootka Sound, Alexander Selkirk, and the island of Colubus, are doubtless the most remote parts of Canada.

These two species are near the highest degree of cold.

We have seen them on the rugged shores; and they are communicated to the Straits of Florida, in the territory in which they ever remain, their instinct is at least if they are not seen.

When they flee at the approach of the hunters, and return to their haunts, they are not to be seen.

The number of these birds is calculated to be very small, and the flight of them is very rapid, their gait is broad and swift.

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are to be found higher than Cincinnati; nor is it till you reach the mouth of the Ohio that parakeets are met with in considerable numbers. I should think that along the Mississippi there is not now half the number that existed fifteen years ago.'

The other group to which we alluded above—that of the humming-birds—is also characterised by a much more extended distribution than was formerly supposed, although it might have been naturally inferred, from the abundance in which they were seen by Condamine in the elevated gardens of Quito, that a temperate climate was by no means adverse to the constitution of that tiny tribe. Mr. Bullock discovered several species on the lofty table-lands of Mexico, and in the woods in the vicinity of the snowy mountains of Orizaba. Cook, indeed, had long before procured the ruff-necked species (*Trochilus collaris*, Lath.) from Nootka Sound; and Catesby, at a still earlier period, and Alexander Wilson, in later times, described the species (*Trochilus colubris*) so well known in the United States. It was, no doubt, the latter species that was seen by Charlevoix in the interior of Canada; but it would be interesting to ascertain which of these two comparatively hardy kinds was met with by Mackenzie, near the head of the Unjigah or Peace River, in the fifty-fourth degree of north latitude.

We have already mentioned that Kotzebue traced the beautiful ruff-necked or Nootka humming-bird to the 61° along the western shores; and when we take into consideration the facts lately communicated by Captain King, who met with numerous members of this diminutive family flying about in a snow-storm, near the Straits of Magellan, we shall perceive how great an extent of territory in the new world is occupied by the Trochilidæ. However remarkable may be the lustre of their resplendent plumage, their instinctive courage is still more worthy of our admiration, at least if there is truth in Fernandez Oviedo, who writes that—

'When they see a man climb y^e tree where they have their nests, they flee at his face, and stryke him in the eyes, commyng, goyng, and returnyng, with such swyftness, that no man woulde ryghtly believe it, that hath not seen it.*

The migration of birds has, indeed, in every age, afforded a subject of pleasant, though sometimes inconclusive speculation to the students of nature; but in no instance does it appear more calculated to call forth our admiration, than when exemplified by these, the frailest of the feathered race. The lofty and sustained flight of the eagles and albatrosses seems only commensurate with their gigantic size, and the irresistible sweeping of their 'sail-broad vans';—

'But how,' says Dr. Richardson, 'is our admiration of the ways of

* History of the West Indies, translated by Richard Eden, p. 199.

Providence increased, when we find that one of the least of its class clothed in the most delicate and brilliant plumage, and apparently more fitted to flutter about in a conservatory than to brave the fur of the blast, should yield to few birds in the extent of its migrations. The ruby-throated humming-bird, which winters to the southward of the United States, ranges, in summer, to the fifty-seventh parallel, and perhaps even still farther north. We obtained specimens on the plains of the Saskatchewan, and Mr. Drummond found one of their nests near the sources of the Elk river. This nest is composed principally of the down of an anemone, bound together with a few stalks of moss and lichen, and has an internal diameter of one inch. The eggs, two in number, of a reddish-white colour, and obtuse at both ends, are half an inch long, and four lines and a quarter in transverse diameter.'

The principal value of this volume of the 'Fauna Borealis Americana,' in a merely descriptive point of view, consists in its serving, in a great measure, to complete our knowledge of North American birds, by connecting, by an intermediate link, the ornithology of the United States with that of the purely arctic regions of the new world.* We have already pointed out the sources from

