

loff is spending a third year in the exploration of the Northern Ural. After having explored the river Lala under 59° N. lat., where he discovered layers of spherosiderites which were not yet known on the eastern slope of the Ural Mountains, he explored the banks of the Sosva—their geological structure, and the koorgans that are met with in its basin, as well as the fauna and flora of the region. In 1882 he visited the banks of the Lozva and Sosva, and the old mines of this locality, and made large geological, botanical, and ethnographical collections. He followed the Lozva to its junction with the Tavda, and went up the Sosva. The collections brought home by M. Nasiloff are now in the Mining Institute, in the St. Petersburg University, and in the Geographical Society. Another member of the Geographical Society, M. Malakhoff, continued his zoological and ethnographical re-earches on the Middle Ural. He explored the lake-dwellings discovered in the neighbourhood of Ekaterinburg, and, together with a member of the Mineralogical Society, explored the 3000 feet high mountain, Kachkanar, making there interesting collections of plants and insects. Later on in the summer he visited the districts of Irbit, Ekaterinburg, and Trivtsk, and discovered close by Irbit very interesting accumulations of bones, lake-dwellings on Lake Ayat, containing large implements of slate, and finally stone and bone implements in a cavern close by the Mias ironworks. At Lake Bagaryak he discovered interesting forms for casting animal and human figures during the prehistoric epoch.

HARTLEBEN of Vienna has published a unique little work by Dr. Jos. Chavanne, on "Afrika's Ströme und Flüsse," in which the author briefly surveys the hydrography of Africa as far as recent discoveries have furnished them. The book is accompanied by a well-drawn hydrographical map.

In the March number of Hartleben's *Deutsche Rundschau* for geography and statistics, Dr. Chavanne has a sketch of the progress of discovery in Africa during 1882. There are interesting biographies, with portraits, of General Strelbitski and the late Prof. Henry Draper.

The following papers will be read at the third German "Geographentag," which will be held at Frankfort-on-the-Maine on the 29th-31st inst.:—On the importance of Polar research to geographical science, by Prof. Ratzel (Munich); on the commercial conditions of South Africa, by Dr. Buchner (Munich); on the significance of the International Colonial Exhibition at Amsterdam with regard to geographical science, by Prof. Kan (Amsterdam); on the reciprocal relations of climate and the shape of the earth's surface, by Dr. Penck (Munich); on the means of determining the geographical position at the time of great discoveries, by Dr. Breusing (Bremen); on the latest efforts made to determine more accurately the shape of the earth, by Dr. Günther (Ausbach); memoir of Emil von Sydow, by Dr. Cramer (Gebweiler); on topography as an introduction to geography, by Dr. Finger (Frankfort); on the pedagogic requirements and principles in drawing wall-maps for the use of schools, by Herr Coordes (Cassel); on the method of representing various objects on maps, by Prof. Jaroslaw Zdenek (Prague); on the Prussian teaching order and examination with reference to geographical instruction, by Dr. Kropatschek (Brandenburg); on the geographical handbooks of M. Neander, by Dr. Votsh (Gera). Three other highly interesting papers are also promised, viz. notes from his botanical journeys in Tropical America extending over five years, by F. R. Lehmann; on the Balkan Mountains, by Prof. Toul (Vienna); and a report on his great journey across Africa, by Lieut. Wissmann.

NEWS from Zanzibar, dated November 8, 1882, brings the sad announcement of the death of Dr. Kayser, who had been sent by the German African Society to their station on the shores of Lake Tanganyika, together with Drs. Boehm and Reichard, and who had left his station and was on his way to the Gold Coast.

THE CONSERVATION OF EPPING FOREST FROM THE NATURALISTS' STANDPOINT.

THE great expanse of primitive woodland in the immediate neighbourhood of East London declared "open" to the public on May 5, 1882, by Her Majesty the Queen, should be

¹ Being a paper read before the Essex Field Club, at the meeting held on February 24, by Raphael Meldola, vice-president of the Club.

