

ADDRESS
TO THE
ROYAL GEOGRAPHICAL SOCIETY
OF LONDON;

Delivered at the Anniversary Meeting on the 27th May, 1839,

BY

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PRESIDENT.

GENTLEMEN,

IN meeting you on this, the eighth anniversary of the foundation of the Royal Geographical Society, and in resigning into your hands the honourable distinction of being your President; and, in the entire confidence that you have fixed your choice on one not, I would fain flatter myself, more anxious and zealous for your prosperity and for the advancement of the science which you cultivate, but who is far better qualified, than I have proved myself, to fulfil the duties of the situation, I shall proceed to lay before you a few observations on the present state of the Society, and on the progress which geographical knowledge has made during the last year, from individual exertions, from your own labours, and from those of our rivals in the race of honour we are engaged in on the continent of Europe, and in other parts of the world; and I shall allow myself such observations as may occur to me, as not undeserving of your attention, on the increasing importance of geographical knowledge to the social and political condition of man.

The finances of a Society like the present, existing altogether on private subscriptions, will always form an object of paramount interest. I am happy to say, on reference to our balance-sheet, that we have every reason to be satisfied on that score. Our receipts in the preceding year, exclusive of the £500 received for a special purpose from the Society for Promoting Christian Knowledge, amounted to the sum of 1500*l.*; and the number of members on our list exceeds 650.

Our library, both of books and maps, has received large additions since the last anniversary. It is still, however, very far from what it ought to be; and I hope that the liberality with which members are allowed the use of it will continue to stimulate a corresponding liberality on the part of those, who are in a state to augment the collection by voluntary contributions.

We have received, among many other donations to the library, "The Silurian System," founded on geological researches in some of the western counties of England, by Mr. Murchison; some additional sheets of the Ordnance Survey of England, and the Townland Survey of Ireland; various charts from the Hydrographic Office at the Admiralty; and princely donations from the *Depôt de la Guerre*, and the *Depôt de la Marine*, of France, and from the *Dépôts Topographiques* of Wurtemberg and Austria, for the latter of which we are also much indebted to our zealous honorary member, Baron C. Hügel; several valuable documents from the Court of Directors of the East India Company; and we have this day received from Capt. Fitz Roy, the "Narrative of the Surveying Voyages of Her Majesty's Ships *Adventure* and *Beagle*, between the years 1826 and 1836, describing the examination of the southern shores of South America, and the *Beagle's* circumnavigation of the Globe;" besides many excellent maps from Mr. John Arrowsmith, the Transactions of the Imperial and Royal Academies of St. Petersburg and Berlin, Paris and Lisbon, and numerous donations which are recorded in the volume of our *Journal* now issuing from the press.

But here, Gentlemen, we are subject to a very serious inconvenience, the whole extent and nature of which ought not to be withheld from you. We have long suffered from the straitened room available for our public business, and most particularly for the accommodation of members who may wish to consult the library, whether for instruction or recreation. Our books and maps are piled in heaps on the chairs and tables above-stairs in most deplorable confusion; and although every pains are taken, and effectually taken too, by your Secretary and by the Librarian, to preserve some degree of order amongst the various articles of your property, which, from their high value and usefulness, do ill deserve such treatment, still, every day and hour furnish instances of the evil occasioned by the want of a larger apartment for reading, for drawing, for comparing and construction of maps, for the exhibition of instruments, for the reception of strangers, and for what is by no means the least useful or the least agreeable of our pursuits, the mutual exchange of ideas amongst the members of the Society, for the promotion of the cause which has so happily and so honourably brought us together. I took occasion in my address to you last year to advert pointedly to this

subject, in its practical application to the progress of geographical inquiry: since that period the Council have been indefatigable in attempting to provide a remedy; but hitherto, I regret to say, without success. You need not be reminded, indeed you must all feel the necessity, of our not removing farther than we now are from the centre of the active movement of the metropolis, nor farther from the great public offices, from our daily intercourse with which we derive so many advantages; the suspension of which intercourse would at once deprive us of much valuable assistance, and would occasion great loss of time. The Council have visited various sites which would be eligible in themselves, if available, and we have entered into, or rather commenced, several negotiations for the attainments of this object: but all have fallen to the ground from one or the other of two causes; either the space offered was too small, or the expenditure it would entail upon us was too large. The annual balance-sheets show to the Society that we have a considerable sum of money in the Funds, which might be available for this purpose, and this, indeed, was one of the main objects the Council had in view when they resolved to fund a large portion of the receipts during the first years of our institution: and such is our conviction of the imperious necessity of providing suitable apartments for the Society, that we have even contemplated the expediency of applying the whole of this fund, in addition to a considerable increase of annual rent, for this one object; confident as we are that a very large portion of such outlay would rapidly be replaced by a large accession of new members. It might indeed for a few years cripple our means for fitting out exploring expeditions on the scale we have hitherto acted on; but we should not despair of speedily being enabled to resume that practice, should it be thought advisable, if we could once secure to ourselves a permanent, convenient, and spacious home, if we could add to our *name* a *local habitation*.

As the great desideratum in a new establishment will always be a large and commodious room for these Meetings, it has even been suggested to the Council that, in the impossibility of suiting ourselves permanently and immediately with *all* we want, we might find it advisable to take temporary apartments in this neighbourhood for the accommodation of Members generally, and for the *daily* business; whilst the courtesy of our present landlords would still secure to us the use of *this* room for the Evening Meetings.

Whatever inconvenience might occasionally be felt by such an arrangement, it would be infinitely less, and of much less consequence to the essential interests of the Society, than that which is felt now.

The hand of death during the last year has removed from our Society two persons, to whose services in the cause of Geography I must call your attention. Vice-Admiral Sir John T. Rodd, late a Member of the Council, was son-in-law of one of our most distinguished geographers, Major Rennell, who was indebted to him for many of the facts inserted in his well-known Current Charts; Sir John Rodd was also a donor of several works to our library. The Baron de Hamelin, a Foreign Honorary Member, at the head of the *Depôt de la Marine* of France, deserves also to be gratefully remembered by us—not only for his zeal in the promotion of scientific Geography, but for the many valuable maps and books which have been presented to us by the establishment over which he presided.

Positive proofs of the importance of accurate geographical knowledge are not wanting, many must at once occur to every one who hears me; nor are the negative proofs of less frequency, or of less weight.

The history of nations might furnish us with a long list of disastrous occurrences, owing to the ignorance of localities, in those on whom has hung the fate of armies, from the ignominious tale of the *Fauces Caudinæ* to the defeat of Saratoga.

What is it which has occupied all minds, exercised thousands of writers, embarrassed the most expert diplomatists of modern times, put as it were on the cast of a die an unnatural, and almost a civil war between two kindred nations, threatened to interrupt the progress of civilization over the half of the new world, and to throw into confusion the great commercial interests of the globe? What but the ignorance of the course of one or two rivers, of the range of certain hilly districts from which they derived their streams; and the uncertainty in geographical nomenclature whether the specific name of a bay, which bathes a small extent of coast, occurring in a diplomatic document, is to be considered as identical or not with the vast ocean of which it forms a part? To this must also be added the ignorance which prevailed, at a period fifty years ago, of the extent, configuration, and boundaries of our own provinces. You cannot fail to receive the allusion as stamping at once the inestimable value which, for the repose of nations, as well as for the advancement of science, we ought to set on geographical research. In another quarter of the world now under our dominion, I mean the large district of Assam, it is only, I believe, of very late years, that our botanists and naturalists have ascertained that the tea-tree, an indigenous plant of that soil, may be cultivated, so as to divert, perhaps in a few years, the entire direction of a trade which during the last half-century has poured so many millions into the Exchequer.

We all remember the fatal consequences, which ensued to our army and navy in 1827, when they had to penetrate the unknown swamps and rivers of the Birman territory.

“When at the commencement of the Birman war” (says Capt. Pemberton, of the Bengal Engineers), “our ignorance of the whole frontier became manifest, the impolicy, the shortsightedness of not having instituted, even by force, if requisite, a proper examination of the mountain passes, flashed upon the mind of even the most careless observer; and its lamentable effects were afterwards shown in an expenditure of life and treasure without parallel in the annals of Indian warfare.” Another proof, if proof were wanting, to be added to those lately brought forward (by Major Jervis, in his address to the British Association, on the present state and progress of the Trigonometrical Survey in India), of the absolute necessity of a complete survey, to ensure the good government of any country.

When our troops landed in Egypt, in 1801, they suffered for a time from want of water on the coast, though, eighteen hundred years before, Cæsar had told us that it was to be found all along the coast by digging for it to a very inconsiderable depth.

On that same coast how nearly was the gallant Nelson deprived of the glorious fruits of his anxious nights and days, and indomitable perseverance, by his ignorance of the shoals, near which was anchored the enemy’s fleet!

Minor misfortunes of this kind are still of every-day occurrence. There are few parts of what is called the “known world,” which are yet distinctly known as they ought to be known. Every new survey corrects the thousand and one errors of omission or commission of those which have preceded it, even in the most frequented seas. And as the commerce of the world, goaded on by the thirst of adventure and profit, “*æstuans angusto limite mundi*,” is perpetually seeking out new marts of exchange, or struggling to unlock the bars by which the jealous fears of some, and the narrow and superstitious prejudices of others, have hitherto excluded it from many of the richest countries and finest harbours in the world, this department of geographical knowledge, namely, Hydrography, becomes every day more and more indispensable, as it is that in which minute accuracy is most required.

In performing the most agreeable of the duties which devolves upon your Council, namely, in conferring the Honorary Medals provided out of the annual Royal Donation, the Council, as you have this morning heard from your Secretary, have hitherto restrained themselves to presenting one medal to the individual, whom they conceived to be the best entitled to this distinction; and this has been accompanied with the further present of the difference between the value of the metal and the

amount of the Royal Donation. On the present occasion, and for the future, if the same should be considered advisable by their successors, they have resolved to present two medals of equal value and equal honour, to the two gentlemen whom, on the principles hitherto acted upon, they may judge to have rendered the most distinguished services to the cause of Geography. And, accordingly, the medals for this year have been awarded by the Council, one, which is called the Founder's Medal, to Mr. Simpson, the officer of the Hudson's Bay Company who has yet reached the farthest point on the north coast of America—east and west of the Coppermine River, and whose exertions, together with those of Mr. Dease, have been so well appreciated by you; and the other, or the Patron's Medal, to Dr. Edward Rüppell, of Frankfort, for his travels and researches in Nubia, Kordofan, Arabia, and Abyssinia.

I shall avail myself of this opportunity to lay before you a few observations on the true principles of conferring these honorary medals for distinguished eminence in the pursuit of science generally; equally applicable, as I believe them to be, to similar acts in this and other departments of knowledge.

When the founder of an honorary reward of this description shall have laid down, either by grant or bequest, certain distinct rules for realizing his donation, such rules must, of course, be religiously adhered to. But when sufficient means are annually available to a literary or scientific society, for the purpose of giving an honourable distinction, without the precise mode of its being prescribed, I should be inclined to submit to your judgment whether it might not be advisable to deviate in some manner from the course usually pursued.

