latter to the Milanji mountains resulted in the discovery of several new species, allied representatives of others inhabiting Kilimanjaro, Elgon, or even the Camaroon peaks. The collections made by Emin Pasha and Dr. Stuhlmann in Uganda resulted in the discovery of some interesting novelties, which have been described by Dr. Reichenow, at Berlin, who has also received some important collections from the Camaroons, from Dr. Preuss, and from Togoland. Mr. Johnston, at the present moment, appears to be the only patriotic Englishman who is taking pains to explore the natural history of the countries under his rule, whereas the Germans seem to have in every one of their "spheres of influence" and protectorates some well-informed naturalist who occupies himself with the natural history of the district.

himself with the natural history of the district.

The Indian region, formerly the scene of so much ornithological activity, seems, during the last few years, to have passed into a quiescent stage, and the principal work is now being done by Mr. Hose and Mr. Everett in Borneo, and Mr. Styan in Southern China. Dr. Modigliani's collections, from the Island of Nias, were described last year by Count Salvadori, and showed that some of the species found by the traveller were akin to those of the Nicobars, while, curiously enough, others were allies of Bornean forms rather than Sumatran, though the latter affinity would have been expected. The death of Mr. Davison, at Singapore, has deprived us of one of the best-known Indian naturalists. His explorations in Tenasserim gained him immortal fame as a collector, and, had his health been stronger, he would no doubt have continued his researches into the natural history of the Malay Peninsula, where much still remains to be done. His last expedition to Pahang resulted in the discovery of a very fine new starling (Ethiopsar torquatus).

Dr. A. B. Meyer, who has identified himself with the pursuit of Natural History in New Guinea and the Moluccas for many years, has received some collections from Kaiser Wilhelm's Land in north-eastern Papua, wherein have been some interesting new species, while in the southern portion of the great island Sir William McGregor has discovered some extraordinary new forms of birds, one of which, *Paramythia*, is such a puzzle that no one has been able to define its place in the natural system with any confidence. The completion of Count Salvadori's "Uccelli di Papuasia e delle Molucche" marks an epoch in the history of Austro-Malayan ornithology, and this wonderful work with its appendices will remain for ever a monument to its painstaking and accomplished author.

In Australia the most notable work of recent years has been Mr. A. J. North's description of the nests and eggs of the birds inhabiting that continent. This book not only contains a vast amount of additional material on the nesting-habits of Australian birds, but is accompanied by photographic illustrations of the eggs, while a few coloured copies have been prepared, one of which has been sent to the Natural History Museum. An appendix describes the nests and eggs of the birds inhabiting Lord Howe and Norfolk Island.

In New Zealand Sir Walter Buller has been assiduously collecting additional notes to supplement his recently completed work on the birds of that country, and Prof. Hutton has given some notes on the Moas, which will have to be critically compared with Mr. Lydekker's recent determinations of these struthious birds. By far the most interesting event, however, of recent years has been the discovery by Mr. H. O. Forbes, the celebrated Malayan traveller, of the remains of Aphanapteryx in the Chatham Islands. Aphanapteryx was previously known only as a former inhabitant of the Island of

¹ North, A. J. "Descriptive Catalogue of the Nests and Eggs found breeding in Australia and Tasmania." (Catalogue No. 12 of the Australian Museum, Sydney, N.S.W.)

Mauritius, and the discovery of identical remains in a locality so far distant as the Chatham Islands, has opened up possibilities of speculation of the most intense interest, and Mr. Forbes' recently exploited theory of the former existence of a great Antarctic continent has changed the ideas of many zoologists with regard to the origin and geographical distribution of many forms of animals and plants. It is decidedly the most interesting episode of the year 1892.

Polynesian ornithology has undoubtedly been forcibly brought before our notice by the careful work which has been done by Mr. Wiglesworth, in his "Aves Polynesiæ," and a complete list of the species inhabiting the Pacific Islands, with their synonymy and geographical distribution, has been published in the "Abhundlungen" of the Dresden Museum, under Dr. A. B. Meyer's care. Mr. Scott Wilson, with the help of Mr. Evans, has reached the fourth part of the "Aves Hawaienses," and with one more part the work will be brought to a conclusion. Mr. Wilson gives some interesting notes on the habits of the species, but it is doubtful whether he has obtained all the material necessary for a monograph of the Hawaian Avifauna, judging by the number of new species which the Hon. Walter Rothschild has been receiving from his collector, Mr. Palmer. These may, of course, be included in the final part of the work, thus bringing it up to date. A visible improvement is to be noticed in the plates of Mr. Frohawk, and the coloured figures of the species look something like the actual birds, instead of being a sort of map, as heretofore.

