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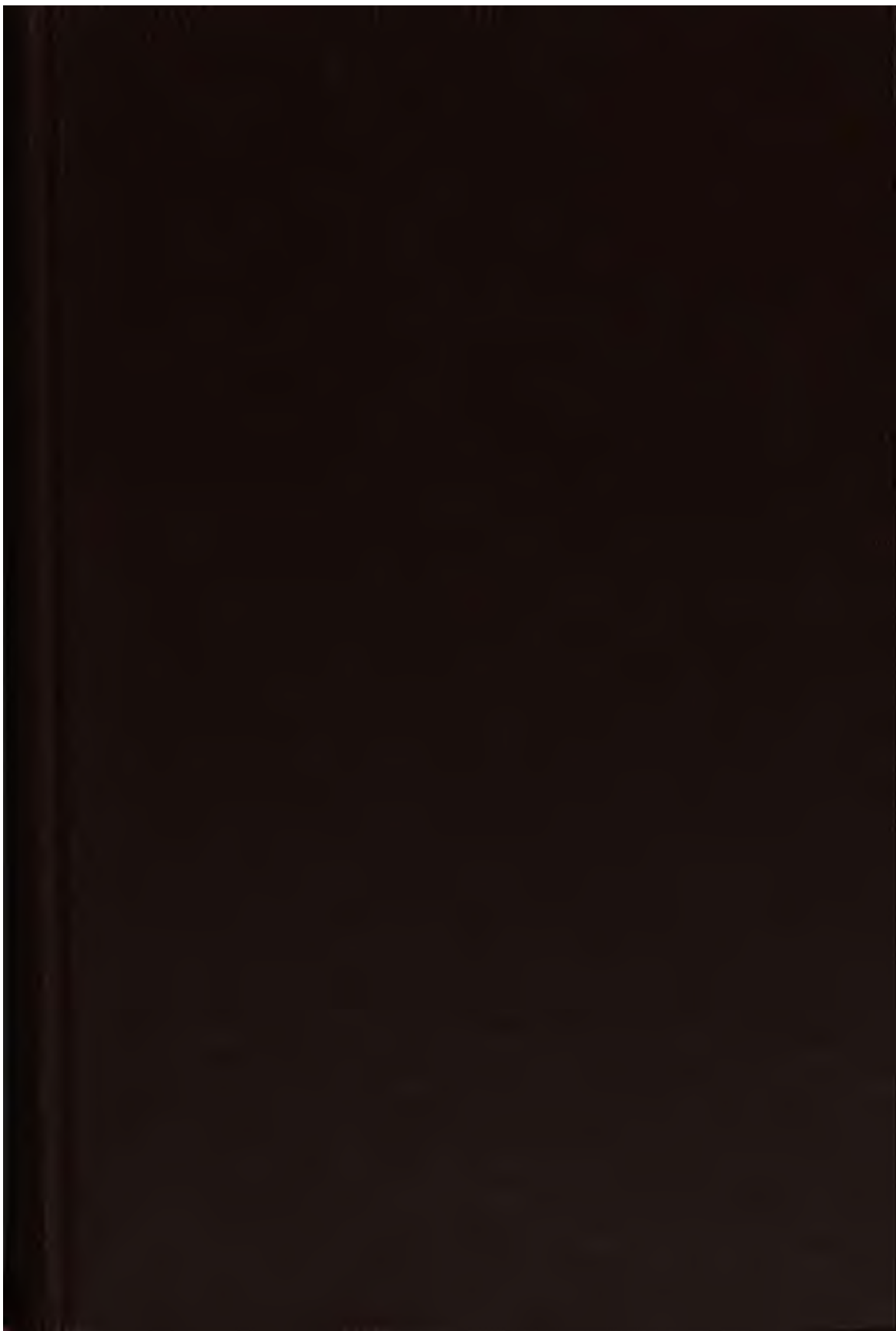
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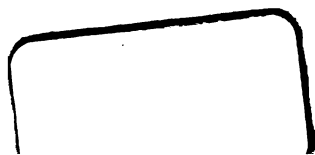