This course has been in almost all instances to have a medal struck, representing on one side of it the head of the donor, and, on the reverse, either some appropriate allegorical device, or wreath, within which may be inscribed the name of the person receiving it. Each medal is thus, in one sense single, or unique of its kind; whilst, in another sense, all the medals so given are merely repetitions one of the other, the only variation being the name of the receiver. Now it is obvious that such a medal can hardly be considered as in itself *a distinction of honour*. The act by which it is conferred is, indeed, as far as it goes, an honourable distinction; but the medal itself, being necessarily locked up and preserved in the possessor's own keeping, does in no way whatever contribute to extend his fame or good name, either amongst his contemporaries or to posterity; that is, it does not spread abroad the fact of the honour having been thus bestowed upon him. It is not to him an efficient source of *honour*; and, in truth, the greater is its material value, that is, the greater the liberality to which it owes its existence, the less

is it seen or known, the more carefully must it be guarded from being lost or purloined during the life of the possessor, who may strictly be described in the words of Horace, 'Magnas inter opes inops;' and, after his death, the greater is the probability that it will, sooner or later, find its way to the furnace. Under this system, many of those who hear me may, from the interest they take in Geography, recollect that medals of honour have been awarded from this chair to Ross, to Back, to Fitz Roy, to Burnes, and to Chesney; but how few, out of a particular range of study, are aware that similar marks of distinction have within a few years been bestowed, by other Societies, on a Faraday, a Hallam, an Ivory, a Scott, a Herschel, or a Davy!

To obviate these objections, I am of opinion that, instead of giving one gold medal, we ought to expend the means at our disposal, when they are sufficient for the purpose, in having the portrait of the receiver engraved upon the die; we should present him with one impression in silver, and strike off at least an hundred others in bronze, for circulation amongst the various public museums here and abroad, and also for indiscriminate sale for the supply of private collections.

By an arrangement of this character you will at once see that, through the extended circulation of such a monument, the honour, fame, name, and success of the receiver are not only made known throughout Europe, but they are perpetuated, together with a delineation of his features, possibly to the latest posterity. Such is the bronze medal, which I now hold in my hand, of the celebrated navigator, Captain Cook, which was struck, with his portrait, by the Royal Society, as a testimony of their admiration of the services he had rendered in the career of discovery. But I fear this is an unique instance of the kind in this country.

I hope, gentlemen, you may live to see this practice, originated in this country, rapidly and generally applied by our own literary and scientific societies, and soon imitated by our sister establishments on the Continent.

I would fain mention a strong additional argument in its favour, namely, the encouragement it would give to a department of the Fine Arts which has long been neglected by our countrymen, but of the revival of which, I think I see the approaching dawn. This is, indeed, I am aware, a consideration foreign to the purposes for which we are here assembled, but you will not approve it the less, because it will do good out of the sphere of your own more immediate pursuits. Science, literature, and the arts, are the great evidences by which the development of the intellectual power of men is made most manifest. Apart from a conviction of our moral duties and our religious responsibilities, these are the three Graces, which elevate one man above another, one

nation above another, one era above another. In all the most prominent periods of history they have been born, have flourished, have decayed, and have revived together ; and though special circumstances may now and then intervene, within limited periods, or in particular portions of the world, to the prominence of one of them, and the disparagement of another, this is not the ordinary course of national progress ; it is a phenomenon, the existence of which we should not hail with satisfaction, and we ought rather to view it in the light of a perturbation, which, like those which occur in a higher region, are righted by the action of the same principles by which they are produced.

This allusion to the execution of modern medals in aid of the pursuits of Geography prompts me to say a few words on the already intimate connection between the science of Numismatics, as pursued by the antiquary and the scholar, and the knowledge of comparative or historical Geography. In the first place, the professor of Numismatics arranges his medals upon a strictly geographical system—he begins with the most western parts of Europe, with Lusitania ; he then proceeds to Hispania and its several provinces ; he then arranges those of Gaul and Britain : to these succeeds Italy, first north of the Po, then to Etruria and the south of that river, and on through Umbria, Latium, Campania, Apulia, Calabria, to Sicily and its islands. Having thus disposed of Western Europe, the Numismatist begins again with the Tauric-Chersonese, and proceeds regularly through European Sarmatia, Dacia, Pannonia, the two Mœsias, Thrace, its Chersonese, to Pæonia, Macedon, and Thessaly, with their adjacent islands. He then takes the eastern coast of the Greek peninsula, through Dalmatia, Illyrium, and Epirus, with the neighbouring islands, to Acarnania and Ætolia. This brings him again to the east by way of Locris, Phocis, and Bœotia, to Attica and her islands ; he then takes up the Peloponnesus, with its several divisions of Achaia, Elis, and its islands, Messenia, Laconia, Argolis, and the central Arcadia. After which come the various islands of Crete and Eubœa, and the smaller ones of the Ægean, which have always been considered as belonging to Europe.

Of the medals or coins of the Asiatic countries and towns, we have first, beginning from the most northerly, those of the Cimmerian Bosphorus, and Colchis ; continuing along the coast of Asia Minor, follow those of Paphlagonia, Bithynia, Mysia, and the Troad ; down the western shores of Asia Minor, through Æolis, Ionia, Caria, and Lycia, and their several islands ; then eastward through Pamphylia, Pisidia, Isauria, Lycaonia, to Cilicia, and the adjoining isles ; next to these are the interior regions of Lydia, Phrygia, Galatia, Cappadocia and Armenia. The Numismatist then proceeds to Syria, its several districts

of Commagene, Cyrrhastica, Chalcidene, Palmyrene, Seleucis, and Pieria; then Cœlesyria, Trachonitis, Ituræa, and the Decapolis, or Haouran; concluding with Phœnicia, Galilæa, Samaritis, Judæa, and Arabia. We have then the remoter, and more inland districts of Mesopotamia, Assyria, Persia, Parthia, Bactriana, and Characene. Coming then into Africa, he takes successively the districts washed by the shores of the Mediterranean, from the Isthmus of Suez to the Straits of Gibraltar; these are Egypt, Cyrenaica, Syrtica, Byzacene, Zeugitana, Numidia and Mauritania.

I say nothing of the Consular coins struck at Rome during the Republic, or of those which are called Imperial, because, however important they may be for points of history or chronology, they are comparatively devoid of interest in reference to Geography.

The whole of the ancient world, well known to the Greeks or Romans, is thus brought successively into notice; and I believe it will be allowed by all, that the best Numismatists are also the best acquainted with the general character, as well as with the minuter details, of comparative Geography.

We may here, also, readily give the tribute of gratitude which is due to the travellers in a large portion of the districts above enumerated, for the correct fixing of many ancient sites of towns, which had before been looked for in vain, by the medals which have been collected on the spot, or in their immediate vicinity. Next to inscriptions found in situ, and bearing the name of the towns by which they were erected, these coins furnish us with the best criteria for identifying localities; and this fact should be particularly impressed on the minds of travellers, who may collect coins, that they may be aware of the importance of noting down carefully the places where they have acquired them.

EUROPE.—The progress of Geography in Europe can only be accurately marked by recording the accessions to the great topographical maps of each state now in progress, nearly in every country; yet, however unwilling to pass over the works of many laborious and highly deserving men, neither will time permit me, nor would it be fitting from this chair to enter into such details. It may be sufficient to remark, that several sheets have, during the past year, been added to their various surveys. In our own country, not to dwell upon the Ordnance Map of England, which is familiar to us all, and which now approaches its completion, the four northern counties only remaining to be surveyed, I would mention, that in the course of last summer several stations of the principal triangles have been completed in the north of Scotland, where the party remained till they were driven by the snow from the mountains

of Cape Wrath. And during this spring they have recommenced their labours on the north-eastern coast, and in the interior of Sutherlandshire, whilst another body of surveyors will proceed to complete the secondary points along the western shore, for the purpose of affording the basis for the hydrographical survey of that coast.

In Ireland the townland survey advances rapidly, and the maps of seventeen out of the thirty-two counties are complete. But I would wish to call your especial attention to a map of that country, just published in six sheets, on the scale of half an inch to a mile, which includes the whole of the Government survey, as far as it reaches, and is completed from the best of all the other materials which were available. This map, in which the physical features of the country are well represented, is intended to show the projected lines of railroads, and reflects high credit on Lieut. Larcom, R. E., under whose immediate superintendence it has been drawn and engraved.

The labours of the Hydrographic department, under the direction of Captain Beaufort, R.N., one of your Council, and one of those who warmly and ably assisted Sir John Barrow, and others, in the original institution of this society, keep pace with the land survey of the British Isles. Parts of the east and west coasts of England, the Irish Channel, the east coast of Scotland, the coast of Wales, and the northern coast of Ireland, have been carefully surveyed; and the remainder is in progress. In addition to this, Captain Hewett is steadily engaged on his large chart of the North Sea, which, when completed, promises to be the most beautiful specimen of nautical surveying ever executed.

Although I have already called the attention of the Society generally to the presents which it has received from public institutions, or from private individuals, I cannot avoid the opportunity of thus testifying to Mr. Murchison the gratitude which, in common with all lovers of science, and of geography in particular, this Society must feel for the zeal, patience, and scientific ardour, which he has expended in the production of his very valuable and remarkable work, "The Silurian System." Mr. Murchison's chief object in this "labour of love" has, of course, been the elucidation of the geological phenomena of that extensive district, comprehending certain border counties of England and Wales. But, besides the evidence which is brought forward to show that the Silurian region may serve as the type of a normal group of hitherto unclassified deposits, which there rise to the surface in successive ridges, and connect the coal formations and other overlying strata with the older slaty rocks, extending from the southern limits of Cheshire to the extremity of Pembrokeshire, and along with them the full survey of the operations, by which the surface of this part of our island has passed

from a submarine condition into dry land, and by which the present system of drainage has been effected, the work in question embraces a great mass of valuable physical geography, not the less interesting to us from its being limited to our own homes; and the whole offers a brilliant specimen, and an example, which we may hope will not be without its imitators, of what may be effected within a few years by the earnest and honest application of an ardent mind to the elucidation of one subject. We are all aware that a single plant, the minutest corpuscle, cannot be fully described without a complete knowledge of the whole physiological structure of the animal and vegetable creations.

Carl Ritter, in his Introduction to his *Erdkunde*, a work which has at once stamped its author as the father of descriptive geography, remarks, with satisfaction, that an attentive study of his own country, from the Oder to the banks of the Rhine and the Danube, had enabled him to appreciate the description of distant regions under analogous natural circumstances, as the intimate knowledge he had acquired of the basin of one large river, the Rhine, from its source in the Alps, through its lakes, and along the course it had formed for itself to the sea, inspired him with just and accurate views respecting similar districts in other parts of the globe; and his residence in Italy and on the shores of the Mediterranean had given him a general acquaintance with the influence and vital force of volcanic action, and the several relations which unite the sea and the land, the three kingdoms of nature, and the inhabitants of the earth. He was thus enabled, by the application of his own observations to the narratives of others, to treat philosophically a subject which embraced the physical construction of the whole surface of the globe; that is, its mountains, rivers, plains, valleys, steppes, and partitions of waters.