Except for the splendid paper by Dr. Gadow, before mentioned, on the classification of birds, very little anatomical work has scarcely been done, in England at least; and it is to be hoped that Mr. Beddard, who has before now written some useful ornithological papers, and on whom the mantle of Garrod and Forbes is supposed to have fallen, will give us some further results from the splendid opportunities which he enjoys as prosector at the Zoological Gardens.

R. BOWDLER SHARPE.

HENRY OLDENBURG, FIRST SECRETARY OF THE ROYAL SOCIETY.

SIR, you will please to remember that we have taken to taske the whole Vniverse, and that we were obliged to doe so by the nature of our Dessein. It will therefore be requisite that we purchase and entertain a commerce in all parts of ye world wth the most philosophicall and curious persons, to be found everywhere." So writes Henry Oldenburg to Governor Winthrop of Connecticut on October 13, 1667. And in these words he briefly expresses what was the chief aim of the best years of his life. It was mainly by his immense correspondence that Oldenburg forwarded the cause of science, or, as it was then called, of the "new experimentall learning," by that and by his assiduous discharge of secretarial and editorial work. Without being a man of brilliant genius, he was just such an intelligent, reliable, energetic, and conscientious worker as was needed at that time to form a centre for the new movement. In the history of literature Henry Oldenburg is a familiar figure as the friend and correspondent of Milton; in the history of philosophy, as the friend and correspondent of Spinoza; but neither literature nor philosophy is indebted to him to the same extent as science.

It is somewhat remarkable that, although the name of Henry Oldenburg is so familiar in the history of the seventeenth century, no complete life of him has ever been written. The only attempt at a con-

¹ Scott B. Wilson, assisted by A. H. Evans. "Aves Hawaienses: th Birds of the Sandwich Islands." Parts iii. iv. 4to. (London: R. W Potter, 1892, 1893).

nected biography is that of Dr. Althaus, of University College, London, who, in 1888, contributed to the Allgemeine Zeitung, published in Munich, a series of very interesting articles upon the life and correspondence of this remarkable man. These he supplemented at a later date by many new facts as to Oldenburg's birth, parentage, education, and early life, the results of researches undertaken at his instance by Dr. von Bippen, Archivist of Bremen. Until these facts were published by Dr. Althaus, we knew nothing whatever of Oldenburg's early life. He appears suddenly upon the scene as the agent for Bremen with the English Commonwealth and a correspondent of Milton's, but who this friend of Milton's was, and from what pit he was digged, no one seems to have taken much trouble to inquire.

We did not, as it now turns out, know so much as the date of his birth, for it is evident from Dr. von Bippen's researches that the date 1626 usually given in biographical dictionaries as the date of Oldenburg's birth is altogether wrong, and that as a matter of fact he must have been born about 1615, a date which puts the whole of his life and correspondence in an entirely new perspective. He was, according to this, only seven years Milton's junior, which accords much better with the tone of their correspondence, and he was seventeen years older than Spinoza, which perhaps partly accounts for the somewhat fatherly manner in which he encouraged that philosopher to publish certain of his works. Equally at sea are the biographical dictionaries (and other works too) as to his descent. The statement copied from book to book that he was descended from the Counts of Oldenburg appears to have been a pure "shot," inferred partly from his name, and partly from the fact that in his matriculation entry at Oxford he is called "nobilis Saxo," which means nothing at all. What we do now know about him is that he was the son of Heinrich Oldenburg (d. 1634), a tutor in the Gymnasium at Bremen, the grandson of another Heinrich Oldenburg (d. 1603), Professor of Mathematics in the same Gymnasium, and great-grandson of Johann Oldenburg, who came from Münster in 1528 to be the first rector of the Evangelical school at Bremen; and that he was one of a large family who lived in somewhat narrow circumstances.