* Mr. Swainson has also brought his extensive and accurate knowledge of the various groups, derived from a careful analysis of their constituent parts, to bear upon the difficult and much-disputed subject of the *natural system*. Into the discussion, that *verata questio* we shall not at present enter; but we recommend to the student of ornithology a careful perusal of his introductory observations on the tribes and families of the insessorial order. The author's principal object is to demonstrate the following peculiarities in natural arrangement, viz.:—1. That every natural series of beings, in its progress from a given point, either actually returns, or evinces a tendency to return, again to that point, thereby forming a circle. 2. That the contents of such a circle or group are symbolically represented by the contents of all other circles in the same class of animals,—this resemblance being strong or remote in proportion to the proximity or the distance of the groups compared. 3. The primary divisions of every natural group, of whatever extent or value, are *typical*, each of which forms its own circle. The first of these propositions accords with the views of Macleay, Fries, Agassiz, Oken, and others. The *theory of representation*, as it may be called, which is involved in the second proposition, was first promulgated in the *Horæ Entomologicae* and, according to Mr. Swainson, it is the only certain test of a natural group. 'Circles may be, and have been, formed with such a deceitful appearance of following nature, that the most eminent and the most cautious have been led into a belief that they were strictly natural. If such a group is thought to be complete or perfect, it is very well to say, put each of its divisions to the test of returning into itself, and the fallacy will be discovered; but among groups of a certain value, genera and sub-families more particularly, there is not one in three that can be so tested. This inability partly arises from our superficial acquaintance with forms, and partly, as we believe, from there being many real gaps in the chain of continuity. Without, therefore, some other test for a natural group than the mere circumstance of its returning into itself, or even its simple parallelism with a continuous group, I consider demonstration not to have been attained. The theory of representation thus steps in, and at once dispels the illusion, or demonstrates the correctness of the series.'—*Introductory Observations*, p. xlix. In the sub-families of Myotherine and Pariane, Mr. Swainson has ingeniously exemplified this principle of the natural system in all its bearings.—*Fauna Borealis-Americana*, vol. ii., pp. 158 and 202.—It will be observed, in regard to the third proposition, that Mr. Swainson's circular system differs from that of the Quinarians in the number of its primary divisions. He is of opinion that the primary circles of each group are invariably *typical*, and these he denominates the *typical*, the *sub-typical*, and the *aberrant*.

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which a knowledge of the more southern localities of the species may be attained, and we shall now present a brief sketch of the ornithological history of the central and northern territories.

The districts termed the fur-countries may be said to comprehend, generally, the whole of the space north of the forty-eighth parallel of latitude. Although the French Canadians, in their pursuit of peltry, were the first to penetrate those barren regions which extend beyond the great lakes, yet, till within a recent period, our entire stock of ornithological knowledge was derived from the *employés* of the Hudson's Bay Company.

The earliest collections of the birds of Hudson's Bay were formed, about ninety years ago, by Mr. Alexander Light, who was sent out by the company in consequence of his knowledge of natural history. It is also recorded that Mr. Isham, for a long period resident in the fur-countries as governor of various forts or trading posts, employed his leisure in preparing the skins of beasts, birds, and fishes. These two gentlemen, Dr. Richardson informs us, returned to England about the year 1745, and, fortunately for the advancement of ornithology, entrusted their specimens to Mr. George Edwards, the well-known author of the 'Natural History of Birds, and other rare undescribed Animals.' In the course of the year 1749, Ellis published his account of the 'Voyage to Hudson's Bay in the Dobbs and California;' and the clerk of the latter vessel, whose name was Drage, in his 'Voyage by Hudson's Straits,' also illustrates several points in natural history.

For twenty years ensuing the last-mentioned period, no additional information was derived from these northern regions; but Mr. William Wales, who went to Hudson's Bay in 1768, for the purpose of observing the transit of Venus, was entrusted, on his return, by Mr. Graham, governor of the Company's post at Severn River, with a collection of quadrupeds, birds, and fishes, for presentation to the Royal Society. These specimens were described by John Reinhold Forster,* and excited so much interest in the scientific world, that, at the desire of the Royal Society, directions were given by the governor and committee of the Hudson's Bay Company that subjects of natural history should be annually transmitted to England; and, accordingly, Mr. Humphrey Martin sent several hundred specimens of animals and plants, collected at Fort Albany, of which he was governor. Mr. Hutchins, the successor of Mr. Martin, was still more industrious, for he not only prepared numerous specimens, but drew up minute descriptions of all the quadrupeds and birds which he could obtain, with interesting notices of their haunts,

* Phil. Trans. 1772.