The new edition of the "Statistical Account of the British Empire," by Mr. M'Culloch, and that of the "Gazetteer of England and Wales," by the late Mr. James Bell, of Glasgow, which embodies all the recent municipal changes, the minute "Statistical Account of Scotland," now in course of publication, the "Memoir on the County of Londonderry," the "Report of the Commissioners on the Statistics of Ireland," and the "Tables of Revenue, Population, and Commerce," by Mr. Porter, of the Board of Trade, furnish a far more complete topographical description of our country than we have hitherto possessed.

But, whilst noticing this addition to our knowledge of the British Isles, I cannot avoid remarking the great want of a General Gazetteer, or Geographical Dictionary, in the English language. Looking at the materials now flowing in from every quarter of the globe, at the great government surveys in progress throughout Europe, and the increased

activity amongst travellers and explorers in all parts of the world, I cannot doubt that such a work might be undertaken with advantage. It is in vain to wait till all these surveys are completed, or all the different countries on the face of the earth are explored; geography, from its very nature, is, and must ever be, an imperfect, because a progressive, science; and the reasons for not undertaking such a work at present would be equally strong ten or twenty years hence. If a Geographical Dictionary were commenced at once, with a determination on the part of the editor to go to the best sources for his information, to adopt, and strictly to adhere to, one standard for the orthography of Arabic and other oriental names, and to endeavour to make his work a record of the present state of geographical, not statistical knowledge (as is too generally the case), there can be little doubt that it would be successful; and I should hope that the Geographical Society would not refuse to extend to it their countenance and patronage.

The great topographical map of France advances with a rapidity and regularity, which are highly creditable to the Department of the Dépôt de la Guerre, under whose orders it is executed. Sixty sheets of this national work have already been presented to our library through the liberality of General Pelet, to whom we are also indebted for the six volumes of the "Memorial," which describes all the *data* in detail, on which that survey is based. This last year has also brought to a close four folio volumes of the *Pilote Français*, a magnificent work, comprising charts of the whole of the northern and western coasts of France, and plans of the various ports on a large scale. Such works as these reflect the highest honour on a nation; and France may justly boast of that useful body of officers, the *Ingénieurs Géographes*, who, headed by MM. Beautemps Beaupré and Daussy, have raised a lasting monument of their zeal. A copy of this work has also been presented to our library by the liberality of the Director of the Dépôt de la Marine.

It will, I am sure, be gratifying to you to learn that the Austrian government are about to follow up the growing practice of forming societies for the improvement of geography, upon a very large scale; but it will be more intimately connected with the government, and will have much more extensive administrative functions, than the nature of our institutions would admit of. To this Geographical Institute, which will be placed under the direction of General Campana, aided by Colonel Skribaneck, are to be assigned the construction of maps, from trigonometrical surveys throughout the empire, and the whole of the topographical duties of the quarter-master general's department.

This department has already made great progress in publishing, amongst others, a map, in thirty-six sheets, of the provinces of Styria and

Illyria, which will be on the scale of half a mile to an inch, or 1-144,000 of nature.

The survey of Moravia is proceeding on the same scale, and the Austrian government are also engaged in mapping the kingdom of Lombardy and Venice, as well as the duchy of Modena.

Nor must I omit to mention a map of the kingdom of Wurtemberg, in fifty-seven sheets, on the scale of 1-50,000, or 1'3 of an inch to a geographic mile, which appears to unite great accuracy in detail with clearness and beauty in execution; for the donation of the twenty-seven published sheets of this map, our thanks are due to the Director of the Dépôt Topographique at Stuttgart.

We are also indebted to Colonel Visconti for nine sheets of the beautiful map of Naples and its environs engraved under his directions. And, besides the topographical descriptions in progress in the various States of Italy, some of which I have just alluded to, we learn that a *Corso di Geografia*, by Signor Marmocchi, has lately been published, of which our zealous honorary member, Count Gråberg of Hemsö, gives a very favourable account. To this latter gentleman we are indebted for the fac-simile of a rare and curious Portulano of the middle ages, bearing the date of 1315, and now in the library of San Lorenzo at Florence. M. de Gråberg has also procured for the British Museum, among other portulani, one of Gracioso Benincasa, bearing the date of 1467. And, while on this subject, I may remark, that in the Egerton collection of MSS. in the Museum is also a valuable portulano, containing charts of not less than fourteen of the more noted map-makers of the middle ages.

M. Daussy still continues his useful *Additions* to his *Table of Geographical Positions*; but on this subject I must particularly direct your attention to some papers by Lieutenant Raper, R.N., now in course of publication in a very useful periodical, the "*Nautical Magazine*," in which that officer proposes to examine the *data*, on which the longitudes of the principal maritime points depend. These papers are divided into five sections, containing, I. An abstract of the principal scientific voyages and surveys from which our *data* are obtained. II. Remarks on the different modes of determining longitude. III. On the necessity of adopting *secondary meridians*. IV. On the propriety of adhering to one uniform method of placing on record chronometric determinations, that they may be immediately available for the construction or examination of charts. V. A discussion of the principal maritime points, extending to upwards of 200 positions, which are either the best determined, or the most general points of departure for ships. Such is a brief outline of the arduous task undertaken by Lieutenant Raper; and the present

advanced state of hydrography imperiously demands such an examination of these points, to prevent our tables of positions from falling into utter confusion ; will it be credited, that we have not less than six different positions, on apparently good authority, for the well-known place, Rio de Janeiro, in Brazil?—We sincerely hope Mr. Raper will carefully and honestly sift the evidence on which these longitudes rest, assured that a more acceptable service could not be rendered to geography in general, and especially to that branch of it which is more particularly our care, as an essentially commercial and maritime nation.

ASIA.—The expired year has not been barren in its supply of new materials for the geography of the continent of Asia. One of the greatest importance, and which has already received its place in your Transactions, is the very valuable Narrative of Major Rawlinson, containing the details of his Journey from Zohab, at the foot of Mount Zagros, along the Mountains to Khuzistan (Susiana), and from thence again through the province of Luristan to Kermanshah. Few men have embarked in the pursuit of geographical knowledge better qualified, under the circumstances, than this distinguished officer. Enjoying the confidence of the prince to whose service he was attached, perfect master of the language of the country, well versed in its history, having been three years a resident on its frontier, and commanding a body of troops commissioned to visit some of the provinces of the Persian empire, Major Rawlinson, in this very important and luminous paper, has ably brought to bear, in illustration of the country he visited, the Sacred Writings, the classic authors who have narrated the various campaigns of Cyrus, Alexander, Eumenes, the two Antiochi, Mithradates, Meherdates, and the Arab conquerors, and his own acquaintance with the modern historians of the East. He has explored the gates of the mountainous range of Zagros, between the basin of the Tigris and the plains of Media ; he has verified the courses of the ancient Gyndes or Diyálah, and the Choaspes or Kerkhah ; ascertained the site of Holwán, as he says, one of the eight primeval cities of the world, and on the high road from Baghdad to Kermanshah ; he has traced the connexion of the Jews of the Samaritan Captivity with the Gurán and Iliyat tribes ; collected much information on the fire-temples of Elymais ; he has discovered many architectural and sculptural inscribed monuments of the Kayanian and Sassanian dynasties at Holwán, Deira, Gilán, Zarnak, Sus, and Bisutún ; he has well defined the provinces of Luristán and their several divisions, and he has been the first to throw a clear light on the very difficult questions of the successive capitals of Susiana, Susán, Sus, Jundi-Shapúr, and Shuster ; as also on the names and

courses of the rivers of that extensive district. The conclusions Major Rawlinson had come to on these subjects are thus stated: "I believe that in ancient times there were two cities of the name of Susán or Susa, in the province of Susiana; the more ancient, which is the Shushan of Scripture, being situated at Susán, on the Kurán or Eulæus; the other, the Susa of the Greeks, at Sus, *near*, not *on*, the Kerkhah or Choaspes. The river of Dizful I consider to be the Koprates; the Abi-zád, and its continuation the Jerábri, the Hedyphon or Hedyppnus; and the united arms of the Kurán and Dizful rivers, that is, the Koprates and the Eulæus, to form the real Pasitigris."

The able arguments by which these conclusions are supported are well deserving the attention of the reader, and present a very favourable earnest of what we may expect from this enlightened traveller, when we receive the more elaborate work, in which he is engaged, on the Comparative Geography of the great Empire of Persia.

There is, however, one point in Major Rawlinson's Memoir which seems to require revision. In page 85 he accounts for no mention of the Shushan of the Scriptures, namely, that on the Eulæus or Ulai, being made by the historian of Alexander, because it did not lie upon his march from Babylon to Persepolis or to Ecbatana; and in the following page he considers that the great and rich temple in Elymais which was attacked by Antiochus Epiphanes, son of Antiochus the Great, was this Shushan of Scripture. Now it appears that the two authorities for this latter fact, which are also quoted by Major Rawlinson, are the sixth chapter of the first book of Maccabees (1—4) and the ninth chapter of the twelfth book of the Antiquities of Josephus (s. 1); and in both these authorities it is stated that Antiochus Epiphanes *was* incited to attack this city (in both places called only by the name of Elymais in Persia) by the accounts he had received of the wealth contained in it, and the coverings of gold, breastplates, and shields, suspended in its temples by Alexander of Macedon, son of Philip. We must therefore conclude, in opposition to Major Rawlinson, either that the city assaulted by Antiochus for the sake of the plunder he expected to find in it was *not* the Shushan on the Eulæus, or that this Shushan *was* conquered and occupied by Alexander. This, however, does in no way invalidate the general position of our traveller, as it is highly probable that Alexander did visit both the cities; *i. e.* the Susa near the Choaspes, on his direct route from Babylon to Persepolis, and Shushan on the Eulæus, when he took the mountain route from Susa to Persepolis, or on his subsequent march northwards from Persepolis to Ecbatana; and that his historians, as far as they are preserved

to us, have shared in the ignorance common to all subsequent writers, who have confounded the two places.

The observations of Major Rawlinson, we may also add, in passing, are not more important for the sites which he visited and described in this very interesting portion of the Persian empire, than for others, which circumstances prevented him from approaching, but the value of which, for the illustration of historical geography, he has pointed out to future explorers.

One of the most valuable additions to scientific geography which have been made during this last year, is that resulting from the survey under Lieutenants Graves and Brock, R.N., in which the latter officer has constructed a chart of the Gulf of Kos, on the south-western coast of Anatolia, accompanied by surveys of the various harbours contained in it, and sketches of the most prominent points which distinguish the approaches to them. The gulf occupies an extent of nearly 60 miles from east to west, and is of great depth, no bottom being found in the middle of it with 300 fathoms of line, and even in the vicinity of the shore seldom less than from 50 to 70 fathoms. Though so near to ports which our fleets are in the constant habit of visiting, and to the common track of the eastern trade of the Mediterranean, no chart hitherto published gives any idea of its shape or extent; and the isthmus which divides the Gulfs of Kos and Symi has hitherto been laid down, apparently, by guess. The description of this isthmus by Herodotus is very exact; it is about half a mile broad, and, with a little exertion, and by digging through a hill of inconsiderable height, the Triopian promontory might be converted into an island.