regarded as one of the numerous bequests to posterity marking the enlightenment of our times. The feelings leading to the agitation for the preservation of open spaces in and around the metropolis are sure indications on the part of the public of a recognition of the necessity for protecting and conserving our common lands for outdoor recreation—a recognition which must be considered as marking a decided advancement in the ideas of the British holiday-maker. If we compare a map of the environs of London of, say, twenty years ago, with the actual state of the country at the present time, it will be seen that large tracts of open land have disappeared; shady coppices and furze-clad heaths have been inclosed and built upon, and the country-loving Londoner has had to go further and further afield for his rambles. If it is obviously true that increased pressure of population demands more dwelling accommodation, it is equally true that a denser population requires more open spaces. The indifference of the public in former times to their own rights and to the wants of their successors is naturally making itself more and more seriously felt with a rapidly augmenting population and a corresponding spread of buildings. The formation of such public bodies as the Commons Preservation Society and the Epping Forest Fund was a healthy sign that people were beginning to be alive to the gravity of the situation, and we may now fairly say that rural London is on the defensive. The remarks which I am about to offer on the present occasion are based on an unpublished article written many months ago, when that wooded area in which our interest as a society centres was threatened by tramway invasion. The withdrawal of the Great Eastern Railway Company's bill for extending their line from Chingford to High Beech in 1881, and the apparent collapse of the tramway scheme had led to the hope that the "people's forest" would remain uninclosed, and that the Epping Forest Act of 1878 would be carried out in spirit and in letter. But unfortunately new grounds of alarm have recently arisen, and our honorary secretaries, to whom I showed the original manuscript, did me the honour of thinking that the views which I had expressed would still be found to be in accordance with those of our own and kindred societies.

Like other open tracts in the metropolitan district, the great Waltham Forest, which comprised the forests of Epping and Hainault, was rapidly undergoing absorption. From the report of the Select Committee of the House of Commons presented in 1863, it appears that of the 9000 acres which constituted the Forest in 1793, only 6000 acres then remained uninclosed. In 1871, when the Corporation of London took up the Forest question, this area had been reduced to 3500 acres. I do not here propose to trouble you again with the now familiar history of the rescue of this picturesque remnant of primeval Britain (see Mr. J. T. Bedford's "Story of the Preservation of Epping Forest," *City Press* Office, 1882). The work—commenced more than a decade ago by the Corporation of London—received its crowning reward at the late Royal visitation. We shall the more appreciate the results of the action taken by the Corporation when we bear in mind that the total area dedicated to the public last May is very nearly equal to the expanse of 6000 acres reported upon by the Select Committee of 1863. But whilst expressing the gratitude of metropolitan field naturalists generally for the restoration of one of their largest and most accessible hunting grounds, it certainly does seem to me that the shout of triumph raised by the Conservators has been allowed to drown the smaller voices of those who had previously demonstrated to certain rapacious lords of manors by somewhat forcible means that a "neighbour's landmark" was not a movable thing. It must not be forgotten that prior to the year 1871, besides many vigorous individual protests, both the Commons Preservation Society and the Epping Forest Fund had declared war against illicit inclosure. The restoration of the Forest to the people has cost a sum of money considerably exceeding a quarter of a million pounds sterling, and it will be generally admitted that this amount has been well if not wisely spent in the public cause. There are no doubt many who have suffered by their own cupidity, or by that of former manor lords, who still feel aggrieved at the action of the Corporation, and it must indeed be conceded that many whose estates have suffered curtailment have been the unconscious receivers of illegally acquired property and are thus deserving of commiseration. The principles involved in the conflict between public rights on the one hand and manorial actions on the other are of the very deepest importance to the community at large, and it is therefore no matter of surprise that the "Forest Question" should have acquired

a quasi-political aspect during the last few years in this neighbourhood.

As far as I have been able to learn, the motives leading to the preservation of our Forest at the great cost specified appear to have been purely philanthropic. The main object was to secure this splendid area for the "recreation and enjoyment" of Londoners generally, and more especially for the East-End inhabitants, whose chances of holiday-making are only too often limited to an occasional day in the country. In one sense the latter class may now, thanks to the movement first set in action by Mr. J. T. Bedford, claim to have a decided advantage over their wealthier West-End brethren, for the total area of the West-End parks (including Regent's) amounts only to about 1150 acres as compared with the 5000 to 6000 acres of open country so easily accessible to East Londoners. In the face of such an obviously enormous gain to the country rambling holiday folk, it may perhaps seem ill-advised to attempt to criticise the action of the Conservators in their dealings with the Forest. It is with great reluctance on my part that I forsake the peaceful paths of scientific study to take up a question which generally appears to lead to nothing more than a manifestation of angry controversy, and I only do so now on behalf of that numerous and ever increasing scientific class of holiday-makers whose claims thus far appear to have been altogether put out of court.