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habits, and native names. It was, in fact, from his observations that Pennant and Latham chiefly derived whatever was valuable in their works ('Arctic Zoology,' and 'General Synopsis of Birds' regarding the feathered tribes of Hudson's Bay. Captain Cook's third voyage (1777—8) made us acquainted with several species of the north-west coasts of America and Behring's Straits; but from the want of engraved representations, and the subsequent destruction or dispersion of the specimens themselves, it is a general difficult, if not impossible, to identify the species indicated with precision. Pennant's 'Arctic Zoology' appeared in 1781, and contains the most ample descriptive catalogue of Arctic American birds which had appeared prior to the present volume.

These are the principal sources of information up to the period of our own scientific expeditions by land and sea; for although Umfreville and Hearne illustrate the habits of some of the most common species, and the voyages of Vancouver, Portlock, Meares, and Langsdorff, to the north-west, and the travels of Lewis and Clarke to the banks of the Columbia, contributed their mite, very important results were thereby obtained. Eschscholtz and Chamisso, the naturalists attached to Kotzebue's expedition, may be supposed to have acquired some knowledge of the ornithology of the north-west coasts; but no satisfactory report of their zoological discoveries has hitherto reached this country. The zoological portion of the appendix to Captain Beechey's voyage, entrusted, I believe, to Mr. Vigors, will no doubt compensate for the want of the natural history notices introduced in the delightful narrative of the voyage itself.

The only exact information which we possess, regarding the birds of the extreme northern coasts and islands of America, is contained in the appendixes to the voyages of Ross and Parry. The species are comparatively few along those icy shores, notwithstanding the cheering influence of their continuous solar light,—their

— polar day, that will not see

A sunset till its summer's done;

Its sleepless summer of long light,

The snow-clad offspring of the sun.*

We shall here subjoin the names of the species observed in the North Georgian Islands and adjoining seas, latitude 73° to 75° N.

* In one volume folio, preserved in the Library of the Hudson's Bay Company.
 † Snowy Owl, *Strix nyctea*; Snow bunting, *Emberiza nivalis*; Raven, *Corvus corax*; Swallow, *Species ignota*; American Goatsucker, *Caprimulgus Americanus*; Ptarmigan, *Tetrao rupestris*; Sanderling, *Calidris arenaria*; Golden plover, *Colinus plumbeus*; American ring plover, *Charadrius semipalmatus*; Turnstone, *Scolopax interpres*; Dunlin, *Tringa variabilis*; Knot, *Tringa cinerea*; purple sandpiper, *Tringa maritima*; Esquimaux curlew, *Numenius borealis*; flat-billed phalarope, *Phalaropus fulicarius*; Arctic tern, *Sterna arctica*; Burgomaster gull, *Larus glaucus*.

Of these species arriving on the coast will be perceived to occur in the land birds water birds. Fabricius, proposed species of other kinds, reduce the total to five species by Fabricius. probable that approach of are strictly billed jays, to be equal summer.

The distribution of these countries is different from the migratory species much more parallels the affords no visitors. advance no decrease of perpetual situation of the

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White-winged gull, *L. leucorhynchus*; *L. pomarinus*; Brunnich's gull, *U. alle*; *Cygnus*; Brent duck, *L. mollis*.

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Of these species, thirty-four in all, the whole are migratory, arriving on Melville Island in May, and departing in October. It will be perceived that only a single accipitrine, or raptorial bird, occurs in these high latitudes,—that there are only six species of land birds properly so called,—and that all the rest are either water birds or waders.* The birds of Greenland, as given by Fabricius, amount to fifty-four;† and although five of his supposed species are now known to be merely synonyms of certain other kinds likewise included in his list, which of course would reduce the number to forty-nine; yet, as Captain Sabine has added five species as native to Greenland, which are not recorded by Fabricius,‡ the total amount is still precisely fifty-four.§ It is probable that a great proportion of these migrate southward on the approach of winter, for, even in the fur-countries, few of the birds are strictly resident; and the raven, and Canadian and short-billed jays, were the only species which Dr. Richardson observed to be equally numerous at their breeding places, in winter and summer.