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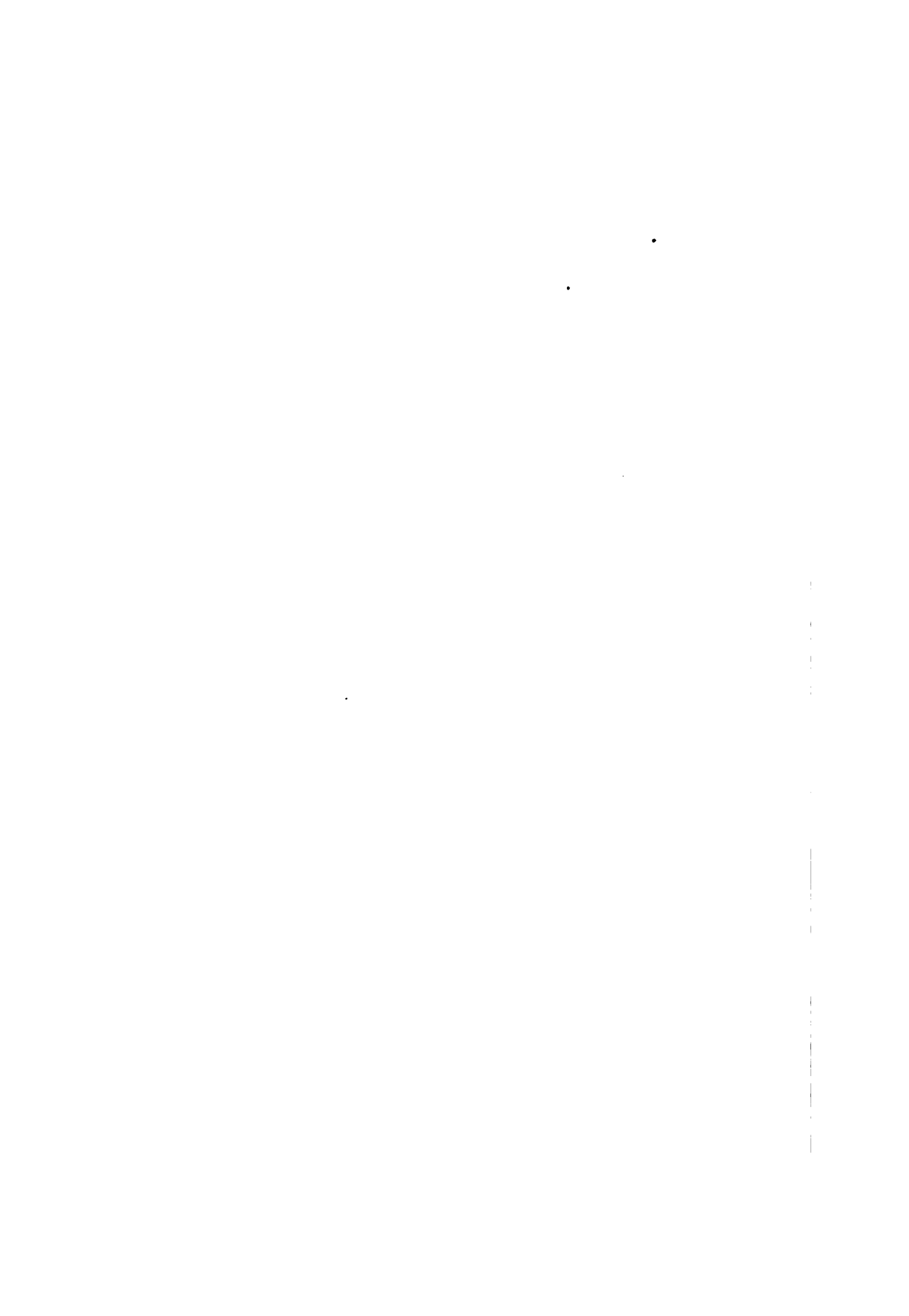
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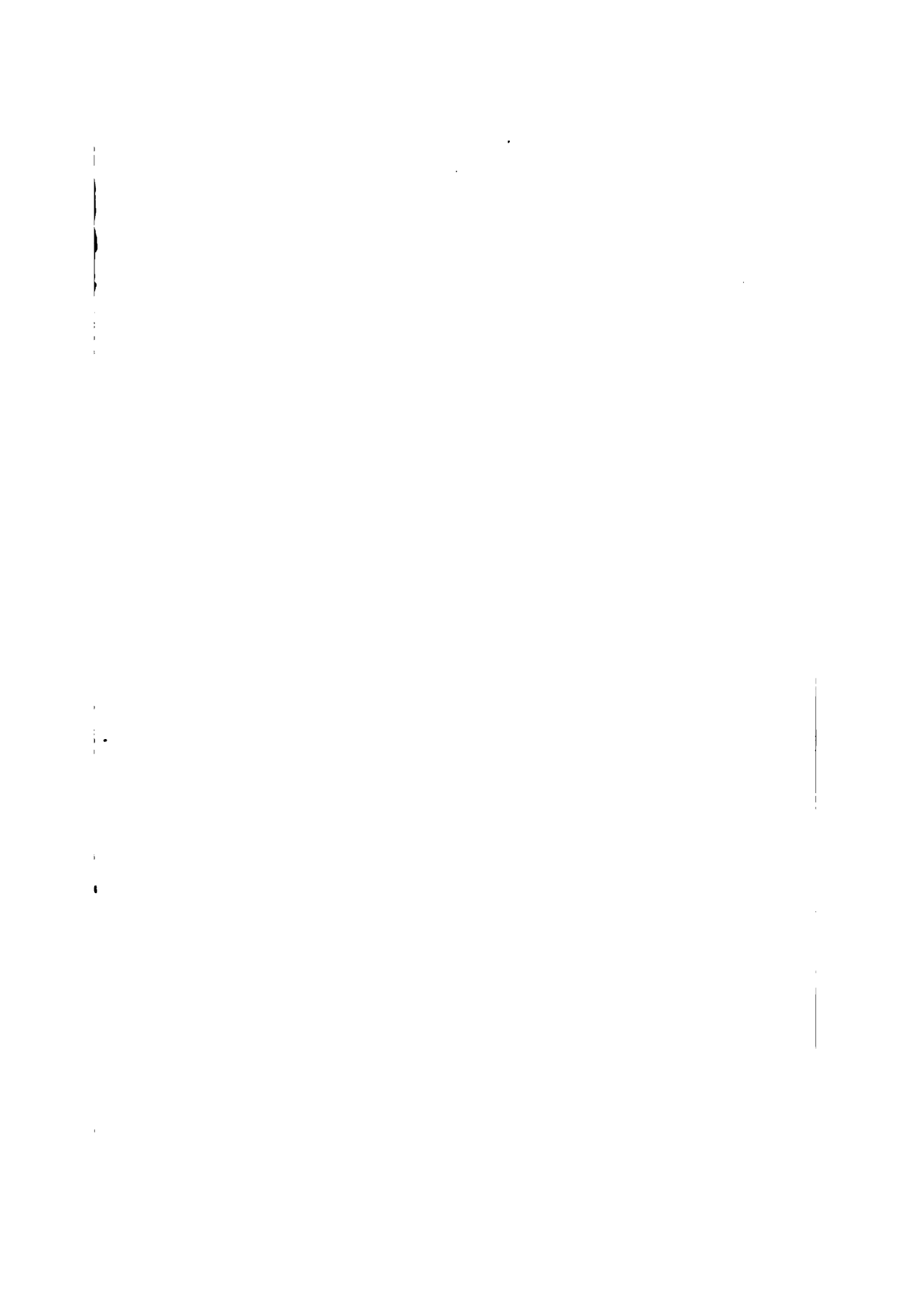