Lieutenant Brock has also surveyed the harbour of Búdrún, and ascertained the site of the celebrated mausoleum of Halicarnassus. The site and massive ruins of the ancient city of Keramus have likewise been explored.

I beg also to repeat the thanks of the Society to Mr. Charles Fellows, who has communicated to the public, at one of our meetings, an outline of the journey, which he made in Asia Minor in the spring of last year. The details of this journey derive a peculiar interest from its having been performed in a northerly and southerly direction, thus crossing upon the lines of those of Keppell, Arundel, and W. Hamilton. Between Selge and Antaliyah, upon the south coast, Mr. Fellows followed in part the track of an ancient Greek or Roman road, paved with large irregularly-shaped stones, and retaining in many places the marks worn by the wheels of chariots. This precipitous road conducted him along the banks of the Catarrhactes, almost all the waters of which were

lost, before they could reach the sea, in a porous substance formed, he says, of a conglomerate of pebbles and of a mass of encrusted vegetable matter. Mr. Fellows found ruins, to which he attributes the names of Isonda, Penedelissus, and Sylleum, the last with a theatre quite perfect, and with remains of paint upon the masks and ornaments, and also on the walls of the proscenium. The palm-tree he found indigenous at Phenika, on the coast of Lycia; and the valley of the Xanthus, with the extensive ruins of the city of that name, and of Tlos, also on its banks, he describes as sufficient to reward the artist, antiquary, or naturalist, for a journey simply to visit them.

Colonel Cohen, an intelligent traveller from Boston in the United States, has been kind enough to communicate to the Society the itinerary of his route through Asia Minor in the year 1833 (a part of which, as far as the ancient Iconium, he performed in company with a body of the Egyptian army), from Adana, south of the pass in the Taurus called the Cilician Gates, to Smyrna, and thence, by way of Kutayeh and Nicomedia, to Constantinople.

We are also indebted to Lord Pollington for a new itinerary from Erzurúm, by Músh, Diyár-bekr, and Birehjik, to Aleppo, a journey which he performed during the last summer.

With these and other aids already announced to you, we may hope shortly to possess a good map of this interesting portion of the Asiatic continent. Much, however, still remains to be done even in this comparatively accessible region.

The facilities which have been afforded by steam-navigation in the Mediterranean, and the readiness and security, with which the political state of the eastern coasts of that sea enables travellers to explore the interior, have of late years much increased our knowledge of Syria, and particularly of the deserts which border that remarkable country to the east and south; and we have good reason to expect that in a very few years, or perhaps sooner, we shall be able to construct a useful map of the great sandy and mountainous district, which extends from Egypt northward to the Holy Land, and from the sea-coast eastward to the hills of Idumæa. The travels of Lord Lindsay, M. de Bertou, and those of Dr. Robinson, Theological Professor at New York, and the Rev. E. Smith, an American missionary at Beirút, in addition to those of Laborde, Linant, and others, have already cleared up many difficulties regarding this singular district, teeming as it does with memorials of great historical interest, from the Exodus of the Israelites to the later periods of the Roman Empire; and we have at length a satisfactory solution of the problem, whether the waters of the Dead Sea could ever have flowed into the Gulf of 'Akabah. M. de Bertou

has shown that there is an elevated range of land, not volcanic, which forms the termination of the valley called El Ghor; this division of the waters flowing north to the Dead Sea, and south to the Ælanitic Gulf, lies between these two seas, about two-thirds of the distance from the former.

The exact level of the surface of the Dead Sea is a point of increasing interest not yet satisfactorily cleared up. Mr. Moore, by thermometric observations, has estimated it at about 500 feet *below* the level of the Mediterranean; Professor Schubert, by barometric observations, at 600 feet; whilst Mr. Russegger, an Austrian naturalist, has, also from barometric observations, recently stated it to be at a depression of no less than 1400 feet below the Mediterranean; but we trust that this point will not long remain a stumbling-block for geographers, as I am happy to acquaint you that more than a month since your Secretary, not unmindful of the interest attached to what appears to be one of the most remarkable features in the physical geography of the globe, placed an excellent barometer, made by Newman, and compared with the Royal Society's standard, in the hands of two young Englishmen about to visit Palestine, with a special request that they would endeavour to settle the point in question.

Dr. Robinson, in his track from 'Akabah to Hebron, ascended the western mountains to the height of 1500 feet, and followed the ancient Roman road nearly north. On this route he found and visited the ruins of the ancient Roman cities Eboda and Elusa, as well as the ruins and wells of Beersheba, still called Bír Sebá, at the distance of 28 miles W.S.W. of Hebron. On another journey, from Jerusalem to Gaza, by the direct ancient route, Dr. Robinson relates that he succeeded in discovering, amongst other places mentioned by Jerome and Eusebius, the site of the long-lost Eleutheropolis at Beit Jibrín, formerly Betogabris, where are the remains of a very strong Roman fortress and traces of an extensive city.

Professor Berghaus, of Berlin, is engaged in constructing a map of Palestine chiefly from materials furnished by these travellers.

Our knowledge of the peninsula of Arabia, and of some of the adjacent territories, has also received considerable additions during the last year. We are indebted to Mr. C. J. Cruttenden, of the Indian navy, for the narrative of an interesting journey which he made (during the time that one of the Company's vessels was surveying the roadstead of Mokhá), along the arid plains of Tehameh, and across the Jebel Barra to San'á, by what is called the Tarík-esh-Sham, or northern route, in the summer of 1836. This memoir, short as it is, furnishes us with a very pleasing picture of a part of Arabia, in which the generally steril

nature of the soil is contrasted with the luxuriant productions of the more mountainous districts; and there is every probability that the possession of the port of 'Aden, lately ceded to our arms, will materially tend to increase our intercourse with a people, who only require to be more known, and to be introduced into commerce with the Europeans, to be better appreciated. This journey has also furnished us with some additional specimens of the Himyaritic language, which in the earlier ages was spread over these parts of Arabia Felix. The united labours of Professor Gesenius, Mr. Fresnel, and of Dr. Lepsius, will, it is hoped, soon give a clear insight into the construction of this hitherto unknown tongue; and we may perhaps obtain, from the inscriptions which have been brought home, a clue to the previous history of the country. The lamented Dr. Hulton and Mr. Cruttenden also discovered, when at 'Aden, that the remarkable structure, which had hitherto been called a Roman road, is in fact the aqueduct of Soleïman the Magnificent, extending in a general north-west direction upwards of 8 miles into the interior. It is built of red brick and stone, about 4 ft. 6 in. wide, the enclosed watercourse measuring 19 in. by 16 in.; there are no remains of arches, the ground not requiring them; and its general appearance is that of a mound about 5 feet high, and bricked over.

The abridgment of the Memoir of Captain Haines, also of the Indian navy, which accompanied his chart of the south coast of Arabia, is a highly valuable paper, and contains most useful information on a line of coast extending through 7 degrees of longitude, from the Straits of Babel-Mandeb to the Palinurus shoal, and which is becoming every day an object of increasing interest to our traders. This memoir was communicated to the Society by the Court of Directors of the East India Company, and you have acknowledged it as an additional proof to the many you have already witnessed of the spirit of liberality and confidence, with which that distinguished body have uniformly met all the overtures we have made to them upon subjects connected with the pursuits of this Institution.

On the coast of the Hejáz we are indebted to Mr. Thomson D'Abbadie for the very useful addition of many names of places not inserted in the published charts of the Red Sea, which this traveller obtained in a coasting voyage from Jiddah to Ras Widan (a distance of about 250 miles) during the past year. Mr. D'Abbadie, from whom we have heard, within these walls, a very animated description of his stay at *Musawwa'*, and of his journey thence to *Góndar*, has expressed his intention of shortly returning to that country, to pursue his researches into the interior, and to make himself better acquainted with the *Amarña* language.

The first fruits of the expedition into Kurdistan, under the direction of Mr. Ainsworth and Mr. Raşam, will appear in the Part of our Journal now published. The expedition, on leaving Constantinople, was obliged by circumstances to take the land route along the coast of Asia Minor, from Nicomedia; and to this we are indebted for a great mass of important information respecting the modern and historical geography of the ancient kingdoms of Bithynia and Paphlagonia, as well as of part of Galatia, and as far as Angora. The former part of this route may be said to be entirely new to modern investigation, and the Society will be much gratified by the proofs Mr. Ainsworth's notes will furnish to them, of the zeal and intelligence with which he has illustrated the courses of the rivers known under the names of Hypius, Lycus, Parthenius, and the greater and lesser Halys; as well as the mountain-ranges of the Bithynian Olympus and the Olgassys of Paphlagonia; which preceding geographers, having to draw their conclusions from ancient historians and contradictory modern authorities, had left in almost inextricable confusion. Mr. Ainsworth's notices, indeed, have laid open the resources of a country rich in mineral and vegetable productions, where iron and copper-mines only wait to be worked anew, forests to be felled, and rich plains to be cultivated, in order to furnish again the materials of a wealthy and flourishing empire. The sites of many ancient cities are ascertained, and during the journey no opportunity has been lost of fixing astronomically the most remarkable positions on the route.

Our knowledge of the geography of these parts of Asia is continually receiving valuable accessions from the proceedings of the Euphrates Expedition. Although the main purpose for which this expedition was fitted out has not yet been accomplished, the obstructions which it has encountered are rather of a political than of a geographical character, and the delay may be attributed to incidental circumstances, which must ever modify speculations of this description. In the mean time, beyond the brilliant results with which we are proud to connect the name of Chesney, and the full details of which we are daily expecting from the pen of that accomplished officer, we owe to it more accurate surveys of the two great rivers of Mesopotamia, and particularly of late that of the Tigris, nearly from its source to Samarra, and thence to Baghdad, under the directions of Lieutenant Lynch, of the Indian navy. The sites of Opis and Samarra (where, after the death of Julian in his contest with Sapor, the Roman army, under Jovian, crossed this river) have been ascertained; and the Median wall, which is still crumbling in the Desert, reaching from the ancient ruins of Sipara, on the Euphrates, to the Tigris opposite to Jebbara, has been traced by

the same indefatigable officer, who, I should also add, has succeeded in carrying his steam-boat through the Saglawiyah Canal, between the Tigris and the Euphrates. Another valuable result of the Euphrates Expedition has been the publication of Mr. Ainsworth's Observations on the Alluvial Plains of Mesopotamia.

