

in the Heidelberg Library and of MSS. in other libraries.

PROF. RUDLER informs us that his article on 'Cambria in Paris,' which appears in the *University College of Wales Magazine*, had not, as we supposed, been previously printed elsewhere.

OUR Lisbon Correspondent writes:—

"The new translation of the *Lusiads* of Camoens by Mr. Robert French Duff, which I have mentioned before, is now complete in the MS. It is written in the Spenserian stanza, is very literal, and the versification is elegant, the style being good throughout. Mr. Duff is a gentleman advanced in years, who has been a student all his life, and knows both the Portuguese and English languages intimately, having received an excellent classical education in England, and having resided since then in Portugal. Many competent judges say this translation will leave nothing to be desired, as Mr. Duff has been a long time over the work, and has done it *con amore*, being a great admirer of Camoens. The book will be printed at the Lisbon National Press, with new type, on fine paper, and will contain portraits of many of the Portuguese worthies mentioned in the text. The volume will be a royal octavo; it will be ready in April, and will be brought out in London by Messrs. Chatto & Windus, and in Philadelphia by Messrs. J. B. Lippincott & Co. The *Lisbon Financial Gazette*, an English journal published in Lisbon, speaks very favourably of the work, and quotes several admirable stanzas.—There are, I believe, complete in MS. a translation of Camoens by Capt. Burton, the celebrated traveller, another by Mr. Hewitt, the American journalist of Rio de Janeiro, and God knows how many more are in embryo. Of a verity, the great masters never die, and the genius of Camoens blossoms like an aloe after the lapse of many years, but withal we may be excused if we express our belief in the old adage, 'It never rains but it pours.'"

Capt. Burton's translation is, we are glad to say, in type.

A CORRESPONDENT has been good enough to send us a much better, at any rate much more grammatical, version of the quatrain we quoted last week from Mr. Hamilton's book on the Laureates:—

Gaudemus nos Poetis tribus,  
Peter Findar, Pye, et Pybus:  
Si niterius ire pergis  
Adde his Sir James Bland Burgess.

That learned genealogist Col. Chester points out, in a letter to us, that Mr. Hamilton is wrong in saying Colley Cibber was buried in Westminster Abbey.

MR. BLANCHARD JERROLD writes to us with reference to the Congress of Men of Letters of all Nations, which it is proposed by the International Literary Association shall meet in London in June, 1879:—

"The United States, Germany, Austria, Belgium, Brazil, Spain, Italy, Denmark, Norway and Sweden, Holland, Russia and Poland, and Switzerland are already adopting measures in order to be worthily represented in the Association, and have sent in first lists of adhesions. The Association is in course of consolidation under the care of a zealous executive, and is preparing to present to the Congress in June next a well-considered scheme of international literary machinery, devised to protect the rights of authors all over the world and to create a general *esprit de corps*. Full details of the work done and to be done will be found in the *Bulletin* of the Association, a copy of which I shall be happy to address to any correspondent—being a man of letters or a journalist—who may desire one. I am also prepared to receive the names of British authors or journalists who may wish to join the Association, and to assist in receiving the

*gens de lettres* from all parts of Europe who have promised to attend the Congress of 1879. I must request that all preliminary communications may be by letter only."

Mr. Jerrold's address is 8, Carlton Chambers, Regent Street.

## SCIENCE

### GOLD IN MIDIAN.

NIEBUHR, the traveller, who was not wholly ignorant of Arabian literature, should have been better informed when he asserted "the precious metals are not found or known to exist in Arabia, which has no mines either of gold or silver" ('Description de l'Arabie,' p. 124, Amsterdam, 1774); and as Niebuhr's reputation rose high, his dictum has been universally accepted by the writers, scientific as well as popular, of the last half century.

There could be no greater mistake. Dr. Ad. Gurlt, of Bonn, a *savant* who is preparing for publication the 'History of Mining and Smelting,' remarks, in a letter addressed to me, that Midian shows (in literature) traces of the industry which, under the Phœnicians, Egyptians, Romans, Nabathæans, and Arabs, has lasted nearly 2,000 years. He has kindly forwarded the following notes upon his authorities.