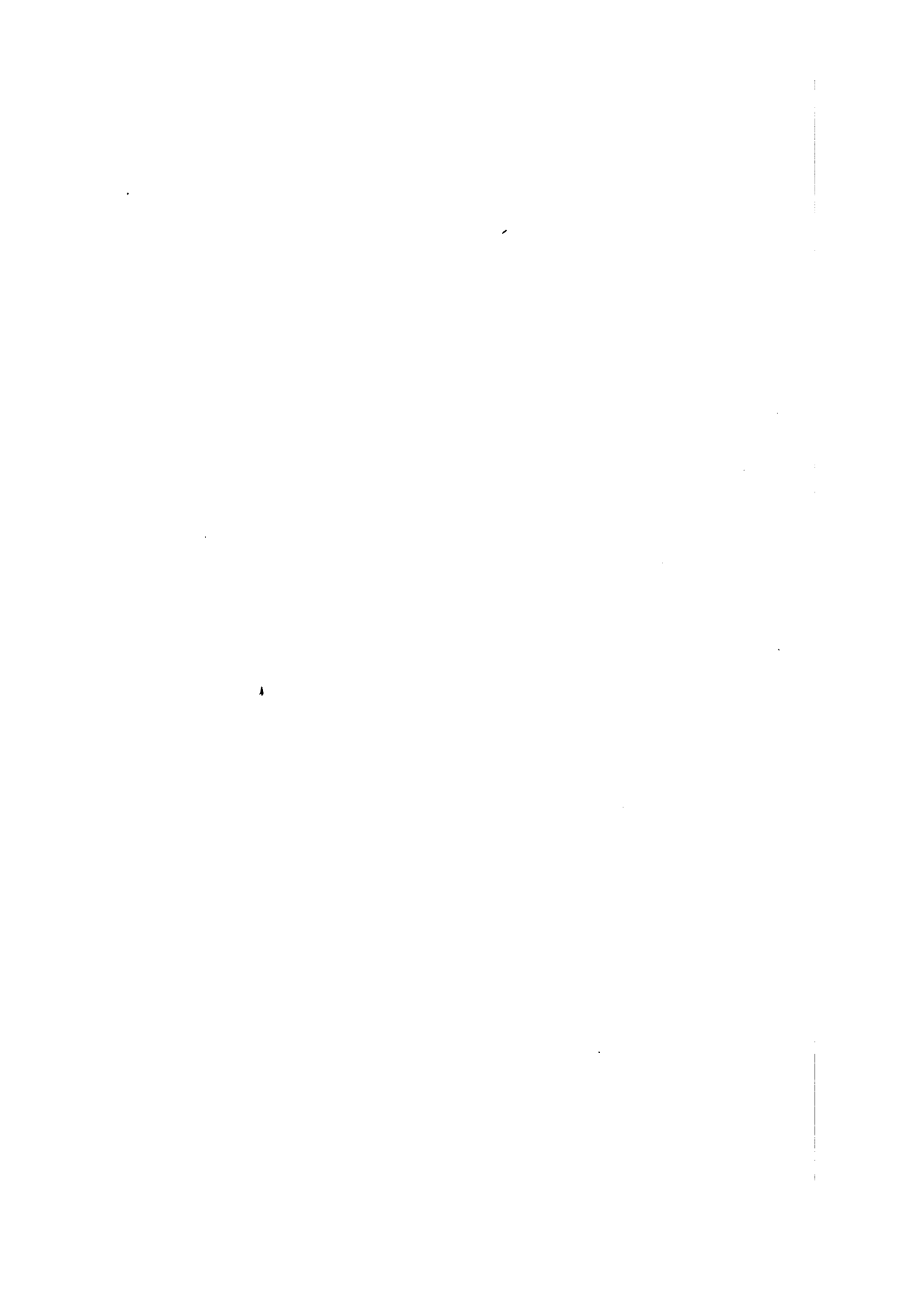


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LIFE AND WORK
AT THE GREAT PYRAMID.



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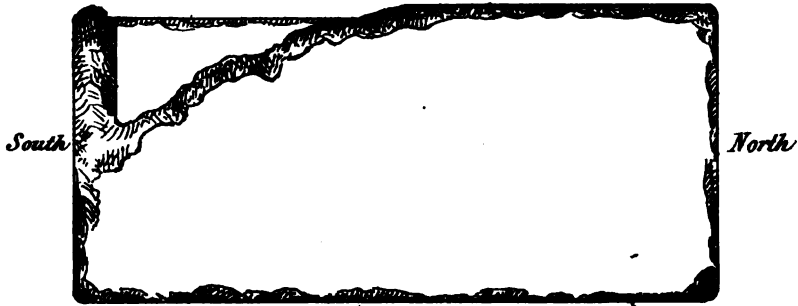
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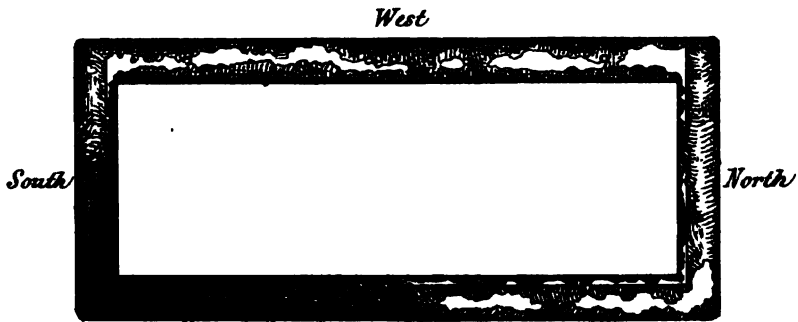
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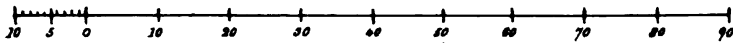
*The Coffin, in
the King's Chamber,
A.D. 1865.*



Elevation, looking West.



*Plan, looking from above,
the shading in proportion to the deviation
from a horizontal plane.*



Scale of British Inches.

LIFE AND WORK
AT THE GREAT PYRAMID

**DURING THE MONTHS OF JANUARY, FEBRUARY,
MARCH, AND APRIL, A.D. 1865;**

WITH

A DISCUSSION OF THE FACTS ASCERTAINED.

BY C. PIAZZI SMYTH, F.R.SS.L. & E.

**F.R.A.S., F.R.S.P.A.; HON. M. INST. ENGIN. EC., F.S. ED., AND R.A.A.S. MUNICH AND PALERMO;
PROFESSOR OF PRACTICAL ASTRONOMY IN THE UNIVERSITY OF EDINBURGH,
AND ASTRONOMER-ROYAL FOR SCOTLAND.**

IN THREE VOLUMES;

WITH ILLUSTRATIONS ON STONE AND WOOD.

VOL. I.

**EDINBURGH:
EDMONSTON AND DOUGLAS.**

1867.