Dr. Prichard, so well known for his "Researches into the Physical History of Mankind," has enriched some of the last pages of our Journal with a subject which, though not strictly geographical, is yet of the highest importance in illustrating the great question of the early migrations of mankind, the ethnography of High Asia. Dr. Prichard has proved, from the most recent researches, that there is no reason to suppose that the great nomadic nations of the Tartar race, the Nogays, the Kirghises, Turkomans, and Jakutes, were ever, like the purely Osmanli Turks, a portion of the true Caucasian race; he has given to us much curious information respecting the origin of the Turkish nation, and he has shown what new lights may be thrown upon this subject generally, by a comparison of the language of the Turkish, Mongolian, and Hungarian races. The principle known by the denomination of the Quadruple Harmony of Vowels is a very remarkable point of coincidence, which is shared by the Hungarian language in common with the Turkish, Mongolian, and Mandshú, whilst it is totally at variance with the euphony of the classic languages of the west. And we may observe in the former languages the marked contrast which exists between the great simplicity of the formation and inflexions of their words, and the complicated construction of their sentences.

The pursuit of this study by the disciples of Klaproth, Remusat, and W. Humboldt, has already, independent of characteristics of physiognomy, established the fact of several great divisions of the inhabitants of our globe. Such are the Scythian, Tartar, or Mogul race, that which is in possession of the language called Indo-Teutonic, or Indo-European, the races which have spoken, from time immemorial, the Semitic languages, the vast tribes of the continent of Africa, to say nothing of the languages of the Chinese, the Polynesians, and the Aborigines of the New World.

In connexion with this subject I cannot omit to mention the work of Mr. Du Ponceau, the venerable president of the American Philosophical Society, on Chinese Writing; to which is annexed Father Morone's Cochinchinese Vocabulary, the first, we believe, of that language that has been published. The Geographical Society of Paris have also just published the account of the Moguls or Tartars, by Frà del Pian di Carpini, who, in the years 1245, 6, and 7, was the pope's nuncio in Tartary. This first complete edition of Carpini's narrative is preceded

by an excellent introductory dissertation by M. D'Arvezac, on all the ancient travels into the country of the Moguls.

Carrying our view still farther to the north and north-eastern parts of the old continent, Professor Adolph Erman, of Berlin, has lately communicated to us a map of Kamchatka, constructed from his own observations during his well-known journey across Northern Asia, and round the world, in 1828-30; from which it appears that, in some parts of that remarkable peninsula, more than one-half of the extent usually laid down on our maps must be erased. Mr. Erman has also sent us a detailed account of the geology of the peninsula, and promises that we shall soon have the personal narrative of his travels in it; the account of which, I need hardly add, is eagerly looked for by all who have read his two first very interesting and instructive volumes.

The Delta of the Indus has for the first time been made known to the European world by the survey of Lieut. Carless, of the Indian navy, comprehending the main stream of the river known by the name of Wanyáni, and the two principal mouths, the Hadjámári and the K'hedívári. These have been trigonometrically laid down, from the sea as far as Titíyah, a distance of 35 miles. The shifting nature of the embouchure of the Indus, and the frequent changes made in its channel by the falling of its banks, have rendered this survey of very great importance; and the prospect which is opening to us of an increasing navigation of this magnificent, and, in its lower part, intricate stream, bids fair for a rapid improvement of our knowledge of the whole river itself, as well as of the extended basin which it waters. The labours of Mr. Carless will thus form a memorable and useful corollary to the adventurous and successful expedition of Burnes.

The military operations now carrying on in this part of the East cannot fail to enlarge our knowledge of its geography; and it is confidently anticipated that the result will be a very extensive development of our commerce and general intercourse with the Sindes, Seiks, and Affghans.

These events have indeed, in the first instance, served to bring into prominent relief our ignorance of the geography, not only of Asia generally, but even of those parts which immediately adjoin our own frontiers; and they have added another to the many proofs already adduced of the necessity of making ourselves thoroughly acquainted with the topography and resources of a country, if we wish either to administer the internal government justly, or to be ready to resist external aggression without an enormous expenditure of life and treasure.

Our authorities in the East appear also to partake of the general activity; and we learn, from the Report of the zealous and indefatigable

Secretary of the Bombay Geographical Society, that Sir A. Burnes had despatched the officers attached to his mission in various directions to collect information. Lieutenant Lynch had visited Candahar; Dr. Lord has been at Khundúz; and Lieutenant Wood has succeeded in reaching the source of the Oxus, which is stated to be from a sheet of water at an elevation of about 15,600 feet above the level of the sea. Having returned in safety to Khundúz, Mr. Wood had again started to examine the fords of the Oxus, within the territories of Murad Beg. The details of this expedition to a country, which had not been trodden by any European foot since the time of Marco Polo, must prove of high geographical interest; and I may be permitted to express a wish that they will be made public as soon as the services on which the officers are employed will allow it.

Of the trigonometrical survey of India the sheets of the map containing Rajahmandrí and Cochin have been published during the past year; the drawing of the Concan also has reached England, and will doubtless soon be made public.

Portions of this survey of India present instances of accuracy which are highly gratifying, one of which I may notice, connected as it is with some of the most important maritime points on the western coast of that peninsula. Lieutenant Shortreed's survey, which connects with the great series diverging westward from the Beder base, at Chorakullee and Sawurgaon, depends upon a base measured with an excellent chain by Troughton; the triangulation extends over a large tract to the eastward, southward, and westward; and in several lines and points falls in with the trigonometrical survey of the western coast by Major Jervis, depending upon a distinct base-line of 31,003 feet (10,334·3 yards) near Cushina, measured with iron rods 20 feet in length, by that officer and Captain Robinson, of the Indian Navy; the approximation of the results proceeding from two such distinct sources is surprisingly great, so much so that I cannot deny myself the gratification of quoting the following points from the official register of these operations:—

	Shortreed. Feet.	△	Jervis. Feet.	△	Diff. Inches.
Bhoja to Mera	71,859·62	82	71,858·2	43	1½
„ to Sookhilee	54,612·67	89	54,607·5	41	5
Sookhilee to Dhunvee	99,833·89	92	99,832·7	38	1
Dhunvee to Salira	58,253·37	92	58,241·54	6	12
Mera to Karunja	99,819·25	85	99,834·5	55	14½
„ to Lighthouse	143,723·75	87	143,742·5	66	18
„ to Sookhilee	68,420·95	88	68,409·4	181	11½

Taking into consideration the nature of the country in which this work has been carried on, it must be admitted that the comparison of these results is highly satisfactory, as in two instances they agree within 12 and 18 inches respectively, in distances of 14 and 18 miles: thus affording a gratifying proof of the attention of the officers who

conduct the detail of the survey, and the correctness of the processes employed by them.

By a communication from Colonel Everest, the Surveyor-General, in November last, he announces the satisfactory completion of the operations, both celestial and terrestrial, of the great meridional arc north of Seronj. The care and exactness with which these operations have been performed may be understood from the fact that the Seronj base, as computed, differed from actual measurement with the compensation bars, in a chain of triangles 460 miles in extent, only *seven inches and one half*.

In conducting a work of this nature, or indeed any scientific undertaking, it is manifest that either it should be done with the utmost accuracy, and the directing officer be invested with the fullest power to ensure such accuracy, or it had better be wholly abandoned. In this department of scientific investigation there are so many nice points to be taken into consideration, so many local difficulties to contend with, which no one but the responsible officer can appreciate or enter into, that the interference of any second opinion, and especially of those who from the nature of the work cannot be presumed to be capable of forming a judgment on the subject, is calculated to slacken every effort, and dishearten, perhaps, the most zealous and enthusiastic.

A retrospect of the differences of opinion between the late Major Rennell and Colonel Lambton, as related in Herbert's *Life of the latter officer*, and the evil consequences resulting from them, have suggested these remarks; but we may hope that such times have passed, and that the same princely liberality, which has provided funds for effecting the great survey in India, will be henceforth extended to the mode and execution of the work; that the undertaking may throughout be executed in a manner corresponding to the advanced state of science in Europe, and on a par with the execution of the great meridional arc already measured from one extremity to the other of Hindostan; and that we may see the Atlas of India worthy to take its place by the side of the Ordnance maps of England and Ireland, or the Government Surveys of France, Saxony, Austria, and Wurtemberg, and thus become a lasting monument to the munificence and enlightened spirit of the Directors of the East India Company.

The eastern frontiers of British India have been explored and described by Captain R. B. Pemberton, of the Indian Army. These frontiers comprise the great mountain-chain between Manipur and Arracan, the territories of Manipur, Assam, and Arracan, together with Poong, Kachar, Jontiyah, and the Kossiyah Hills; the growing importance of these districts to our national and commercial interests, is the best en-

couragement to go on as we have begun, in thus preparing the way for the progress of European influence and cultivation, by a correct knowledge of the geographical features of a country.

Lieutenants Powell and Ethersey, I.N., have also completed the survey of the Gulf of Manar, preparatory to the establishment of a navigable channel between that gulf and the Bay of Bengal, by the Pámám passage: this latter work proceeds satisfactorily under the superintendence of Colonel Monteith of the Madras Engineers.

Amongst the maritime surveys recently executed by the officers of the Indian Navy, I must also mention the examination of part of the Chagos Archipelago, and the Saya de Malha Bank, by Captain Moresby, an account of which, together with the original and beautiful charts, and a valuable portfolio of drawings, have been communicated to the Society. It is to this officer also that we are indebted for the survey of the northern half of the Red Sea from Suez to Jiddah, and for the completion of the southern half of that sea, left unfinished by Captain Elwon: Captain Moresby has also surveyed the Laccadive Islands in 1828, and the Maldivé Islands in 1834. A part of the Chagos Archipelago, named Owen's Bank, still remains to be examined, as well as about 90 miles of the N.W. portion of the Saya de Malha, and a great extent of unexplored space among the Seychelles Islands. During the last ten years Captain Moresby has surveyed upwards of 5000 miles of coast; and, if we except Captain Daniel Ross, I.N., the actual President of the Geographical Society of Bombay, few officers of the Indian Navy have rendered more essential service towards the advancement of Geography in the East.

But I have dwelt, perhaps, at too great length on the conquests of geographical science within the continent of Asia. It is, however, this part of the world which offers to the geographical inquirer more objects of high importance, considered in an historical or ethnological point of view, without taking into our consideration the more immediate but momentary interests of politics and commerce, than all the rest of the globe put together. At the same time we may strictly characterise the progress of science to which we have alluded rather in the light of recoveries than of discoveries. A long lapse of years of darkness and barbarous inroads erased from the map of the world, known to the civilised portion of mankind, immense tracts of country, once the seat of arts, learning, and triumphant dominion: we are now slowly restoring to science single parts of that lost map, and thus repairing the injuries done by our forefathers, and reconstructing in more indelible characters, we may confidently hope, the edifice which they pulled down. We reconstruct, too, in the spirit of peace and philanthropy,

what the earlier dynasties erected as the monuments of sanguinary conquest, and what fell by hands armed with ruder swords, and guided by a worse spirit.