Moses (B.C. 1452) mentions, among the metals which were purified by fire after being plundered from the Midianites, *in*, an ore of the greatest importance considering the part it plays in the bronze arms, instruments, and implements of ancient nations. In Numbers xxxi. 22, we find—besides tin—gold, silver, brass (copper?), iron, and lead. All these metals were rediscovered by the second Khedivial expedition to Midian.

Rameses III. (B.C. 1000) of the twentieth dynasty, in the eleventh year of his reign, opened the great mines of copper in the land of 'Athaka ('Akabah). According to the Harris papyrus (Brit. Museum), translated by Eisenlohr, the ore was yellow as gold (pyritic copper?), while the Sinai diggings yielded only Mafkat, green copper ore (=chrysocholla?). You will find the description in Dr. Beke's 'Sinai in Arabia,' and my last work, 'The Land of Midian (Revisited),' has copied the original hieroglyphs.

Dionysius Aphrus, a Greek geographer of Augustus's day, and interesting to us because he is the first classic that notices our coal treasures, declares of Arabia behind the Libanus and in the Nabathæan country, "Ideoque ipsa regio tantis hucusque floruisse numeribus dicitur, ut ejus montes aurum pariant, et flumina convehant argentum, eorumque ripe Thymiamate et fragrantibus herbis redolent, atque qui ibi viciantur maximas possident opes, neque induunt nisi paludamentis aureis, aut sericis quam mollissimis. Verum qui primam Libani montis frontem tenent, ipsi sunt qui Nabathæi sunt appellati." From this it is evident that Northern Arabia was meant. (Translated by the Veronese Antonius Becharias, and printed by Henricus Paulus at Basel, A.D. 1534, p. 53.) Pliny only says of Arabia, 'Litus Hammeum ubi auri metalla' ('Nat. Hist.,' iv. cap. 32).

Hieronymus, Bishop of Phœno, who was present at the Council of Ephesus in A.D. 449, declares that condemned Christians and other convicts were compelled to work at the copper mines of North-western Arabia. Phœno is the Phunon (or Punon) of the Book of Numbers (xxxiii. 42), a place lying four miles south of Dedan, between Zoar and Petra, and alternately belonging to Idumæa (Edom) and to Arabia Petræa. He says, "Sunt autem montes auri fertiles in deserto procul undecim mansionibus a Choreb [Horeb, the so-called Mount Sinai], juxta quos Moyses scripsisse perhibetur; sed et metalla æros Phœno [he also calls copper "metallum Fenum"], quod nostro tempore corrui; montes venarum auri plenos olim fuisse vicinos existimant."

Eusebius of Cesarea, the "Father of Ecclesi-

astical History" (A.D. 264-340), in his account of the persecutions of Diocletian and Maximin (A.D. 303-310), states that many Christians were condemned to the mines, "ad metalla erunda damnati sunt"; and "Præses provincie omnes ad aeris metalla, quæ sunt apud Phœnum Palestine damnavit" ('De Martyr. Palest.,' cap. 7).

That the Arabs worked the gold mines of Egypt we know from El-Idrisi; from Abulfeda, and from the Cufic inscription of the Khalif El-Mustakfi b'Illah, A.D. 989. The old diggings have been admirably described by Linant (de Bellefonds) Pasha; and those of Coptos have lately been explored by the Egyptian staff. In my last volumes I have attempted to prove that those of North-western Arabia were also worked, and that tailings have been washed, perhaps, even in the present day.

Thus we have reason to believe that the mines of Midian have been known to the world for the last 2,500, and possibly for 3,000 years. You will ask, Has not the country been exhausted? I reply, Not one-thousandth part of the quartz reefs has been touched. The ancients laboured with great skill and care; but, as Dr. John Percy says, water was generally an unsurmountable obstacle to ancient workers proceeding downwards in their mines.

A correspondent who visited 'Akabah in 1864, and who wandered three months over North-western Arabia, informs me that he considers Midian a gold-field *par excellence*. The richest reefs would be in the neighbourhood of the sporadic and outlying volcanoes which, all now extinct, appear to have been connected with the Harrah or great plutonic band subtending the coast. The northernmost of these centres he would place 9 miles south of 'Akabah along the eastern coast of the gulf, and the second 93 miles from the northern head and some 3 miles inland from the corner of the gulf and the Red Sea. A third would be near the Jebel el-Abyaz ("White Mountain"), the great vein of quartz described in the 'Gold Mines of Midian.' The fourth and last great reef lies 5 miles inland and 30 miles south of the entrance of the Gulf of 'Akabah. This would place it near the central item of the three Jibal el-Kibrît ("Sulphur Hills"), whose peculiarity is that of being plutonic, whilst the two others contain the metal diffused in gypseous chalk.