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WORLD BOOK

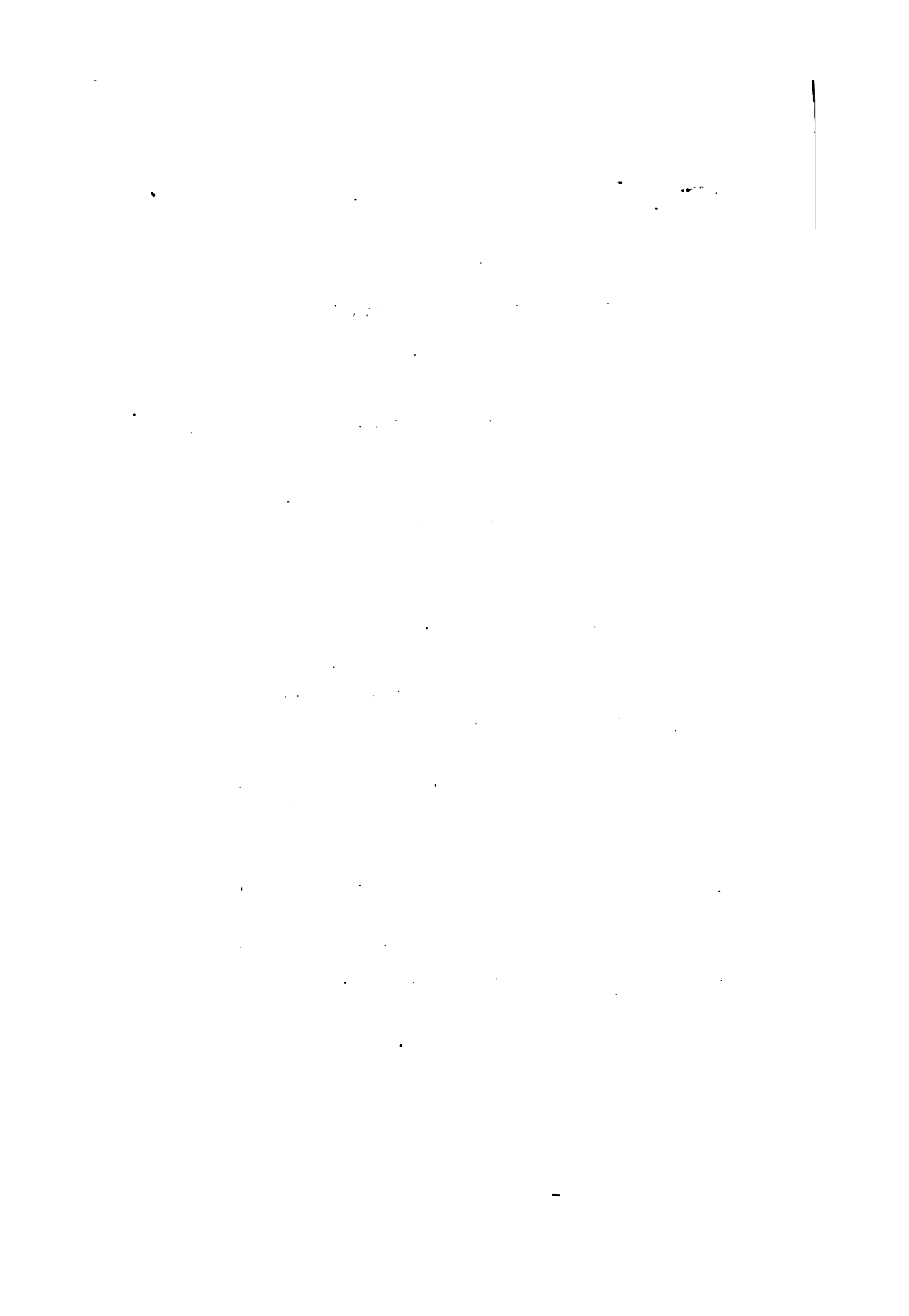
TO THE MEMORY OF
PROFESSOR JOHN GREAVES,
IN THE YEAR 1638,
AND
COLONEL HOWARD VYSE,
IN 1837,

*Alike distinguished in their respective epochs, for honourable labours
and faithful research at the Pyramids of Jemeh ;*

AND MORE PARTICULARLY
TO THAT OF
NAPOLEON BONAPARTE,
REPUBLICAN GENERAL IN 1798,

*Who earnestly sought to moderate the rigours of war upon the ancient
land of Egypt, by causing his army to become most efficient means
for introducing there, step by step in its victorious progress, the ele-
vating influences of science, and amenities of literary learning ;—on
a scale so vast, and with an intelligence so many-sided, as not only to
have far surpassed all the wealthiest Kings and Princes of the earth,
either of earlier or later times,—but to have been crowned with discoveries
in the Great Pyramid, both possessing crucial importance for that
primeval monument's metrological theory, and bringing to clearer light
things long since dimly alluded to in Holy Writ:—this record of some
further, though only private and individual, work performed on that
foundation, is dedicated by*

C. PIAZZI SMYTH.



PREFACE.

THE positive duty of prosecuting the subject of the Great Pyramid, had been earnestly as well as formally urged upon me by the late John Taylor,¹ during the last few months of his useful and laborious life ; so that when he peacefully departed soon after, or in July 1864,—I suddenly found myself not altogether free from the pressing of a very serious responsibility.

Though but ill prepared for the task, and certainly not having sought it, I yet resolved from that moment to contribute whatever I could to the cause ; and with this view lost no time in commencing to take a step, which, of all others, seemed just then to be the most necessary towards enabling the current of general investigation to flow steadily on. That step was, to try to add something prac-

¹ Author of *The Great Pyramid : Why was it built, and who built it?* 8vo. 2d edition. Longman & Co. London, 1864.

tical to the best of Mr. Taylor's literary researches ; or, in other words, to visit the ancient Pyramid where it stands, and has stood for so many thousands of years ; and personally remeasure those parts of it, concerning which all modern writers vary so much in their observations and statements, as to prevent every theory alike,—whether John Taylor's or any other man's,—from being either firmly founded, or satisfactorily refuted upon them.

Pondering much on the last words of the eminent deceased, and over-estimating, perhaps, the public appreciation of the objects aimed at,—I commenced their practical pursuit, in a frame of mind, unfortunately too hopeful, that the perfect and final time for the complete unrolling of the primeval world's greatest wonder, had at last arrived. But if I erred therein,—the mishaps, oppositions, ruinous expenses, and troubles of every kind which were experienced before getting further than Cairo, both fully disabused and largely punished me. Yet after I had then and there given up in grief those first fair hopes, and laid it to my heart merely to do with my own hands whatever was directly within my calling (though, too, all my own means and powers might appear ever so unequal to the task required), and determined not to presume to urge, or expect to push, the development of the Great

Pyramid subject in its entirety, to any extent or degree, and did work on painfully and laboriously in that manner,—then, if one may be allowed to draw some inference from facts experienced, and be thankful for mercies beyond one's deserts,—I am bound to confess, that the latter course and conclusion of the work were as fortunate, as its commencement had been discouraging : resulting altogether, in a greater number of original and independent scientific observations of the Great Pyramid being obtained, and securely brought home,—than had ever been accumulated before,—certainly on means so slender and apparently insufficient.

In simple justice to the great benefits derived (when engaged in the above operations) from his liberal concessions,—I am bound to give my best thanks most prominently to His Highness the Viceroy of Egypt, Ismail Basha ; who, besides granting a free transit on the railway to all *our*,—for my wife accompanied me,—camping and scientific packages, was pleased, through his superintendent of monuments Mariette Bey, master of the ceremonies Zeki Bey, superintendent of excavations Signor Vassalis, and His Excellency the Governor of Jeezeh,—not only to convey our party at his own expense from Old Cairo by boat and camels to the

Pyramids,—but to establish us there before the Arabs in so official a manner, and with such authority,—that our safety was looked to through the whole period of our stay, with an efficiency which left nothing further to be desired for the complete security of both life and property ; and could hardly have been exceeded in its good effect under the best European Government.

To T. F. Reade, Esq., Her Britannic Majesty's Consul in Cairo, my thanks are due ; he always showing anxiety to acquit himself satisfactorily of the manifold, as well as difficult, duties which fall on our public representative in that city of many nations.