As to Oldenburg's education, we learn that he studied first at the Evangelical school and afterwards at the Gymnasium illustre in Bremen, and that on November 2, 1639, he took there the degree of Master in Theology, the subject of his thesis being "De ministerio ecclesiastico et magistratu politico." Whether, like Gotthold Lessing at a later day, he was intended by his parents for a theologian, we do not know. He did not break with theology so completely as Lessing did, for throughout his life there was a certain theological flavour about him, and, in his interesting "commonplace book" preserved among the archives of the Royal Society, there is an entry of fifteen pages headed "Sensa Animi mei de Deo et ejus cultu naturali"; but he revolted from the a priori methods of the current teaching, and in the same MS. we find accordingly many vigorous passages directed against "the vain shadows of scholastic theology and nominalist philosophy." These outbursts, however, belong to a later date. It was as a theologian that he graduated at Bremen, and then, for some unknown reason, he went to England.

In England he lived for eight years, probably in the capacity of a tutor, probably, too, in royalist families. Some evidence, at any rate, exists in the Bremen archives that during this first English residence he took the king's side against the Parliament. Then comes a gap of four years, during which there are hints that he was travelling upon the continent of Europe and cultivating those numerous acquaintances with learned men, which afterwards stood him in such good stead when his life-work

was to gather scientific information from all parts of the world.

From June, 1653, however, his life becomes clear. In that month he was, as I have said, appointed agent for Bremen, in which capacity he had audiences with Cromwell, and made the acquaintance of Cromwell's Latin secretary, John Milton. The acquaintanceship ripened into friendship, and an elegant but somewhat ponderous Latin correspondence followed. Oldenburg's political mission came to nothing, and then we find him in a country village in Kent waiting in uncertainty as to public events and as to his own future career. That career was, however, very soon determined, for in 1656 he went to Oxford, and was immediately caught in that current of "experimental learning" which had already begun to flow. Boyle, Wilkins, Wallis, Petty were his constant associates, and his letters at this time show the strong scientific impulse which his mind had received.

The passage in Anthony à Wood's "Fasti Oxonienses," which records Oldenburg's Oxford residence, is as follows:—"1656. In the beginning of this year studied in Ox. in the condition of a sojourner Henry Oldenburg, who wrote himself sometimes Grubendole, and in the month of June he was entred a student by the name and title of Henricus Oldenburg, Bremensis, noblis Saxo; at which time he was tutor to a young Irish nobleman called Henry ô Bryen, then a student also there." Besides Henry O'Brien he had another young nobleman as his pupil during his Oxford residence, namely Richard Jones, son of Catherine Lady Ranelagh and nephew to the Hon. Robert Boyle, and after remaining at Oxford for about eighteen months he accompanied young Ranelagh upon a journey to the Continent. For a year they remained at Saumur, and while there letters continued to pass between him and Milton. It is rather amusing to read that Milton had entrusted to Oldenburg a packet of his latest politico-theological writings for distribution to foreign savants, a task which the cautious Oldenburg did not half like, and which he executed, as he informed Milton, by giving copies of the writings "to no one who did not ask for them." How many asked for them he does not say. It was not in truth with the fierce political and theological controversies of the time that Oldenburg's mind was now engaged. He had gained a new interest and was travelling with a new object. His scientific observations were certainly very mixed, many of them trivial, and some of them superstitious, but they serve to show the direction in which his mind was travelling. From Saumur he sends to Boyle "noteworthy observations concerning the existence and the working of animal poison," and a chemical recipe for an invisible ink, and says that if his travels take him to Italy it will be a satisfaction to give Boyle "news of the industrious Kircher's subterraneous world, his strange Grotta de' Serpi, his story of the growth of pulverised and sowne cockles irrigated by sea-water, his thermometre by a wild-oatsbeard, his vegetable phoenix's resurrection out of its owne dust by ye warmth of ye sun, his pretended ocular confu-tation of Kepler's magnetical motions of ye Planets about the Sun, and of Gilbert's magneticall motion of ye Earth and of twenty other remarquable things.

At a later date he sends Boyle from Paris the recipe of a wonderful oil which he had picked up in the course of his travels, which was supposed to heal "migraines, palsies, lamenesses, crookednesses, and all ricketing diseases." More wonderful even than this wonderful oil is another of his discoveries, for Samuel Hartlib, in a letter dated April, 1659, informs Boyle that Oldenburg has written to him from Paris that he has in that city discovered a "clever, but very secretly acting" physician, who had spoken to him of a method by means of which one can prepare a drink from sunbeams!