Long before the question of encroachment or of preservation had been brought into its present prominence, botanists, entomologists, microscopists, and students of nature generally were in the habit of frequenting our Forest and of rambling in quest of the objects of their study through this woodland expanse so conveniently situated with respect to the great scientific centre of this country. There are records which prove that Epping Forest has been for more than a century the hunting ground of many who have gathered materials from its glades for the great storehouse of human knowledge, and who have taken a true and purely intellectual delight in studying its animal and vegetable productions. The London naturalists of the present time should surely have something to say in connection with the fate of this favourite haunt, made classic ground to them by the memories of such men as Richard Warner, the author of the "*Plantæ Woodfordienses*" (1771), Edward Forster, the Essex botanist, who wrote between the years 1784 and 1849, and Henry Doubleday, of Epping, our own grocer-naturalist, who died in 1877. It is time for the natural history public, by no means such an insignificant body as is generally supposed, to raise their voice on behalf of these "happy hunting grounds." The position to be taken up is not necessarily one of antagonism towards the Conservators, but it is certainly desirable that some understanding should be come to respecting the claims of those who, in pursuit of knowledge, have long been contented to bear with the pitying smile of the ignorant for "trifling away their time upon weeds, insects, and toadstools." The numerous scientific societies and field clubs of the metropolitan districts have already declared their views on former occasions, and it is chiefly with the object of attempting to define the respective attitudes of the parties concerned that I have entered the arena on the present occasion.

There are at the present time more than twenty Natural History Clubs in the environs of London, and of these many have long been in the habit of making collecting excursions to our Forest. Our own Society and our Walthamstow colleagues have their head-quarters in the Forest district. Some of the East-End clubs are entirely composed of working men, and have done excellent work in fostering a healthy taste for the study of outdoor natural history among this class of the community, a matter of considerable importance to us when we so often hear that the Forest has been acquired as a recreation-ground chiefly for the working men of East London. In addition to these numerous local clubs, there are the great London Societies, which, like the Linnean, Zoological, Entomological, Royal Microscopical, and Quekett Club, are all interested in promoting the study of biology in its various branches. Now, in face of the rapid destruction of all the truly wild tracts of country in the vicinity of London, it must assuredly be of the greatest importance to the natural history public as a body to watch with a most jealous eye the dealings by those in authority with this the largest, wildest, and most accessible of all the open spaces in the metropolitan district. To naturalists generally such a tract of primitive country as that which has come under the management of the Corporation is something more than a mere pic-

nic-ing ground—to all students of nature it is a *biological preserve*. Nay, I will even go so far as to declare that forest management is essentially a scientific subject in itself—a natural history question in the broadest sense. Now with the exception of our esteemed members, the Verderers, by whom we were invited to a conference some months ago, it appears to me that the Conservators as a body—and a confessedly unscientific body—are not aware that scientific counsel is necessary to enable them to faithfully carry out the Act of Parliament, *i.e.* to keep the area committed to their charge in its "natural aspect" as a forest. I will therefore take the present opportunity of pointing out that scientific criticisms would have been disarmed and the fears of natural history students allayed if the Epping Forest Committee had only recognised the claims of science by consulting, let us say, the Directorate of Kew Gardens, or by appealing to the Councils of some of the London Societies.

If we consider the actual work done during the period that the Forest has been under the jurisdiction of the Corporation, we may fairly say that the energies of this body have hitherto been developed in the direction of landscape gardening; *i.e.* of *artificialising* certain portions of the Forest. The great hotel at Chingford has been made the centre of convergence of a number of roads, some of which have been newly cut even at the risk of being superfluous. The aquatically-disposed holiday-maker may hire boats in which he can paddle about on an "ornamental water," or can embark on a floating machine turned by hand-paddles, and possibly constructed with a view to delude the occupants into the belief that they are on board a steamer. The exhausted East Londoner whose vitality appears to require that recuperation which seems to be derivable from swinging, steam-roundabouts, and throwing sticks at cocoa-nuts, has been amply provided for, and his wants have in every way been attended to. In 1881 the Forest was threatened by a railway; in 1882 by a tramway, and again this year another railway bill is about to be introduced into Parliament. To all these schemes the Committee, no doubt with the best motives, gave and still give their support, and one has to seriously ask what is the meaning of the word "conservator," and how far this attitude is compatible with the instruction that "the Conservators shall at all times as far as possible preserve the natural aspect of the Forest," and "shall by all lawful means prevent, resist, and abate all future inclosures, encroachments, and buildings, and all attempts to inclose, encroach, or build on any part thereof, or to appropriate or use the same, or the soil, timber, or roads thereof, or any part thereof, for any purpose inconsistent with the objects of" the Act of 1878. It must not be supposed that there is any desire on the part of naturalists to exclude the general public. I wish only to emphasise the fact that up to the present time it would appear that the Forest has fallen into the hands of those who are disposed to regard it exclusively from the point of view of excursionists and "cheap trips," and in accordance with the principle that supply and demand act and react, it may be expected that this class—which has thus far alone been catered for—will more and more frequent the Forest district. Increased accommodation for excursionists means, if we may judge from the line of action pursued by the Conservators, an extension of facilities for swinging and donkey-riding. The "improvements" that have hitherto been made have not been of such a nature as to preserve the woodland in its native beauty, but have been limited to the conversion of a portion of the Forest land into a resort for pleasure-seekers of the class indicated. To the naturalist—and I am sure I may say to the intelligent public generally—such a tract of primitive country is beautiful only so long as Nature is given full sway, and the adjustments which for long ages have been going on slowly and silently under the operation of natural laws remain unchecked and uninterfered with by man. No unscientific body of Conservators can possibly realise to the fullest extent the seriousness of the charge committed to their care.