The distribution of the migratory and resident birds of northern countries is governed, according to Dr. Richardson, by very different laws, as far as climate is concerned,—the influx of migratory species, for the purpose of rearing their young, being much more connected with the high summer temperature of those parallels than with the mean annual heat, which is very low, and affords no criterion of the number or variety of the summer visitants. In fact, the mean annual temperature decreases, as we advance northwards $1\frac{1}{2}^{\circ}$ F. for each degree of latitude, while the decrease of mean heat in July does not exceed 1° . There is no perpetual snow on any part of the fur countries, with the exception of the more elevated portions of the Rocky Mountains. ||

To the two expeditions under the command of Sir John Franklin we owe almost all that is authentic in our knowledge of the ornithology of the interior of the fur countries; and although the collecting of specimens in natural history formed, of course,

White-winged gull, *L. leucopterus*; Arctic silvery gull, *L. argentatoides*; Ivory gull, *L. carbo*; Kittiwake, *L. tridactylus*; Fork-tailed gull, *L. sabini*; Skua gull, *Lectris pomarina*; Arctic gull, *Lectris parasitica*; Fulmar-petrel, *Procellaria glacialis*; Brunnich's guillemot, *Uria Brunnichii*; Black guillemot, *U. grylle*; Little guillemot, *U. Alpe*; Red-throated diver, *Colymbus septentrionalis*; Wild swan, *Anas cygnus*; Brent goose, *Anser bernicla*; King duck, *Somateria spectabilis*; Eider duck, *L. mollissima*; long-tailed duck, *Harelda glacialis*.

* The Jerfalcon (*Falco islandicus*), though not observed in Melville Island, visits equally high latitudes. It has been seen in Baffin's Three Islands, on the west coast of Greenland, in lat. 74. Linn. Trans. vol. xii. p. 523.

† Fauna Greenlandica.

‡ Viz. *Falco peregrinus*, *Tringa cinerea*, *Uria Brunnichii*, *Larus argentatus* (*L. leucopterus* of Fabric), and *Larus Sabini*.

§ Memoir on the Birds of Greenland. Linn. Trans. vol. xii. p. 559.

|| Fauna Boreali-Americana, vol. ii. Introduction, p. xviii.

but a secondary object in comparison with those great geographical problems, the solution of which was looked forward to as the principal and more important result, yet it is delightful to know that in the performance of higher duties of difficult achievement, and frequently environed by the most appalling dangers, these intrepid men neglected nothing which could in any way conduce to our knowledge of the countries they explored. The work now under consideration contains two hundred and forty species which, with twenty-seven from the north-west coast, (either formerly described by Pennant, or more recently observed by Captain Beechey, but which did not fall under the observation of our late expeditions,) make the total number of ascertained species inhabiting the fur-countries, as before defined, two hundred and sixty-seven.* In the introduction to the present volume, Dr. Richardson has presented, with his accustomed clearness and accuracy, various tabular views of the distribution of the species, both in relation to season and locality; and as it is only from data of this nature that a discovery of the laws which regulate the location of birds can be elicited, we view his contributions to ornithological geography as of great value. The subject, however, although one of the highest interest, involves too many matters of detail to admit of our entering at present upon its consideration.

It appears that, *essentially*, birds can scarcely be classed under the distinctive denominations of resident and migratory. Though many millions of a species may be observed to wing their way certain seasons to or from particular countries, yet some portions of these vast assemblages travel through a much shorter space than others, while perhaps an equal number of the same species sojourn for ever in the districts where they had their birth. Thus in the North Georgian islands, all the individuals of every species are driven southwards in autumn by the extreme rigour of the hyperborean region: there they are undoubtedly birds of passage. In the central and other portions of the fur-countries, again, we meet with species which occur there all the year round, and which, therefore, in their totality, cannot be regarded as migratory, but of which many individuals depart in summer to the polar shores both of continental America and of the North Georgian group; while others (of the same species), on the approach of winter, wing their flight to the United States. So, also, in Pennsylvania we have several species which reside there throughout the year, but of which, at the same time, numerous individuals pass their summer in the fur-countries; while, in the former state

* In addition to these, the M. Bonaparte enumerates thirty-six species which migrate northwards from or through Pennsylvania in the spring, and which, though not noticed by Dr. Richardson, may fairly be inferred to breed in the fur-countries. *Speecchio Comparativo delle Ornitologie di Roma e di Filadelfia*. Pisa, 1827.