It has also been brought to my attention that the celebrated French Arabist, Fulgence Fresnel, detected signs of metallurgy in Midian. Wellsted in 1838 visited the site marked "Fayrabat" on the hydrographic chart, lying about five hours' walk east of Wihj el-Bahr, popularly called "Wedge," the former quarantine ground of the pilgrims returning from Meccah. He descended the shafts and explored the galleries; but he converted the quartz into limestone, and he did not perceive that he was in a gold mine. Fresnel, who followed him on April 28th, 1844, was escorted to the spot by the chief of the Balyiy clan, and at once distinguished the old workings, glass fragments and slag scattered around the ruins. The curious reader will refer, for his travels in this part of Arabia, to the 'Erdkunde,' part xiii., third book, "West-Asien," second edition, 1847. Carl Ritter compiled his account from three sources: (1) *Revue des Deux Mondes*, 1839, tomes xvi. and xvii., F. Fresnel's 'L'Arabie Vue en 1837-38'; (2) *Journal Asiatique*, 4me série, séance 1840; and (3) 'Lettres Manuscrites sur l'Arabie,' written after 1838 to M. J. Mohl, of the Academy, Paris! In a foot-note (p. 5) Ritter says that these letters were lent to him by M. Mohl, and during the last twenty years they have probably been published.

Fresnel calls the place Umm Hafirat or the "Mother of diggings," a title well deserved, as the quartz hill has been honeycombed by the ancient miners. Shaykh Afuâ, chief of the Balyiy tribe, to whom the land belongs, assured me that the ruins were known as Umm el-Karâyat, or "Mother of the villages," because surrounded by minor remains of such settlements, and this I personally ascertained to be the fact. For a detailed description of it students and

referred to my volumes, 'The Land of Midian (Revisited).'

It is, I think, now time to expunge Niebuhr's error from our popular books.

RICHARD F. BURTON.

THOMAS SOPWITH.

At Westminster, on Thursday, the 16th inst., Mr. Thomas Sopwith died. He was born at Newcastle-on-Tyne in 1803, consequently he was in the seventy-sixth year of his age. For more than half a century Mr. Sopwith has been a diligent student of science, especially in geology and mining. We find that as early as 1829 he published geological sections of several of the lead-mines in Alston Moor and Teesdale. In 1833 he wrote 'An Account of the Mining Districts of Alston Moor, Weardale, and Teesdale,' which attracted considerable attention from the clear and interesting style in which it was written. In this year Mr. Sopwith became a member of the Institution of Civil Engineers, having previously devoted considerable attention to mining engineering, which, in some respects, he greatly improved. In 1832 he published a memoir 'On the Application of Isometrical Projection to Geological Plans and Sections,' and in 1838 a 'Treatise on Isometrical Drawing as applicable to Geological and Mining Plans.' In this year Mr. Sopwith was appointed a Commissioner for the Crown, under the Dean Forest Mining Act, being associated with Mr. John Probyn and the celebrated mining engineer John Buddle. 'The Awards' of the Dean Forest Mining Commissioners were drawn up by Mr. Sopwith, and published in 1841. Mr. Sopwith at this time constructed a very complete map of Dean Forest, and made a large model of it, capable of dissection, which showed, in true scale, the surface of the forest and all the subterranean workings for coal and ironstone.