With respect to the management of the Forest, the views of naturalists are now so well known that no excuse can be made for ignoring them. Our wants are of the simplest and most economical nature—our case is perfectly met by the trite aphorism, "let well alone." The whole Forest area at present existing may be considered to consist of primitive woodland and of tracts formerly under cultivation. The former can best be dealt with by leaving the "management" to Nature; whilst the latter should be naturalised as soon as possible. And here we cannot close our eyes to the fact that while a large amount of money has been expended in altering portions of the Forest proper, no

attempt has yet been made to plant or to restore to a natural condition those unsightly tracts which were formerly inclosed, and of which many remain as barren wastes to the present time. The cause of the naturalist is thus imperilled both by the active and by the passive position of the Committee—he is like the pitcher in the Italian proverb, which says that “whether the pitcher hits the stone or the stone hits the pitcher, it is always the worse for the pitcher.”

It is now quite unnecessary to make detailed statements of the views of individual naturalists with reference to the present subject. It will be remembered that at a meeting of this Society held last year, Sir Thomas Fowell Buxton brought forward a proposal—and a very excellent one it was—that all landowners round the Forest district should agree to stop generally the destruction of all birds and animals on their estates, so that a great experiment might be carried out for some years, leading to a true “balance of nature” in the whole area comprised between the valleys of the Lea and Roding. At the discussion arising from that suggestion the preservation of the fauna and flora as a whole was advocated, and many naturalists whose opinions will carry great weight expressed their views on the question of forest management. The complete report of this meeting has not yet appeared, but I will refer you to prospectively, and in an appendix to the part of our *Transactions* now going through the press will appear papers, drawn up at the request of the Council, by Dr. M. C. Cooke, Mr. J. E. Harting, and Prof. Boulger. The evils of deep drainage, from the naturalist's point of view, which form the text of Dr. Cooke's protest, have already been pointed out by many, and I will just call your attention to some remarks on this subject by our eminent honorary member, Mr. A. R. Wallace, in an able article published in the *Fortnightly Review* for November, 1878, wherein he says:—“It must be remembered, too, that a proportion of bog, and swamp, and damp hollows are essential parts of the ‘natural aspect’ of every great forest tract. It is in and around such places that many trees and shrubs grow most luxuriantly; it is such spots that will be haunted by interesting birds and rare insects; and there alone many of the gems of our native flora may still be found. Every naturalist searches for such spots as his best hunting grounds. Every lover of nature finds them interesting and enjoyable.” After enumerating some of the rarer marsh plants of our Forest, Mr. Wallace continues:—“These and many other choice plants would be exterminated if by too severe drainage all such wet places were made dry. The marsh birds and rare insects which haunted them would disappear, and thus a chief source of recreation and enjoyment to that numerous and yearly increasing class who delight in wild flowers, birds, and insects, would be seriously interfered with.”