Likewise to Andrew Coventry, Esq., of Moray Place, Edinburgh, for his perfectly spontaneous contribution of a handsome sum of money, wherewith two first-class measuring instruments, one for the angular inclination and the other for the linear height, of the Grand Gallery of the Great Pyramid, were specially procured.

To John Hartnup, Esq., Director of the Liverpool Observatory, for much and hospitable kindness both when leaving, and returning to, the Mersey ; to facilitate the navigation of whose ocean-going ships, he has done, and is doing, so much.

And finally to Messrs. W. B. Brough & Co., mer-

chants in Alexandria, an enterprising and generous firm, whose acquaintance it would have been greatly to our advantage to have made much earlier than we did.

The names of several other kind friends will be found gratefully alluded to in the course of the present book; which has been arranged in three volumes, on the following plan; viz. :—

VOLUME I. gives both a popular account of the general circumstances under which the observations were made, and a social view of the progress of the work during a four months' life in the tombs, and amongst the Arabs of the Pyramid hill. This latter part of the proceedings being found of especial importance,—in enabling any one fully to realize the strange situation, with all its ancient surroundings; and acquire thereby that desirable calmness of mind and freedom from new sensations, so important towards procuring impartial, rigid, and rigorous measures.

VOLUME II. contains the original numerical observations, in length, angle, and heat, arranged in order of subject. These form rather a heavy part to be read straight and steadily through by every one; but are useful, nevertheless, to glance over, in order to acquire clear ideas of actual detail; and are

even absolutely necessary to refer to, in all cases of *disputed* data ; an unhappy characteristic hitherto of almost everything in modern literature connected with the Great Pyramid.¹

VOLUME III. contains the *discussion* of the above observations in three several steps, as follows ; viz.—

DIVISION 1 considers the more immediate results deducible from the observations, touching the chief facts of construction and position in the Great Pyramid ; with the special view of eliminating accidents of dilapidation ; and, from the present, arriving at the ancient, size and shape, —both of the building as a whole, and of its chief component parts.

DIVISION 2 takes up a higher or more recondite class of phenomena, and shows nearly all the detail of the building to have the effect of constituting the Great Pyramid,—in its origin and before it was used for any sepulchral purposes, —a *Metrological* monument ; or, a grand com-

¹ See the Author's *Our Inheritance in the Great Pyramid*, 1864 ; where, on page 103, are given twenty-five authorities for the size of the coffer, varying from each other by inexplicable quantities in every element of length, breadth, and depth or height, both inside and out.

On page 67, sixteen authorities for the number of horizontal courses of masonry in the Great Pyramid, as being from 125 to 255.

And on page 266, eleven authorities for the height of the Grand Gallery, varying amongst themselves from 270 to 360 inches ; with fourteen for the length of the same, varying between 1440 and 1947 inches.

memoration in stone of a truly cosmopolitan system of *weights and measures*: extending through nearly all subjects, such as length, weight, heat, angle, and time; with a wealth, too, as well as surpassing power, of exactness of reference to the great standards of Nature,—whether of the earth as a whole, or the precessional movements of the starry heavens,—such as may worthily excite the attention, and claim the respect of all the educated amongst mankind.

While DIVISION 3 endeavours to realize the *history* of Egypt, both public and private, in the long prehistoric days of the building of the Great Pyramid; to essay why, and by whom, that monument was erected with the characteristics now discovered; and to speculate wherefore it may be, that after so long a period of oblivion, the true idea of the Great Pyramid's original purpose, should only now be coming to be understood in the world.

And if the general result of the whole book be found by fair and able readers to show, that some of John Taylor's views have formed a true commencement and have indicated the right line of approach to further developments of the same ennobling order,—I trust that other men's minds

may be moved to examine the whole subject with new tests, and pursue it with far greater powers than mine.

Nor can it be doubted, but that some fine spirits will take up the investigation heartily, when they come fully to understand,—that the Great Pyramid may be looked on in the unique and invaluable historical light, of a *contemporary* record of the events of more than four thousand years ago : that its interpretation can be approached directly, by the application of modern exact science alone : and that its pages, so read,—in the very *ipsissima verba*, and even letter-forms themselves, of the original autograph,—reveal a most surprisingly accurate knowledge of high astronomical and geographical physics,—though at a date, nearly fifteen hundred years earlier than the very first, and extremely infantine, beginnings of such things among the ancient Greeks ; besides exhibiting some remarkable connexions with, as well as dependences on, the religion of Sacred Writ in the Patriarchal times of the world.

CONTENTS OF VOLUME I.

CHAPTER I.	
APPLICATION TO HIS HIGHNESS THE VICEROY,	PAGES 1-15
CHAPTER II.	
WAITING IN CAIRO,	16-39
CHAPTER III.	
REACH THE PYRAMIDS,	40-66
CHAPTER IV.	
REPORT ON THE GREAT PYRAMID,	67-96
CHAPTER V.	
WORKING PRELIMINARIES,	97-117
CHAPTER VI.	
ARRIVAL OF RAMADAN,	118-140
CHAPTER VII.	
OF PASSAGES AND ANGLES,	141-169
CHAPTER VIII.	
ROCKS AND ANCIENT RUBBISH,	170-195

CHAPTER IX.	
MODERN RUBBISH AND RAMADAN,	PAGES 196-233
CHAPTER X.	
THE SECOND PYRAMID,	234-271
CHAPTER XI.	
INSTRUMENTALS,	272-311
CHAPTER XII.	
TOMBS OLD AND NEW,	312-354
CHAPTER XIII.	
ANTECHAMBER AND KING'S CHAMBER,	355-387
CHAPTER XIV.	
PROGRESS OF THE SEASON,	388-424
CHAPTER XV.	
ASTRONOMICAL OBSERVATIONS,	425-468
CHAPTER XVI.	
MAGNESIUM PHOTOGRAPHY,	469-516
CHAPTER XVII.	
CONCLUDING WEEK,	517-562

LIST OF ILLUSTRATIONS

IN VOLUME I.

(THE following Plates, being mostly on very small scales, are capable of little more than giving first approximate ideas of the general nature of the subjects observed and measured. It is particularly requested, therefore, that no 'Pyramid measures' be taken from the Drawings; but that the numerical entries of the original measures, contained in Volume II., be always referred to, when exactness is required.)

No. OF PLATE.

I. COFFER IN THE KING'S CHAMBER—FRONTISPIECE.

REFERRED TO AT P. 85, 377, AND VOL. II.

INSERTED AT PAGE

II. MAP OF PYRAMID HILL, xviii

REFERRED TO AT 62, 134, 186, 417, etc.

III. VERTICAL MERIDIAN SECTION OF GREAT

PYRAMID, xviii

REFERRED TO AT 81, 94, 238, etc.