In 1835 Mr. Sopwith was elected a Fellow of the Geological Society, and he greatly advanced, by facilitating the study of geology, through the construction of a series of models, which showed in a very striking manner the nature of stratification, the valleys of denudation, the succession of coal seams, and other geological phenomena. A treatise explaining these models was published in 1841. In 1838 Mr. Sopwith brought before the British Association a paper 'On the National Importance of preserving Mining Records.' This matter had been first urged by Mr. William Thomas in 1797, and again by Mr. William Chapman in 1815. Upon the suggestions made by these colliery viewers, by John Buddle and other practical mining engineers, Mr. Sopwith founded his communication, in which he amplified the strong evidence brought forward, and urged, with yet more force, the necessity of adopting legislative measures to secure the desired end. The result of this was the formation of a committee of some of the leading members of the Association, who met in Newcastle-on-Tyne on the 25th of August, 1838, and agreed to memorialize the Government on the subject. This representation to the Government, followed up by the zealous advocacy of the Marquis of Northampton and Sir Henry De la Beche, led to the establishment of the Mining Record Office, in connexion with the Museum of Practical Geology. Mr. Sopwith may, therefore, be regarded as really the prime mover in establishing this important office. In 1845 Mr. Sopwith was elected a Fellow of the Royal Society. About the same time he received the honour of an M.A. degree, and of being chosen honorary member of several foreign and important local societies. To the Geological Society of the West Riding of Yorkshire he contributed a memoir 'On the Evidence of the former Existence of Glaciers in England,' and one 'On the Mining Districts of the North of England' to the Proceedings of the Royal Institution.

For a long period Mr. Sopwith was the manager of the most important lead-mines in this country, into which he introduced machinery of the most effective character, and in which he carried out

some engineering works of a high class and of the utmost value.

SOCIETIES.

ROYAL.—Jan. 16.—W. Spottiswoode, Esq., M.A., President, in the chair.—The following papers were read:—'On some Points connected with the Anatomy of the Skin,' and 'On Hyaline Cartilage, and Deceptive Appearances produced by Reagents and observed in the Examination of Cartilaginous Tumour of the Lower Jaw,' by Dr. G. Thin.—'Volumetric Estimation of Sugar by an Ammoniated Cupric Test giving Reduction without Precipitation,' by Dr. Pavy.—'On the Effect of Strong Induction Currents upon the Structure of the Spinal Cord,' by Dr. W. M. Ord.—and 'Concluding Observations on the Locomotor System of Medusæ,' by Mr. G. J. Romanes.

ASIATIC.—Jan. 20.—Sir H. C. Rawlinson, President, in the chair.—The Rev. Prof. Legge read the first part of a paper 'On the Principles of Composition in Chinese deduced from the Nature of the Written Characters,' in which he showed the truth of what has been repeatedly stated, viz., that there is no grammar in Chinese, and further that the student who wishes either to write or speak this language must dismiss from his mind all ideas of composition founded on the principles of grammar which govern alphabetic languages. Having exhibited the six principles of formation on which the Chinese characters are made, Dr. Legge discussed the native division of the characters into *Shih* and *Hsi*, or *full*, *substantial*, and *empty*, showing that this division had been misunderstood by all who have written on the Chinese language from Prémare downwards, in that it has regard to the structural significance of the characters, and cannot, therefore, be legitimately used as if it was a grammatical distinction of them. Prof. Legge then treated of Chinese literature as written in the ancient, the literary, and the colloquial styles respectively, confining in his present paper his illustration of the principles of composition to the first of the three, and adding that Chinese composition was originally a system of signal telegraphy. In the most ancient style he stated that we find the primitive telegraphy by written characters struggling into the definiteness of grammatical writing, yet without grammar.—The conclusion of his paper will be given on Feb. 17th.

SOCIETY OF ANTIQUARIES.—Jan. 16.—A. W. Franks, Esq., Director, in the chair.—The Rev. J. Beck exhibited a bronze palstave, ploughed up on a farm near Perth, and ornamented on each face with punched or engraved triangles in three rows. Mr. Beck also exhibited, by permission of Sir H. W. Peck, a monumental effigy in silver *repoussé*, seven and a quarter inches by six and a quarter, in memory of Lydia, daughter of Henry Wharton, of London, and wife of John Collier, son of Mr. R. Collier, of Oxon. She was born Nov. 20, 1648, and died May 13, 1673. Their two infant daughters, Lydia (*ob.* 1671) and Hester (*ob.* 1673), are also figured, the one in swaddling clothes, the other as a girl habited as Time, with a scythe and hour-glass. Can this be a copy of a larger monument in some churchyard in Oxfordshire?—Mr. J. C. Robinson exhibited a processional cross in brass, English work of the fifteenth century. The circular medallions at the ends of the arms, enclosing emblems of the evangelists, instead of being in bas-relief, as usual (and as seen in a drawing of a precisely similar cross at Thurnham Church, Lancashire, exhibited by Mr. Micklethwaite), are of engraved copper, the lines filled in with black enamel. Mr. Robinson also exhibited two silver-gilt figures, in *repoussé* work, which were stated to have formed part of a famous shrine or 'custodia' in the Cathedral of Cuença, in Spain, the work of one of the Becerril family.—Mr. A. Heales communicated an account of some sepulchral remains at Tipasá, on the coast of Algeria.—Mr. E. W. Brabrook read a paper 'On the Origin of the Office of King's Advocate-General.'