It is somewhat exceptional for a society founded for the study and promotion of natural science to find itself engaged in active polemics, but in taking up the position into which we have been forced, we are simply carrying out that line of action which at our foundation I ventured to lay down as our true function with respect to the Forest. (Inaugural Address, *Transactions*, vol. i. pp. 19, 20.) It is extremely unfortunate that the claims of science should appear to be opposed to the wants of the general public—I say should appear to be opposed, because I am convinced that there is no real antagonism. The grievance of naturalists is not only that their claims have been ignored, but the action of the Conservators has hitherto been entirely on the destructive side, and a feeling of alarm has arisen lest the whole of the Forest should piecemeal be desecrated in the name of a fictitious philanthropy. The public wants—as interpreted by the Board of Conservators—are made to take the form of clearing of underwood, drainage, roadmaking, the intersection of the Forest by railways and tramways, and ample public-house accommodation. If these are really the fundamental requirements of holiday-seekers, then there must for ever be a strong antagonism between this class of the public and those whose cause I have taken it upon myself to advocate. At this juncture, however, we may fairly ask whether this kind of artificialised recreation-ground, à la Cremorne, is actually demanded by the frequenters of the Forest. I believe myself that it is not. The notion of keeping a holiday in what is only too often a bestial manner is not a fair estimate of the British excursionist. If he gives way to the temptations which have been so lavishly scattered in his path, it is, as Shakespeare puts into the mouth of King John, because “the sight of means to do ill deeds makes ill deeds done.” The East Londoner who wishes to spend a day in a “people's park” is

provided for elsewhere, but if we consent to the denaturalising of our Forest, the more intelligent class of excursionists—and their name is legion—will be either driven from its precincts or will suffer that degeneration which the line of action at present pursued is exclusively calculated to bring about.

In the course of these remarks I may have somewhat exaggerated the supposed antagonism between the two classes most interested in the conservation of Epping Forest, but I have done so with the object of defining as sharply as possible the position of the hitherto unconsidered naturalist. The conditions requisite for transforming the Forest into a “people's park” are fatal to its preservation as a natural history resort. Any piece of waste land can be made into a park, but a tract of wild forest once destroyed can never be restored. I would once more urge, and most emphatically, that there is not the slightest desire on the part of naturalists to exclude the “toiling million,” or to prevent their full enjoyment of the Forest. I wish only to point out that my present contention is that in the long run the wants, both of the naturalist and of the ordinary excursionist, will be found to be absolutely coincident. If the neighbourhood of a railway terminus with its concomitant evils leads to the destruction of the “natural aspect” of any portion of the Forest, that portion is ruined, not only for the naturalist, but likewise for the general public who come to enjoy a day in the country far from “the busy hum of men.” By judicious management the requirements of both classes can be met, and it rests entirely with the Conservators to determine whether the attitude of the respective parties is to be pacific or the reverse. It must be remembered that long before the Forest was rescued by the Corporation this district was a favourite resort of multitudes of holiday folk, and, not being interfered with to any considerable extent, was at the same time available to the naturalist. The note of alarm must be sounded, or we may find ourselves worse off than in pre-Conservatorial times. The constitution of the Epping Forest Committee is apparently prejudicial to our interests if we may judge by the standard of past and present actions. Of this Committee the Verderers, who, as representing the Commoners and as residents in the Forest district, are best qualified to advise with respect to the management of the Forest, form but four of a Committee of sixteen. However enlightened the views of these gentlemen may be—and I only wish I could say that the present Verderers were unanimously of our way of thinking—they are thus liable to be outvoted. Another evil, and a most serious one so far as we are concerned, is that the Committee is practically a secret one—its proceedings are conducted with closed doors, and the people at large, whether naturalists or excursionists, have no means of making their voices heard. Whether this action is just in a case where the funds are derived from a public source it does not enter into my province to consider.

The views which I have now put forward are offered with the best of intentions with respect to the body Conservatorial. We cannot be unmindful of our obligation to the Corporation for having saved the Forest, but we appeal to them to assist in exalting the ideas of those who frequent this place as a holiday resort instead of pandering solely to the more degraded aspect of human nature. A day spent amid the natural beauties of our sylvan glades is the beau ideal of a holiday, intellectually, morally, and physically, to those whose pursuits keep them confined to the town. Let Epping Forest be preserved for the multitudes who have for so long enjoyed it rationally. The “recreation and enjoyment of the public” will thus become possessed of a higher meaning, and the naturalist while carrying on his studies as heretofore will be doubly grateful to those who have secured these time-honoured preserves as a public space free from all fear of inclosure or destruction. The ideas which I have attempted to formulate are I know entertained by large numbers not only of working naturalists, but also by the continually growing class of lovers of the country and of nature in general. It is becoming a matter of almost national importance that the surviving tracts of open country in the neighbourhood of all large towns should be rigidly preserved, and opinions in accordance with this have from time to time been forcibly expressed both with respect to our own Forest and all the common lauds in the environs of London.

UNIVERSITY AND EDUCATIONAL INTELLIGENCE

CAMBRIDGE.—The following further appointments to Electoral Boards have been made:—

Professorship of Botany: Sir Jos. Hooker, Dr. F. Darwin,