IV. GROUND PLAN OF GREAT PYRAMID, xviii

REFERRED TO AT 201, 208, 212, etc.

V. WELL-MOUTH, PARTICULARS OF, 80

REFERRED TO AT 80, AND VOL. II.

VI. LOWER PART OF LOWER OR NORTH END

OF GRAND GALLERY, 167

REFERRED TO AT 167, 238, 302, AND VOL. II.

VOL. I.

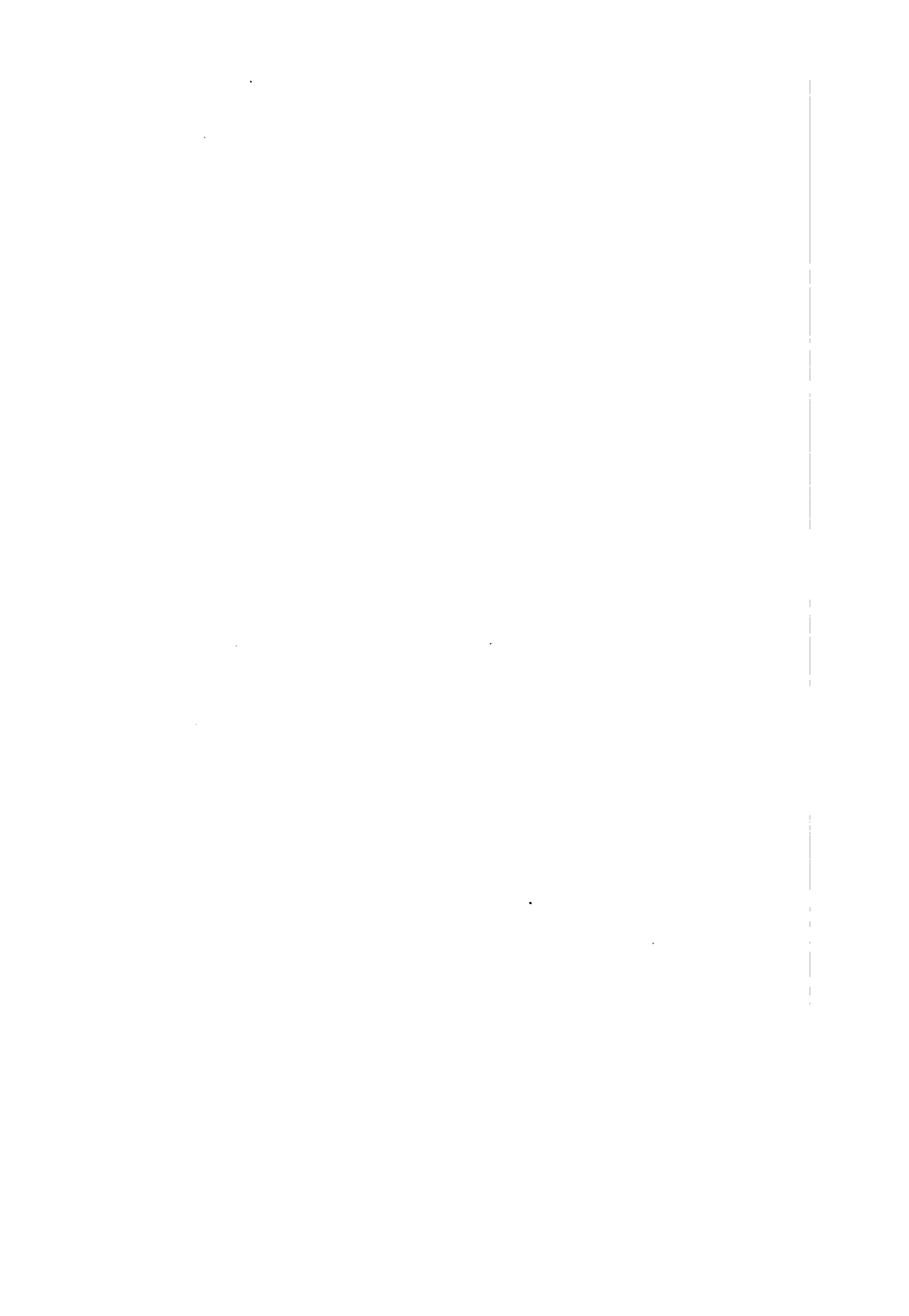
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No. of Plate.	INSERTED AT PAGE
VII. PHOTO-LITHOGRAPH OF KING SHAFRE'S	
OVALS,	347
REFERRED TO AT P. 347.	
VIII. AIR-CHANNEL MOUTHS, NORTH AND SOUTH,	
414	
REFERRED TO AT 413, 415, AND VOL. II.	
IX. CORNER SOCKETS OF GREAT PYRAMID,	
526	
REFERRED TO AT 526, AND VOL. II.	
X. STEPS OF DECAY OF AN AVERAGE JEEZEH	
PYRAMID,	564
REFERRED TO AT 183 AND 262.	

WOODCUTS.