Meanwhile Boyle and the other Oxford worthies con-

tinued their pursuit of the "new philosophy," meeting generally at that time in "Dr. Wilkins's lodgings in Wadham College." The London branch of the same movement, too, was now becoming active, meeting usually at Gresham College "at the Wednesday's and Thursday's lectures of Dr. Wren and Mr. Rorke." After the Restoration many of the Oxford professors lost their positions and came to London, and on the 28th November, 1660, at the close of a lecture of Wren's at Gresham College, it was resolved to reconstitute the Society, which had hitherto been somewhat amorphous, as a "Society for promoting the physical-mathematical experimental sciences." Oldenburg, who had just returned from abroad, was elected a member of the first Council, and he and Dr. Wilkins were chosen the first secretaries of the Society. From that moment Oldenburg threw himself heart and soul into the work of the Society. Its interests he regarded as his own, and Prof. Masson gives it as his opinion, and with justice, that without his endeavours and those of Hooke, the Society would scarcely have held together. The great difficulty, of course, was the want of money. Charles II., the so-called "Founder," had promised to endow it, but he broke his promise and only gave it a mace. The Society could not afford to pay its secretary, and yet the secretary must live. In the British Museum is preserved a rough memorandum in Oldenburg's handwriting, quoted, but not very accurately, by Weld in his "History of the Royal Society," which gives a very vivid idea of the secretary's labours and poverty. It runs as follows:—

The Business of the Secretary of ye R. Soc.

He attends constantly the meetings both of ye Society and Councill; noteth the observables, said and done there; digesteth $y^{\rm m}$ in private; takes care to have $y^{\rm m}$ entered in the Journal and Register-books; reads over and corrects all entrys; sollicites the performances of taskes recommended and undertaken; writes all Letters abroad and answers the returns made to $y^{\rm m}$, entertaining a corresp. $w^{\rm th}$ at least 30 psons; employes a great deal of time, and takes much pains in satisfying forran demands about philosophicall matters; disperseth farr and near store of directions and inquiries for the Society's purpose, and sees them well recommended, etc.

Qy. Whether such a person ought to be left vn-assisted?

In connection with this may be mentioned another memorandum of Oldenburg's. It is preserved in the same MSS. (Birch MSS. 4441), and is headed as follows:—

Liste of Members y_t are likely to promote ye dessein of ye R. S.

In the first column occur among others the names of Boyle, Petty, Wren, Evelyn, Wallis, Croon, Grew, Pell, Mercator, Hook, Collins, Newton, and Smethwick. Against the names of Newton, Grew, Pell, Mercator, Hook, Collins, and Smethwick are written the words "no naw".

The "no pay" element was one main difficulty of the new Society. Even those who promised to pay, frequently neglected to do so. In 1666 the arrears amounted to £600 sterling, and in 1673 to £1957, and this, notwithstanding strenuous efforts on the part of the Secretary to collect the contributions. In fact, at that time, out of

156 Fellows, only 53 paid regularly.

At the beginning of 1664 Oldenburg was authorised to make what he could by publishing the Transactions of the Society, but they were printed at his own risk, and seldom brought him in as much as £40 a year. The very next year the Plague appeared in London and drove away the book-purchasers, and the year after occurred the Great Fire of London, which ruined the booksellers,

and made publication still more difficult. Besides all this, the sale of the Latin edition in foreign countries was greatly hindered by the war with Holland. And to crown all, in 1667, the very year after these great disasters, Oldenburg himself, who had stuck to his post through Plague and Fire, was imprisoned in the Tower of London. The warrant, which is signed by the Prime Minister, Lord Arlington, charges him with "dangerous plans and practices"; but the fact appears to be that the immense number of his foreign letters had attracted attention, and since the Government of that time did not understand a man who had, as he wrote in the letter quoted above, "taken to taske the whole Vniverse," this voluminous correspondence excited suspicion. He was kept in prison for two months, "during which comitment," as he afterwards wrote to Boyle, he "learned to know his reall friends." Among these friends was Evelyn, who visited him in the Tower on August 8. After his discharge he waited upon Lord Arlington, and then went down into the country to recruit. "I was so stifled by the prison-air," he writes on September 3, "that, as soon as I had my enlargement from the Tower, I widen'd it, and took it from London into the country, to fann myself for some days in the good air of Craford in Kent. Being now returned, and having recovered my stomack, which I had in a manner quite lost, I intend, if God will, to fall to my old trade, if I have any support to follow it."