The history of the human mind, and the development of the intellect, under the various phases in which man has borne his part, as a ruler or as a subject, are, after all, as much the real and legitimate object of these inquiries as the appropriation of the knowledge we at the time acquire, to the immediate benefit of the present generation, and of those which are to come after us : for they directly tend to improve our hearts and our minds, to place before us, in the most prominent light, the superior advantages of peace over war, of rational authority over brute force, of liberty over slavery ; and, whilst they should make us thankful for the benefits we enjoy from a more advanced state of civilisation, from a purer religion, and from a clearer stock of ideas in the range of the practical and the intellectual sciences, they are a perpetual warning to us that the possession of the most extended power is not in itself an earnest of its durability ; that knowledge, without an enduring struggle to increase it, is no security against ignorance ; that civilisation, unless based upon justice, may be overwhelmed by barbarism ; that temples built upon a rock may crumble to dust ; and that empires upon which the sun never sat may be forgotten.

AFRICA.—Africa still offers the same barrier to the progress of discovery, and it is feared will continue to do so, unless some systematic and well-considered plan for penetrating into the interior be devised and steadily acted upon. The recent labours of Captain Vidal, R.N., in the Bight of Benin, and on the Ashanti coast of Western Africa, and those of Lieutenant Carless, I.N., from Rás Hassún northwards to Ras Jerdasún (Cape Guardafui), and thence westward to Ras Gulwainí and Berbera, on the eastern coast, all but complete the correct outline of this great continent ; but, within this coast-line, strict geographical investigation has not made very great advances during the past year.

In Northern Africa the French government have carried a triangulation over the territory of Algiers including Bonah, Kostantinah, and Storah, whence the longitude of the Kasbah of Kostantinah appears to be $6^{\circ} 37'$ E. of Greenwich, differing only 7 miles of longitude from the position of that place, determined by our learned countryman Shaw in 1726.

In Marocco we find, from the rough note-book of the lamented Davidson, that, following the steps of the British mission to that country in 1830, related in the 1st Vol. of the *Geographical Journal*, he proceeded from the city of Marocco across the plain in a S.S.E. direction into Atlas, as far as the ruined town of Tasremút, at an elevation of 3000 feet above the sea ; thence turning to the westward he continued

along the valleys of Atlas by a route not laid down in any of our maps, and which we are enabled partially to trace only in that of M. de Gräberg; passing within a few miles of the site of Aghmát Warikah, he appears to have issued from the mountains beyond a place called Amishmish, perhaps Imizmizi of our maps, and then to have crossed the plain to Mogador. Geographers cannot but feel grateful to Mr. Thomas Davidson, the traveller's brother, for allowing his rough notes of this novel route to be made public.

The Council of the Society have, in the course of the last year, appropriated the sum of 50*l.* from the funds of the Society towards a project, formed by a society of gentlemen interested in Egyptian and Æthiopian discovery, for sending out a native of Dongolah to explore the course and sources of the Bahr al Abyad, or the western and principal affluent of the Nile.

Explorations in the interior of Africa have been almost from their first commencement towards the middle of the last century, the exclusive inheritance of British ardour and enterprise, for Hornemann and Burckhardt we have long been accustomed to identify with our own countrymen; and the circumstance of the African Association having been fused into this Society, has given to this noble feature in the history of inland discoveries an additional value in our eyes. It was therefore with much gratification that we witnessed within these walls the discussions, in which Mr. Macqueen took an active part, upon the subject of the basin of the Chadda and its contributory or departing waters—that is, whether it be still water, or have an outlet. Major Denham had maintained the former hypothesis, and it is clear from his description and his own personal experience that the Shari does not flow out of it; but Captain W. Allen, who is so well known to you as the navigator of the Quorra, and of the Chadda as far as Fandah, and who has given much attention to this portion of African geography, is strongly of opinion that the Yeú River, mentioned by Denham as a clear, deep, and rapid stream of sweet water, communicating with the lake, and traced by Clapperton as far as Zangeia, 300 miles from the lake, and supposed to be the same with that which Lander crossed and recrossed on his return from Zaria to Danrorah, must either be identical with, or one of the principal affluents of, the Chadda, which passes by Jakóba and discharges itself into the Quorra a little below Fandah. From these data Captain Allen draws the natural conclusion that the Chadda, a larger river than the Quorra, is the outlet of the Lake Chad, drains the lofty Komri or mountains of the moon, and thus affords an uninterrupted water-communication perhaps to the very centre of the African continent.

Turning to the north-western coast, M.D'Avezac has published a critical analysis of one of the earlier journeys of the late René Caillié among the Moors of Beraknah, near the banks of the Senegal, for the details of which I refer you to the *Bulletin* of the Geographical Society of Paris; and in the same publication is to be found an interesting biography, by M. Jomard, of a man who, born with a true spirit for geographical discovery, if he had had the advantages of a more cultivated education, would have been entitled to a very distinguished place amongst the travellers of our days; though his journey to Tumbuktú, owing to the misfortunes which awaited him, has added but little to our knowledge of that part of this continent.

Dr. Edward Rüppell, of Frankfort-on-the-Main, is well known to you as one of the most distinguished travellers and naturalists of the present day. A few years ago we had the pleasure of seeing him at one of our meetings, when he gave us some valuable information respecting the interior of Africa. Dr. Rüppell has twice successfully explored the interior of that continent, and of the peninsula of Arabia. His former works need not on the present occasion be alluded to further than to say, that the Council had them also in their mind, when they awarded to him one of the royal medals at their disposal for the past year. Of his second journey Dr. Rüppell has hitherto given to the public the result in part of his geographical discoveries. These comprise a full view of the political and administrative state of Egypt under Mehemet Ali, seen by the eyes of a judicious and inquiring traveller, various notices on the productions of Lower Egypt, an excursion into Arabia Petræa, a journey from Cairo to Jiddah, and thence to Musawwa', the Island of Dahlak, and the ruins at Zula. Making Musawwa' his head-quarters, he visited Halai and Ategout in Abyssinia; from thence he gained the banks of the Tacazzi, near the village of Ber Agow. His route then lay through the province of Semen, and other parts of the region watered or rather penetrated by the Tacazzi, and the two great affluents of the Nile, the White and Blue Rivers. Besides the great mass of statistical and zoological information, the result of Dr. Rüppell's travels, they still owe their highest value to the great number of astronomical observations, by which he has fixed the latitudes and longitudes of every remarkable spot which he visited. These observations have long formed one of the most valuable divisions of the "Correspondance Astronomique," published at Genoa by the Baron Von Zach, to whose instructions Dr. Rüppell was chiefly indebted for his proficiency in the science, which he cultivated with such ardour and success throughout his African travels.

Dr. Rüppell's explorations in Kordofan have been followed up by

Mr. A. Holroyd, who has given us, very lately, the notes of his journey in the year 1837, from Wadi Halfah, at the second cataract of the Nile, to the ruins of Musawwerát, in the neighbourhood of Shendi, and to Khartúm, the station of the Pasha's government for the provinces S. of that cataract. Khartúm is situated upon the W. bank of the Blue River, about $1\frac{1}{2}$ mile above its junction with the Bahr el Abyad, in $15^{\circ} 34' 40''$ N. lat. ; and, though but a small village a few years ago, has since risen rapidly into importance at the expense of Shendi and Sennár.

Mr. Holroyd observed in more than one place, in crossing the desert, many siliceous fossil trees, the superficial stratum of the ground being a coarse sandstone. Some of these trees were 51 feet in length, and 20 inches in diameter ; and partially buried in the sand : splinters of them are used as fire-flints. They were apparently doom-trees, or the Thebaic palm-tree.

At Sennár, Mr. Holroyd describes the banks of the Blue River as between 40 and 50 feet high, the rise of the river being about 20 feet. Returning from Sennár to Wádi Medinah, he crossed from the Blue River at that point to Monkarah on the White River, a journey of 86 miles ; and he gives a most favourable account of the capability of the ground for fertility, and for irrigation by canals, by which cotton, indigo, tobacco, sugar, and grain might be cultivated with success.

From Kajebi, where the thermometer was at 112° on the 19th March, Mr. Holroyd proceeded into Kordofan by the desert of Habshábeh. He found El Obeïd, the capital of Kordofan, with a population of 30,000 inhabitants, having doubled in the last ten years. Here we have another instance of the improvements likely to accrue to geographical knowledge from the progress of conquest, even in the hands of a power only in a comparatively advanced state of civilisation. The influence of the Pasha of Egypt has made countries now of easy access, which a few years ago were shut out from all but the traveller in disguise ; and though the necessaries of life are so cheap, that their ordinary currency consisted of pieces of iron forged from the ore obtained in the neighbourhood at Wad Dha-s-Sákiyah, English gold had also its current value in the Bazár.

Mr. Holroyd returned from El Obeïd to Monkarah, on the White River, by the desert of Sakrah, a distance of 170 miles, and he decidedly prefers this route, as more abounding in villages, and better supplied with water, to that by Habshábeh. He has described the appearance and effect of two hurricanes of the desert, when the air was thickly charged with sand for two or three days ; the thermometer at 102° and 104° . The hurricanes lasted about two hours.

Besides the services rendered to geography by Mr. Holroyd, I cannot

omit making mention of one which he has rendered to humanity. He was instrumental in obtaining from the Pasha of Egypt a promise that he would put an end to one of the practices attendant upon the state of slavery, so long the curse of these unfortunate countries. In the dearth of other means of paying his troops, that chieftain had been in the habit of giving to them, in lieu of arrears of pay, one or more of the unfortunate beings whom the fortune of war, or what was still worse, predatory incursions, had thrown into his hands. Owing to Mr. Holroyd's intercession we have reason to hope that this new feature in the history of the horrors of the slave trade has been abandoned.

Dr. Bowring has also, within a few days, communicated to the Society the Journal of Mohammed 'Ali, dictated by himself, of his expedition from Cairo to Fazoglo during the past winter.

AMERICA.—I have said that the attainments, which geography is perpetually making in Asia, are rather to be described as recoveries than as discoveries. The latter term applies, on the contrary, in its fullest extent to all which we are doing in the New World; and I am happy to be able on this occasion to signalise as a triumph, wholly of this description, the expedition to the north coast of America, undertaken, at a great pecuniary sacrifice, by that high-spirited body, the Hudson's Bay Company. Messrs. Simpson and Dease have passed a second summer in carrying on their meritorious surveys of that portion of the continent; and we have been recently gratified with the announcement that the same gentlemen, after ascending Dease's River in the month of June last year, and crossing the portage between that and the Coppermine River in boats carried along the ice with a fair wind and hauling-ropes, descended the last-named river to the mouth, which they reached on the 1st of July. Here they were imprisoned in the ice till the 17th, whence, after encountering the greatest difficulties, they at length succeeded in reaching in their boats Point Turnagain, after making a circuit of 140 miles by Arctic Sound and Barry's Islands.

On the 9th of August they had attained a point 3 miles to the southward of Franklin's Furthest in 1821. The season was so much more unfavourable than on that occasion, that no hope was now left to them of making any further way by sea. The boats were therefore sent back on the 20th of August, and Mr. Simpson, with a small party, proceeded on foot, prepared for a limited journey of ten days. In this interval they reached on the 25th of August a point on the coast, on which they erected a pillar, in lat. $68^{\circ} 43' N.$, $106^{\circ} 3' W.$ long., and where the magnetic variation was $60^{\circ} E.$ The compass had grown sluggish and uncertain in its movements as they advanced eastward, and frequently had to be shaken before it would traverse at all.