TWO SMALL VIEWS OF SECOND PYRAMID,	254
ROYAL OVALS,	347-349



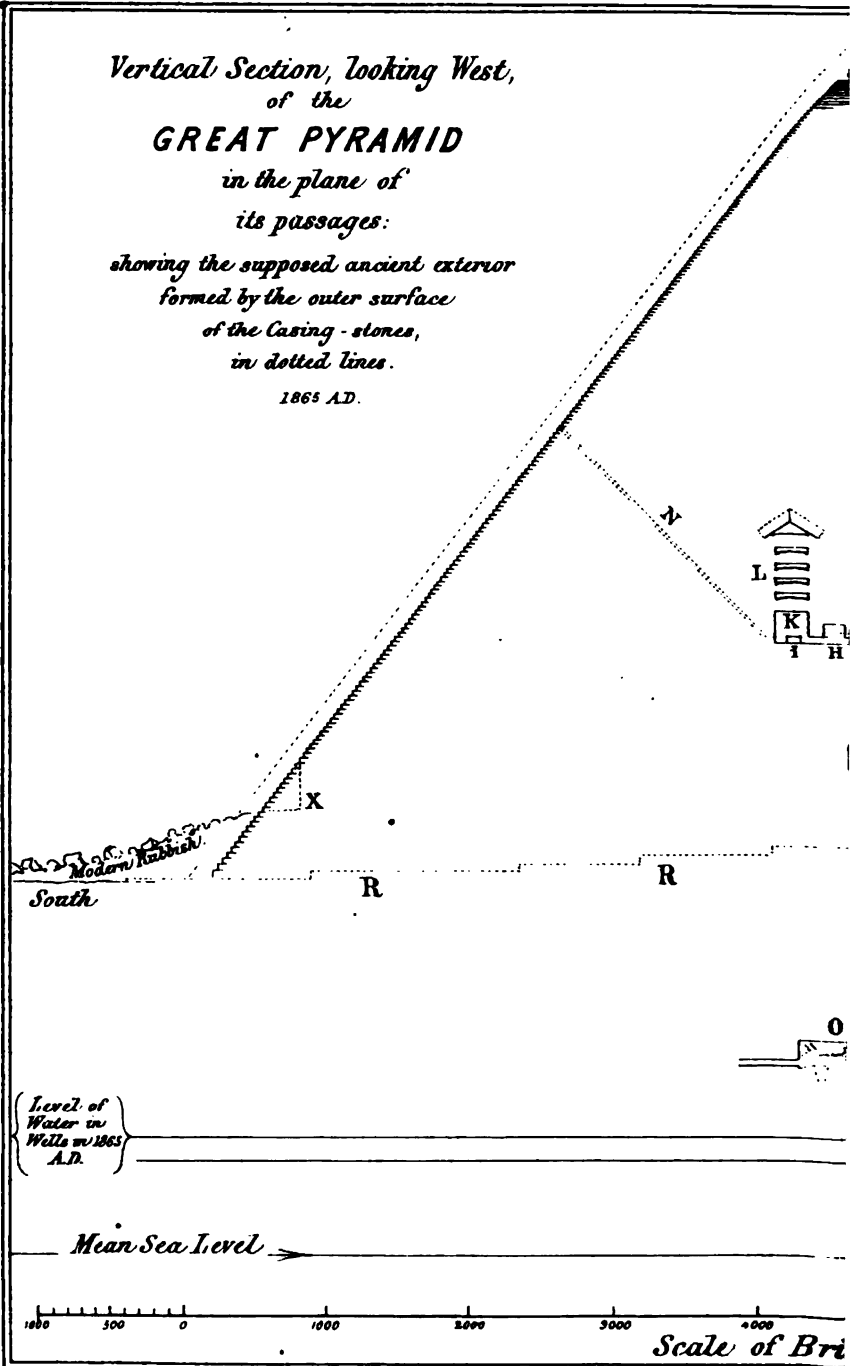


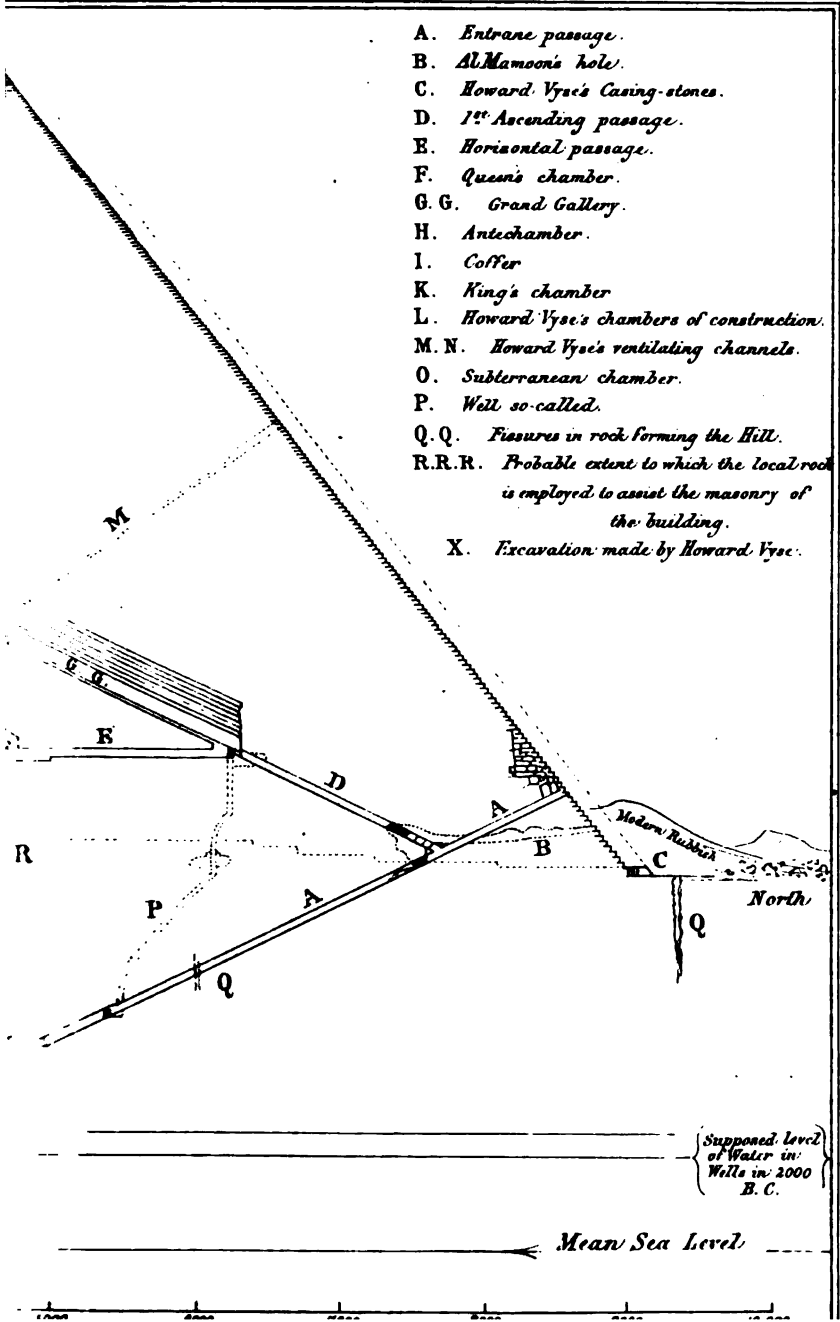


*Vertical Section, looking West,
of the
GREAT PYRAMID
in the plane of
its passages:*