He fell to his old trade with his old energy, and how indispensable that energy was to the Royal Society is shown by the fact that during his imprisonment the Society did not meet. Besides his purely official work and his voluminous scientific correspondence, he was ready at all times to do battle for the Society. For in those early days it was far from being plain sailing. The Society had to meet much odium, especially on the score that it was "an enemy of the established religion and destroyer of the ancient well-grounded learning"; and it is with reference to these charges that Oldenburg breaks out in the fifth volume of the Philosophical Transactions: "Let envy snarle, it cannot stop the wheels of Active Philosophy, in no part of the known world. Not in France, either in Paris, or at Caen. Not in Italy, either in Rome, Naples, Milan, Florence, Venice, Bononia, or Padua. In none of the Universities, either in this or that side of the seas. Madrid and Lisbon, all the best spirits in Spain and Portugal, and the spacious and remote dominions to them belonging; the Imperial Court, and the Princes of Germany; the Northern Kings and their best luminaries; and even the frozen Muscovite and Russian have all taken the Operative ferment, and it works high, and prevails every way, to the encouragement of all sincere Lovers of Knowledg and Virtue.

Oldenburg died suddenly in September, 1677, at Charlton, in Kent. In the Archives of the Royal Society there are no less than 405 of his autograph letters and drafts, besides ninety-four letters to Robert Boyle in a separate guard-book, and many rough drafts in his own private Liber Epistolaris. One letter in this last-named MS. book, which has not hitherto been published, I cannot forbear to mention in concluding this article, since it shows Oldenburg, even at that early date, as an advocate of the higher education of women. The letter is written to Lady Frances Jones, and is dated August 28, 1660. "I wish heartily," he writes, "that that sexe, which is thus advantaged by Nature with a choyce structure of body, and thereby gives cause to conclude, that the guest thereof must be more than ordinary, would not suffer themselves to be diverted from those nobler improvements they are, to speak the truth, as capable of as men; nor be contented to have their innate capacity in their education stifled or debased to the needle or the making of sweet meats." Many such passages, full of sound sense, might be quoted from his letters did the limits of this article permit, but at present we can only express a

hope that an interesting man who lived in a most interesting period may yet find a biographer who will adequately bring him into the light out of the shadow of the giants who were in the earth in those days—Cromwell, Milton, Newton, Spinoza, Boyle—in the midst of whom he moved, and by whose great names his own has hitherto been too much obscured.

HERBERT RIX.

THE NATURAL HISTORY OF EAST EQUATORIAL AFRICA.

THE geology of East Equatorial Africa has been recorded in a very general way in the maps of the region published by Mr. Jos. Thomson in his "Through Masai Land," and in the more recent one of Prof. Toula; from these it was known that the area consists of a basal plateau of gneiss and schists, covered by a series of lavas in the interior and marked along the coast by patches of Jurassic rocks. My work therefore lay in the main in the examination of the gneisses and schists with a view to the determination of the method of their formation; also to the study of the volcanic rocks -which range from basalts to quartz trachytes -and of the relations of the old lava plateaus and sheets to the craters of various ages which play such a striking part in the scenery of the district. The most interesting part of the work consisted in the examination of the great "Graben" or valley of subsidence which runs north and south across the district; on the floor and on the sides of this are many old lake deposits now buried by lava flows, while the walls are also marked by terraces formed by the existing lakes when at a higher level than at present, or by old ones that have long since disappeared. In some of these terraces are shells with Nilotic affinities, though the localities are now far from the Nile basin. The collections made from the coast Jurassics will allow the age of these beds to be definitely settled, and the fossils--Ammonites, Lytoceras, Belemnites, &c.-suggest that they are probably Callovian. An interesting addition to the geology of tropical Africa has been the discovery of some Palæozoic shales, more than 130 miles from Mombasa, which have yielded a fairly good fauna, though richer in individuals than species.

The evidence collected proves the existence of a former race of men who used obsidian implements, and who lived in a period long prior to any existing tribes; and also, that the glaciers on Mount Kenia once extended several thousand feet further down the mountain than at present; in fact, a regular sheet or cap glaciation preceded the existing valley glaciation.