A long range of high lands had been seen out at sea to the N., capped with snow, which they called Victoria Land; and an archipelago of islands within 100 miles of coast were thus traced; and with what they could clearly descry to the E., when they were obliged to return, about 120 miles of continental discovery were effected. A large open sea was also seen to the eastward, from the farthest point reached; but there were no means of ascertaining whether it might extend to Ross's Pillar or to the estuary of Back's Great Fish River, though the trending of the most distant land in view rather seemed to favour the latter supposition.

There can be no doubt that these successful results of the first attempts of the Hudson's Bay Company to connect scientific pursuits with those in which they are more immediately concerned, will encourage them to persevere in the same honourable course; and it is only necessary to observe that they will add greatly to the services which they have already rendered to the cause of science, if they will avail themselves of any opportunities which may occur to instruct their servants in the arctic regions, and more particularly in the neighbourhood of Hudson's Bay, in reference to the statement made by Captain Sabine in his "Report on the Variations of Magnetic Intensity in different Parts of the World," to observe with the greatest care the intensity of the needle in those parts, the maximum of which Captain Sabine imagines will be found nearer to Hudson's Bay than to New York, at which latter place the highest force hitherto recorded in the northern hemisphere, namely 1·8, is stated to have been observed.

Dr. Richardson, the companion of Sir John Franklin in his Arctic journeys, has recently communicated to the Society a valuable paper, containing the discussion of all Sir Edward Parry's thermometric observations while in these regions, between the years 1826-8; and on this subject I must notice that, in accordance with the suggestion of Professor Baer, of St. Petersburg, the council of this Society has, through the kind assistance of the Hudson's Bay Company, caused twenty well-graduated thermometers to be distributed throughout their territory, in the hope of obtaining a series of observations, which may enable us to determine the curve of equal temperature throughout that extensive region.

A Society like ours, instituted for the purpose of promoting, mainly, physical geography, cannot have seen, without much gratification, that Her Majesty's government have decided upon an Antarctic voyage of magnetic research; and Captain James Ross, so well known as having borne his part in all the Arctic voyages since 1817, has been appointed to the command of an expedition, the main object of which is to establish in the island of St. Helena, at the Cape of Good Hope, and in Van Diemen's Land, sufficient stations for making regular hourly observations of the fluctuation of the three elements of variation, dip, and in-

tensity, or their equivalents, with magnometers on the most approved construction, during a period of three years. The geographer cannot be insensible to the importance of accurately ascertaining the minutest properties of an instrument, namely, the compass, on which all his admeasurements so immediately depend. And it may not be out of place to remind you that nearly three years ago public attention was first called to the subject of an Antarctic expedition in a printed letter addressed to Sir John Barrow, then our president, and was more recently brought forward at the meeting of the British Association, by one who has proved himself not the least zealous of the Members of the Geographical Society; you will at once perceive that I allude to your Secretary, Captain Washington; and I am happy that this occasion has been afforded me, of declaring to you that the Royal Geographical Society owes a large share of its fame and success during the last two years to his indefatigable industry, to the extensive correspondence which he carries on with all the most intelligent geographers on the continent of Europe, to the suggestions which he offers to travellers for their guidance on their departure, and his readiness to assist in making the best use of their information on their return, to the courtesy with which he receives all who come to our rooms, and to the admirable manner in which, in conjunction with our learned Foreign Secretary, Mr. Renouard, he arranges the documents which are transmitted to us, and conducts the publication of them through the press. I am sure you will all warmly respond to the feelings which have dictated this very inadequate expression of the conviction of your departing President.

You will hail with much satisfaction the promised appearance of a work by Admiral Wrangel, on the Russian possessions in North America. In the capital of these countries, New Archangel, where is a population of nearly 10,000 persons, the Russian American Trading Company have already founded a library, schools, hospitals for the sick, churches, and chapels; an observatory is shortly to be erected, as well as a cabinet of natural history for the productions of the colony; and magnetic observations have been taken in an appropriate building, since 1833, in pursuance of the desire expressed to that effect by the Imperial Academy of St. Petersburg. The author observes that the inhabitants have as yet little, if anything, in common with other European settlements in America; they ought rather to be compared with the Danish settlements on the west coast of Greenland. The climate and soil are so little congenial to agriculture or pasturage, that the entire occupation of the colonists is confined to fishery, as was the case with the original inhabitants previous to the arrival of the Russians.

We are indebted to our zealous corresponding member, Mr. Worcester, of Cambridge, Massachusetts, for a table of corrected positions

of places in the United States, many of them fixed by his own observations; and I may, perhaps, be permitted to express our regret that we cannot hear any account of the progress of the national survey of that vast territory, which we understood had been confided to the able direction of Mr. Hassler more than three years ago.

Passing to the southern division of this great continent, I have the satisfaction of announcing the publication of the Narrative of the surveying voyages of her Majesty's ships Adventure and Beagle, during the examination of the coasts of Patagonia, Chile, and Peru, within the years 1826 and 1836. As an abstract of these voyages, giving all the most important positions determined, and the chief practical results obtained, has been printed in our Journal, and I had occasion so recently from this chair, when presenting our gold medal for the year 1837 to the commander of this expedition, to state my opinion, and I believe I may add that of most geographers, of the value of these results, I need now only express my conviction, that henceforth the names of HUMBOLDT and FITZROY must be inseparably connected, as the chief authorities for our knowledge of the Geography of South America.

Of the four volumes now lying on your table, and for which we are indebted to Captain FitzRoy, the first contains the journals of Captain P. P. King, who began the survey of these shores in 1826, and prosecuted it for four years; the second and the fourth relate entirely to the voyage of the Beagle under command of Captain FitzRoy, during the continuation of the survey and circumnavigation of the globe, between the years 1831 and 1836; the third, written by Mr. Charles Darwin, is devoted to natural history, every branch of which, during this expedition, appears to have been explored by this distinguished naturalist.

When we consider the immense mass of materials contained in these volumes, the detailed tables of positions (which, though unheeded by the common reader, are invaluable to the geographer), the great extent of coast minutely examined and described; and, independently of the various official duties, as revising charts, writing sailing directions, &c., that the whole account has been given to the public in its present complete, and I may add, beautiful form, within little more than two years since the return of the Beagle to England, I am sure that I do but express the opinion of the greater part of this Society and of geographers in general, in saying that the 'Voyages of the Adventure and Beagle during the examination of the shores of Patagonia, Chile, and Peru,' have not their parallel in the annals of maritime surveying.

In addition to the numerous illustrations contained in this work, there is a general map of South America, of which I cannot deny my-

self the pleasure of saying a few words, were it only as a mere act of justice to Mr. John Arrowsmith, who has bestowed upon it a great portion of the labour of the last two years. Besides embodying the whole of the Survey, by Captains King and FitzRoy, of the coasts from the river Plata round to Guayaquil, reduced from the original charts, this map is corrected from the following documents; parts of Columbia, and the course of the Orinoco, from Baron Humboldt; the coast of Brazil from the survey of Admiral Roussin; Venezuela, from a large Spanish unpublished map; the Amazons, from observations by Lieut Smyth, R.N.; British Guayana, from the recent researches of Mr. Schomburgk; New Granada, from MSS. collected by mining companies; Equador, from a MS. sent home by General Miller, and received by him from the government of that State; Peru, from maps received also from General Miller and Colonel Belford Wilson, both of which officers have greatly exerted themselves to collect these materials; Bolivia, from Mr. Pentland's original observations, including the survey of the shores of the lake of Titicaca, and from some MS. maps received from him. The provinces of Chiquito, Moxos, and Cochabamba, with the Affluents of the Madeira, from a MS. brought home by Sir Woodbine Parish; Chile, from a MS. map of Dalbé, procured by Captain FitzRoy; the provinces of La Plata, chiefly from Sir Woodbine Parish's materials, for a detailed account of which, I may refer you to the introductory chapter of his recently published and excellent work on that country, in which he had profited by the opportunity afforded him as Chargé d'Affaires, to collect all the geographical documents that could be obtained, many, indeed, of the highest value.

The province of Rioja has been corrected from the map of Mr. French, which, with its accompanying memoir, has been presented to the Society: the direct route from Cordova to Mendoza is laid down from Captain Gosselman, of the Swedish navy; the northern frontier of the interior of Brazil, from original tracings furnished by Mr. Mornay; and the southern part, from St. Catherine's to the Banda Oriental and the Rio de la Plata, as also, Paraguay, from original MSS. brought to England by Sir W. Parish.

Upwards of 100 MS. maps, besides other written information, have been worked up with judicious criticism by Mr. Arrowsmith, in the construction of these two maps of South America and the provinces of La Plata; and they may safely be pronounced to give by far the best delineation yet produced of these countries, or likely to be expected for many years to come. To the work on the Provinces of La Plata I have already alluded, but I cannot refrain from recommending all who take an interest in the geography, the commercial prosperity, or the future

prospects of those republics, to read carefully the faithful account of them here offered by an impartial and accurate observer.

Of some of the upper regions of the Andes we have received very interesting information from the distinguished geographer and naturalist, Mr. J. B. Pentland, Her Majesty's Consul-general at La Paz, then the capital of Bolivia. Near to the Guallillas Pass, in crossing the western Cordilleras, at an elevation of 14,700 feet, Mr. Pentland examined the gigantic undertaking of some Englishmen, by which the whole stream of the Uchusuma, now flowing in a contrary direction, will be made to enter into a canal formed for the purpose, at about 14,000 feet above the level of the sea, the extent of the canal being 40,000 yards, before it reaches the culminating point of the Andes, over which it is to pass, on its way into the valley of Tacna, for the purposes of irrigating an extent of territory on the western slope, to which nothing has been denied by nature but a competent supply of water.

In the neighbourhood of Cuzco Mr. Pentland found vast remains of ancient structures of Cyclopean masonry, raised by the industry and skill of the Peruvians; he visited and fixed the positions of some of those extraordinary natural phænomena of the country, where large rivers cut through the Andes, particularly where the Yucay passes from the basin of Ollantay-tambo and Urubamba, into that of Santa Ana, and where the Mapuri breaks the chain of the eastern Cordillera at the N.W. foot of the Nevado of Lachisani, a part of the gigantic mass of Ancuma. Mr. Pentland has also determined by astronomical observation the position of nearly 40 points, and, by barometrical means, their elevation above the sea, comprising every important feature of the eastern Cordillera between the parallels of 16 degrees and 13 degrees of south latitude. He has also, with the assistance of Mr. Bowring, the real author of the map lately published at Paris, completed the survey of the great Lake of Titicaca, where, at the height of 11,000 feet, the extensive ruins of the ancient Peruvians, especially of sepulchral monuments, indicate the former existence of a very dense and active population.