BRITISH ARCHÆOLOGICAL ASSOCIATION.—Jan. 15.—T. Morgan, Esq., in the chair.—The Rev. Chandler reported the discovery of the altar-slab of Waterbeach Church. It is of grey marble, and has been supported by six pilasters, fragments of which were found.—Dr. Woodhouse, as a warning to antiquaries, exhibited a large collection of forged articles.—Mr. Loftus Brock described an African jug of modern date, but having the form and colouring of early times, being an example of the continuance of ancient types in the country.—Mr. G. Hills reported that several fragments of Roman date had been found in Chichester Cathedral, indicating the prior existence of Roman buildings on the site. He exhibited red tessere and Samian ware, and spoke of flue tiles having been found.—Mr. Hills then read the first paper, descriptive of the recent discovery of earthenware vessels at Leeds Church, Kent. They are built up over the arches of the nave, and were inserted probably in the belief that they would help the acoustic effect of the building. The arches are of fifteenth century date, but the jars appear to be older. The subject of acoustic pottery in churches was dwelt upon at length.—Mr. R. Blair described a great number of small articles carved in jet found on the site of the Roman station, South Shields, which are very peculiar in form.—Mr. De Gray Birch commented upon the peculiarities of the inscriptions.—Mr. R. Smith reported the discovery on the Allier of the site of a Roman manufactory of small statuettes of white clay, and exhibited a series of photographs of the most interesting. These articles are of rare occurrence in England.—Mr. Morgan read the second paper, taking for his theme the positions of the Roman armies in North Britain in the second and third centuries, the positions being indicated by numerous evidences which were passed in review, while recent discoveries were mentioned which afford additional information.—The third paper was by Mr. W. C. Little, who traced the course of a Roman road across the Cambridgeshire fens, and described its construction of gravel upon a layer of branches. It is generally twenty-five feet wide.

NUMISMATIC.—Jan. 16.—J. Evans, Esq., D.C.L., President, in the chair.—The Hon. C. W. Fremantle and the Hon. Milo George Talbot were elected Members.—Mr. Evans exhibited a decadrachm of Syracuse in a very fine state of preservation, and signed by the artist Evænetus.—Mr. Cochran-Patrick communicated a paper on some Mint Accounts of the kingdom of Scotland, after the accession of James VI., containing particulars of the amount of standard silver minted between A.D. 1605 and 1695, and of the number of the various silver coins struck from it.—Major A. B. Creeke communicated a paper on an unpublished and unique Anglo-Saxon silver farthing, having on the obverse the (so-called) iron glove of Thor, and on the reverse the monogram of Carolus. This coin he attributed to Reginald I., King of Northumbria *circa* A.D. 919.

ZOOLOGICAL.—Jan. 14.—Prof. Newton, V.P., in the chair.—The Chairman called attention to the great loss which the Society and zoological science had sustained by the recent death of their President, the Marquis of Tweeddale.—The Secretary read a Report on the additions that had been made to the Society's Menagerie during December.—Dr. Traquair exhibited a specimen of the Hacked Pigeon (*Alectoranas nitidissima*) recognized last September in the Museum of Science and Art in Edinburgh by Prof. Newton, who made some remarks on the species.—Letters and papers were read: from Commander Hoskins, on the subject of the range of the Mooruk,—from the Rev. G. Brown, giving additional particulars on the same subject,—from Mr. R. Trimen, of Cape Town, on the subject of the true locality of the Black Spurwinged Goose (*Plectropterus niger*),—from Dr. M. Watson and Dr. A. H. Young, on the anatomy of the Spotted Hyena (*Hyæna crocuta*),—from Mr. A. D. Bartlett, giving an account of the habits and changes of plumage of Hum-