many species appear in their race and even that continue to occur space a much variety of example, of spring tides, and regions as which feed Saskatchewan warm and dry for the places in the 'There,' rays of a spongy dur birds for the southward Bay, which the northward not thawed before the setting in the United States, p. 19. It is, of the species retire farth such as re those which Dr. Richardson Some species can master. tribes, which and young, from the broad districts which these and species which are individuals breeding plants fill up the country for their con-

many species occur during the winter season, which entirely disappear northwards in summer, and leave behind no remnant of their race. Several of the species which breed in the temperate and even northern parts of North America, either disappear from that continent altogether during the colder season of the year, or occur sparingly in the southern states of the Union. Others take a much wider range: the pigeon-hawk (*Falco palumbarius*), for example, resides in Mexico during the winter, and on the approach of spring sets off at once for Hudson's Bay and other high latitudes, and is, consequently, only known in most of the intermediate regions as a passenger in spring and autumn. The *Grallatores*, which feed by preference in moist and marshy lands, frequent the Saskatchewan prairies only in the spring; and as soon as the warm and comparatively early summer has rendered the soil too dry for their accustomed purposes, they retire to their breeding places in the arctic circle.

'There,' says Dr. Richardson, 'the frozen sub-soil, acted upon by the rays of a sun constantly above the horizon, keeps the surface wet and spongy during the two short summer months, which suffice these birds for rearing their young. This office performed, they depart to the southward, and halt in the autumn on the flat shores of Hudson's Bay, which, owing to accumulations of ice drifted into the bay from the northward, are kept in a low temperature all the summer, and are not thawed to the same extent with the more interior arctic lands before the beginning of autumn. They quit these haunts on the setting in of the September frosts, and passing along the coasts of the United States, retire within the tropics in the winter.'—*Introduction*, p. 19.

It is, of course, difficult to ascertain whether the individuals of the species which breed in the higher latitudes are the same that retire farthest southward during the winter season; and whether such as remain in the former latitudes throughout that season are those which had previously bred in the same localities in summer. Dr. Richardson seems to think that such is the case.

Some species seem to claim a right of property within a certain beat, chasing away with great pertinacity all the other birds that they can master. In the instance, also, of the *Falconidae*, and some other tribes, which present a marked difference in the plumage of the old and young, we observe that the latter are expelled by their parents from the breeding places, and appear, both in summer and winter, in districts which none of the old birds visit. From a consideration of these and similar facts, we are inclined to believe that, of the species which are found all the year within certain parallels, the younger individuals make the widest excursions in search of food or proper breeding places; and that, as their strength is matured by age, they fill up the casual vacancies which occur in the districts best adapted for their constant residence.'

It appears from the tenth table of this work (*Introductory* p. 39), that as many birds breed in the sixty-fourth parallel as the fortieth; and that the number of species which arrive from the north, merely to winter in Pennsylvania, exceeds the number of such as migrate to that state from the southwards for the purpose of breeding. Indeed, the influence of the fine and continuous summer of the northern regions appears remarkable, and is well illustrated by the fact, that while M. Bonaparte enumerated only one hundred and four species as breeding in the neighbourhood of Philadelphia, Dr. Richardson assigns one hundred and forty-one as the number of those that breed on the banks of the Saskatchewan, in lat. 54°.

It was our intention to have drawn a parallel between the feathered tribes of Europe and North America; but we find that doing so at present would force us still further to transgress the prescribed limits which, in truth, we have already somewhat exceeded. In the meantime, we beg to refer the reader to the eleventh table of the present work, which contains a list of nearly hundred species common to the Old World and the fur-country.

ART. III.—*The Life of Archbishop Cranmer.* By the Rev. H. John Todd, M.A. 2 vols. 8vo. London. 1831.

‘GIVE me my liar,’ was the phrase in which Charles the First was used to call for a volume of history; and certainly no man can attentively examine any important period of our annals without remarking, that almost every incident admits of two handles, almost every character of two interpretations; and that by a judicious packing of facts, the historian may make his picture assume nearly what form he pleases, without any direct violation of truth.

To the characters which distinguished the period of the reformation, this remark is particularly applicable. It is with almost all of them as with Wolsey in the play. A Catharine’s version of it is, that he was a man who ranked himself with princes; whose simony fair; whose own opinion was his law; double in his words and meaning; never pitiful, but when he meant to be mighty in his promises, in his performance mean; unchaste in his morals—pernicious in his example. A Griffith’s version of the same Wolsey is, that though certainly of an humble stock, he was stamped for honour; that if he was lofty, it was only to those who loved him not; that if he was unsatisfied in getting, he was most princely in bestowing; that he was a scholar, a friend and patron of scholars; great in prosperity, greater in misfortune, and that he crowned the glories of his life by dying.

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