Zoologically the district is somewhat barren, and in many parts only animals with great powers of migration or hybernation are to be seen. In some of the country most famous for its game, none can be found, as it was killed off by last year's drought Cattle disease is responsible for the disappearance of many species; thus, whereas buffalo used to be extremely common, only three were seen; only one herd of giraffes was met with. Zebra and ostriches are abundant in places, while the commonest antelopes seen were the hartebeest, mpalla, and water buck: topi are numerous on the Tana. The sparseness of dense forest, except on the higher parts of the district, accounts for the rarity of monkeys. Colobus guerazi was seen at over 9000 feet on Kenia, and some baboons amid the rocks of one of the ridges of the basin of Lake Kibibi. Hyena and a small bush buck range up into the lower Alpine zones on Kenia, while a small rat, Hyrax, and elephants occur in the woods of Senecio johnstoni in the upper Alpine zone. Another high record is the occurrence of fresh water crabs (Telephusa) in some swamps on Leikipia at the height of about 8000 feet.

The rarity of limestones doubtless helps to the scarce-

ness of mollusca. As is well known, most of the species live on trees, whether in river valleys, such as the Sabaki, or among the forests of Kenia, where some small delicate species are common from 8000 to 10,000 feet.

Botanically also, the country is somewhat barren and monotonous; vast areas are covered by nothing but low, umbrella-shaped acacias. The country may be roughly divided into seven zones. The first includes the coastal plain and river valleys, characterised by the abundance of palms, such as the Dum palm (Hyphanc thebaica) and the Borassus palm (B. flabelliformis); the former is abundant along the coast and fringes the rivers, being found up the Tana as far as south of Kenia, and up the Sabaki to Tzavo. The Screw palm (*Pandanus*) is rarer, but has a similar range. The salt marshes and lagoons are bordered by the mangrove, while the she-oak, or Casuarina, occurs on the ends of exposed promontories on the coast. These have doubtless grown from cones carried by currents from Australia, just as the Krakatao pumice, which now forms banks along the shore, has floated from Malaysia. This zone is succeeded by great sandy steppes covered with mimosa and acacia scrub, with large baobabs, which occur also on the coast. The most typical plants have large and white flowers, a species of Convolvulus being the commonest. Aloes, and especially the species known to the Suahili as "nkonge," are abundant. The two next zones are the steppes and woods of the high plateaus; the most striking feature of the former is the high grass, which, when the seeds are ripe and yellow, reminds one of the great cornfields of Dakota.

In places the forests of the plateaus pass upward gradually into those of the flanks of the higher mountains, such as Kenia and Settima. The prevalence of lofty junipers which replace the trees of lower horizons, and the dense jungles of bamboos, with a carpet of Selaginella characterise the fifth or bamboo zone.

Above this are the Alpine pasturages. In the lower part there are numerous orchids, Gladiolus, &c. With the upper zone there appear species of the "everlasting plants" of the Cape, while the only trees are Senecio johnstoni. Beyond this is the zone above the snow line, where except for a few diminutive yellow composites and lichens, we have passed beyond the realms of plant or animal life.

J. W. GREGORY.

NOTES.

Dr. POTAIN has been elected a member of the Paris Academy of Sciences (Section of Medicine and Surgery), in the place of the late Prof. Charcot.

WE are sorry to learn of the death of Dr. H. H. Ashdown, on October 10, at the age of thirty-four. He was a Fellow of the Royal Society of Edinburgh, and published several memoirs on his physiological investigations.

WE regret to announce that Mr. T. C. Bain, the Government surveyor and geologist at the Cape, died at Rondebosch, Cape Town, on September 28. He was born in 1830, and his father was the engineer of the well-known Mitchell's Pass Road, at Cape Colony. Mr. Bain was appointed irrigation and geological surveyor in 1888. The British (Natural History) and Cape Museums contain a number of geological specimens collected by him, among which may be mentioned the collection of reptilian remains from the lacustrine beds of the Karoo.

A STATE MUSEUM is now in course of formation at Pretoria. Mr. P. Krantz has been appointed a curator, and he has, with an entomological assistant, just started on a collecting expedition, which may probably occupy a space of two years. Their mode of transit is in a large wagon drawn by twenty donkeys, these animals having been chosen as best able to withstand the