You have already heard, in the Report of the Council read to you this morning by your Secretary, that Mr. Schomburgk has now nearly completed the fourth year of his explorations into British Guayana and its contiguous provinces; the reports of his ascent of the river Essequibo, Berbice, and Corentyn, with some notices on the basins which they water, have already appeared in the sixth and seventh volumes of the Journal. During the two last seasons which he has spent in the interior of that country, during which he has frequently experienced the benefits of the continued courtesy and assistance of

the present governor, Colonel Light, as he did before from the lamented Sir J. Carmichael Smyth, he has explored the source of the Essequibo, which he reached on the 27th Dec., 1837, in lat. $0^{\circ} 41' N.$, and long. $59\frac{1}{2}^{\circ} W.$ He then crossed the Equator, and penetrated to $0^{\circ} 12'$ south lat. Returning thence to Pirará, he crossed the Brazilian frontier to Fort San Joaquim, where he experienced the greatest civility and assistance from the Brazilian commandant; he then descended about 30 miles of the Rio Branco, and explored the range of the Carumá mountains, on its eastern bank. Returning again to Pirará, Mr. S. has travelled in a N.W. direction through the valleys of the Paracaraima range, to the sources of the river Caruni, and to the remarkable lofty table-topped sandstone mountains of Rorima; and at the date of his last letter, Nov. 20th, 1838, he was about to proceed westward to the head waters of the Orinoco, with the intention of descending the river to Esmeralda, thence to cross over the range of mountains, which separates the basins of the Orinoco and the Amazons, descend the Padaviri, to the latter stream at Thomar; thence ascend again the Rio Branco, and thus by Pirará return to Demarara. Mr. Schomburgk and all his party had suffered much from fever and climate; but his zeal in the cause of discovery appears unabated; and should he reach the coast safely, with his historical and other collections, there is little doubt that in addition to his geographical information, he will bring with him a rich harvest in several departments of natural history.

AUSTRALIA.—Colonization, and in good part geography, continue to make rapid strides in the great island of Australia. In New South Wales we have the account of three expeditions into the interior by Sir Thomas Mitchell, illustrated by beautiful sketches of the country and portraits of the natives. At Port Phillip, the town of Melbourne has already 3000 inhabitants; and an accurate survey of this fine bay has been completed by Lieutenants Symonds and Henry, R.N., and published at the Hydrographic Office.

At Adelaide, St. Vincent's Gulf, it is said that 10,000 persons are already settled in a colony, which only sprung into existence a few years ago. Several overland expeditions, driving large herds of cattle, have reached this place from Sydney; amongst others that of Captain Sturt himself, the original explorer of the River Murray, and another by Mr. Hawdon, the details of whose route have been communicated to the Society.

On the north coast of Australia a settlement named Victoria has been formed at Port Essington, which, from its very convenient site, and its immediate neighbourhood to a large but little known archipelago, bids fair to become a second Singapore. Farther to the west the nautical

survey by Captain Wickham has completed some of the portions left unfinished during the more extended examination of these coasts in the years 1820–3 by Captain P. P. King, R.N., and the account of which is still the chief authority for this portion of its shores, as the excellent work of Flinders is for the rest of this vast island. The survey of the *Beagle* has proved Dampier's Land, or Dampiera, not to be an island, by tracing Roebuck Bay and King's Sound to their termination, the latter affording an outlet to the largest river yet discovered on this part of the coast, and which, in honour of the late commander of the *Beagle* during her survey of the coasts of South America, has been named FitzRoy River.

Captain Wickham has since been employed in surveying the approaches to Swan River and Rottenest Island: and Sir James Stirling has just brought home a plan of Warnborough Sound, lying immediately to the southward of Cape Peron, which if the entrance be not obstructed by some hitherto unknown rocks, will afford one of the finest harbours on the western coast of Australia.

On the north-west coast, Lieutenants Grey and Lushington are the first Europeans who have ever penetrated into the interior. Starting from Hanover Bay on the 1st February, 1838, they proceeded in a general S.S.E. direction. At about 20 miles they came on the bank of a considerable river, which they named Glenelg, flowing through a fertile tract of country: continuing on in the same direction, they had great difficulty in getting their cattle over the sandstone hills; and when at a distance of 71 miles from the coast, want of pasture obliged them to return. By the latest accounts from Lieutenant Grey, dated Swan River, 22nd December last, we learn that during the three months he had passed there, he had made several short excursions into the interior, as far as any colonist had yet penetrated: he had lived much among the natives, studying their manners and customs; and had collected a vocabulary of their language, which he has just communicated to the Society. Whatever may be the result of this officer's explorations, we cannot but admire the zeal, activity, and perseverance, which appear to have animated him on all occasions, even under circumstances of no common trial.

I must not omit on this occasion also to mention that Mr. John Arrowsmith has lately published a general map of Australia, besides separate maps of South East Australia, the settlements at Adelaide and Port Phillip, and Western Australia, including all the recent discoveries.

Public attention has lately been much directed to New Zealand, and we hope that Captain Symonds, who has just sailed for that country, well supplied with instruments furnished by the Society, will obtain for us some useful geographical information.

Considerable expectations had been entertained that the voyage of discovery in the Antarctic Seas, undertaken by the French government, and under the command of Captain Durville, would have added to our knowledge of these inhospitable regions, and in which it is still hoped that a large field may yet be opened for scientific and commercial enterprise. The very unusual severity of the season during the South Polar summer of 1837-8, prevented Captain Durville from penetrating further south than the 64th degree of latitude. The same seas which had enabled Captain Weddell in 1822-4 to reach ten degrees nearer to the South Pole, presented to Captain Durville a compact and impenetrable barrier of ice; but the attempt to proceed southwards was not abandoned, until the ships had fruitlessly struggled during a whole month against the obstacles of nature.

The observations which I have ventured in the preceding pages to submit to your notice on the progress of geography, imperfect as they are, would perhaps by some be thought to be still more so, if I were to omit altogether, however familiar the subject is to us all, to allude to the great and rapid strides, which have been made within a very recent period, for the extension of steam navigation. This mighty power, which is spreading its influence over all the seas of Europe, and many of the waters of the other parts of the world, to the annihilation, we might almost say, of space and time, conveys the traveller as it does the merchant or the soldier, from one continent to another, with so many facilities as to make the communication between the most distant regions as safe and easy, and almost as rapid, as it formerly was between remote districts of the same empire. This has essentially contributed to make us better acquainted with each spot. The voyage to North America is by this mode of conveyance reduced from six weeks to about a fortnight, that to India from four to two months, and that to the farthest shores of the Black Sea is almost for the first time since the middle ages opened to the flag and commerce of Western Europe. The coasts of the Baltic may be visited from our own ports within the space of a short week: with a slight interval of overland conveyance, we may reach Constantinople with the same facilities by the Rhine and Danube.

The Indus, the Euphrates, the Tigris, the Ganges, and the Mississippi, are penetrated by the same means almost to their sources, with the same certainty, and thrice the rapidity, which have hitherto been experienced on the most ordinary canal for inland communication; and, we may confidently hope, that at no great distance of time the great rivers of South America, and even those of China, may be subjected to the same dominion of science and enterprise. In the mean time we have reason to apprehend that we may shortly be brought into rapid and regular communication with the coasts of Chile and Peru, by the

establishment of steam-ships from our own shores to the Bay of Chagres, and from Panama to Valparaiso ; for which we shall be principally indebted to the exertions of Mr. Scarlett, Mr. Wheelwright, and their fellow-labourers in this noble project.

Another remarkable isthmus, that of Suez, will also, in all probability, for the same or similar purposes, become again what it once was, the highway of nations ; and the possessors of Egypt may again see themselves holding the key to lock or to unlock the most direct line of communication for the exchange of the commodities of the East and West.

And not only may we anticipate from the success of this undertaking large additions to our geographical knowledge of these distant portions of the world, but we may justly expect that such an instrument of intercourse between man and man will be the signal for rousing the intellectual energies which have long lain dormant in the two great continents of South America, and of the long-benighted Asia. This Asia, in which man has hitherto been almost always in a state of infancy, the infancy either of youth, or of premature and decrepid age, we hope to see at length throw off the chains, which have in all times held her whole social system in a state of unnatural servitude, checking the wholesome development of the best faculties of our race by institutions hostile to all improvement, and to which the inhabitants are the more strongly attached, in proportion as they are more destructive of the means by which their happiness and their comforts might be increased. But the great engine to which I have alluded must inevitably teach them that there are other worlds besides their own, that the banks of the Ganges and of the Indus are not the only spots on the globe, on which Nature has been lavish of her choicest productions, that there are other enjoyments than those of listless indolence, and the observance of the idle or superstitious practices of their fathers ; that they, as well as the other creatures of a benevolent Creator, are born inheritors of a cultivable mind, that they are not debarred from partaking with Europeans of the charms and advantage of Science ; that the opportunity is now offered them of bearing an active part in shedding the blessings of civilization over the whole world, that they in short may, and must in due time, become navigators, astronomers, mechanics, philosophers, geologists, and geographers.

If I were asked, what I conceive to have been the one mainspring, to which modern times owe their immense advantages in Science generally, I put out of the question any comparison between the two ages of the world in respect to literature, or to eloquence, or to moral and intellectual philosophy, poetry, or the fine arts ; but speaking strictly of Science, to what one faculty, or rather tendency, of the human

mind, are we most indebted for our superiority over the ancients? I should say, it was the spirit of geographical and nautical discovery, which developed itself in the middle of the fifteenth century. This spirit, which guided Diaz, in 1486, to double the Cape of Good Hope, and Vasco di Gama to penetrate to India, Columbus to discover the New World, Magellan, Drake, Schouten and Le Maire to find their way into the Pacific, has forced every succeeding generation to cultivate astronomy, navigation, chemistry, metallurgy, botany, and every science which could contribute to dive into the depths of the elements of our own globe, and of those which govern the great phænomena of the system of which we form a part. Nature herself has here presented larger and more varied laboratories, in which these phænomena, and all her various monuments may be studied. Without this accession to our knowledge, without this enlargement of the sphere of our observations and experience, without this excitement to improve the machinery of our minds, we should probably have long remained immured in the darkness, in which our ancestors groped their way in the pursuit of knowledge; we should have lived on the ill-digested remnants which the antients had left us; we might have guessed, but might never have been convinced of the form of our globe; we should have been satisfied with hugging the coast in our most distant voyages; marine architecture would not have advanced beyond a galley or a trireme; our eyes would not have been opened to the splendid natural productions of a tropical climate; the precious metals would have become so scarce in Europe, that capital would have been unknown, commercial adventure would have slept its long sleep, distant colonization could not have been dreamed of, and there would have been no escape from domestic tyranny, from religious persecution; no opening for daring adventure. But the spirit of discovery was the happy spell which changed the destiny of nations; and Europe is not insensible or blind to the advantages she has derived from it. New societies are annually springing up in the principal cities, to promote and encourage it; each forming, as it were, a nucleus for the reception and promulgation of the results of the observations of travellers and navigators. We rejoice in the increasing number of our fellow-labourers in this rich and inexhaustible field. The contest we are engaged in is one in which all are proud of their success, all are sure to win: we play into each other's hands, we are all partners, and all rivals; the stake we contend for partakes of the infinite divisibility of nature, with this difference in our favour, that the greater the number of divisions, the larger is the portion which each of the parties may appropriate to himself.