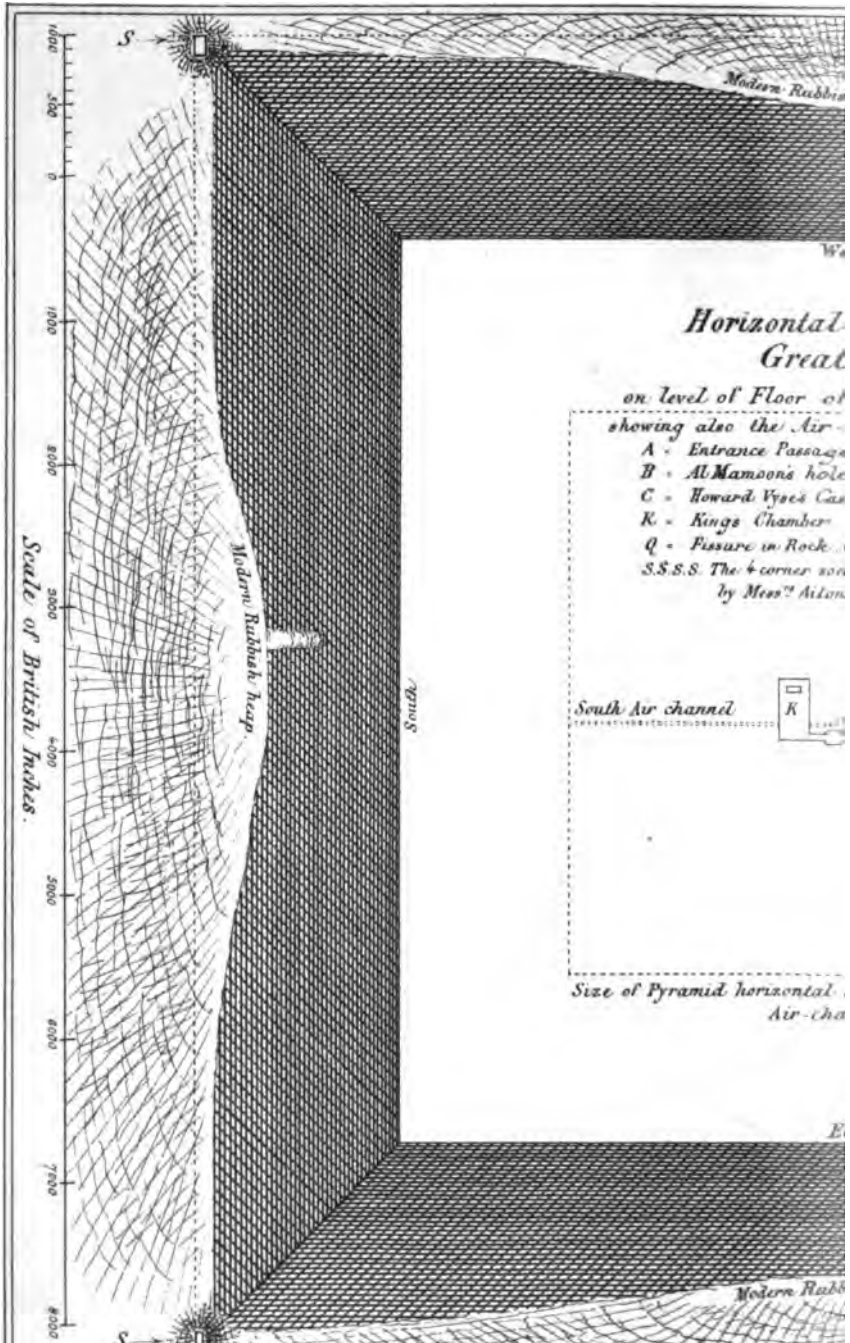
*showing the supposed ancient exterior
formed by the outer surface
of the casing-stones,
in dotted lines.*

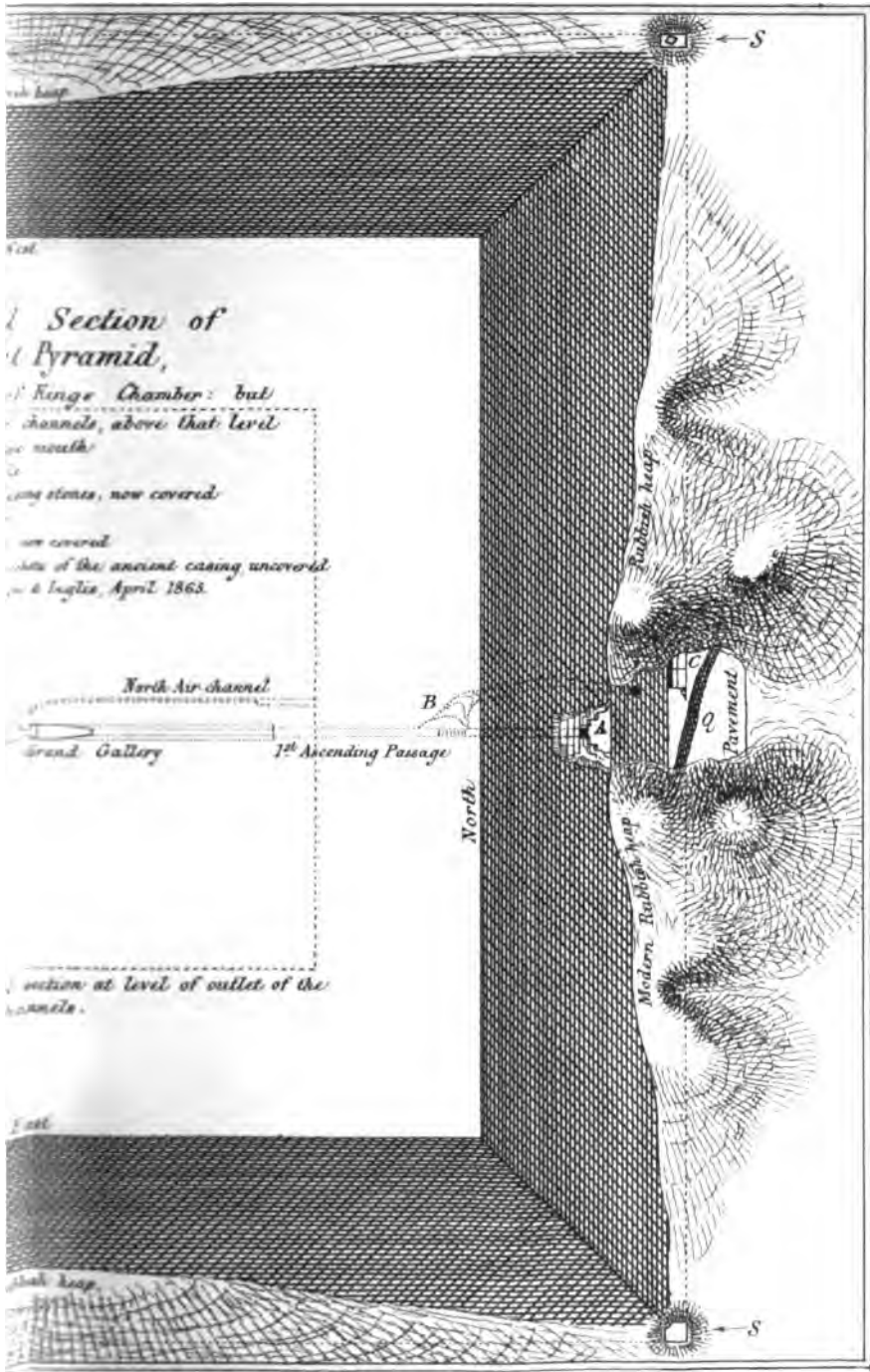
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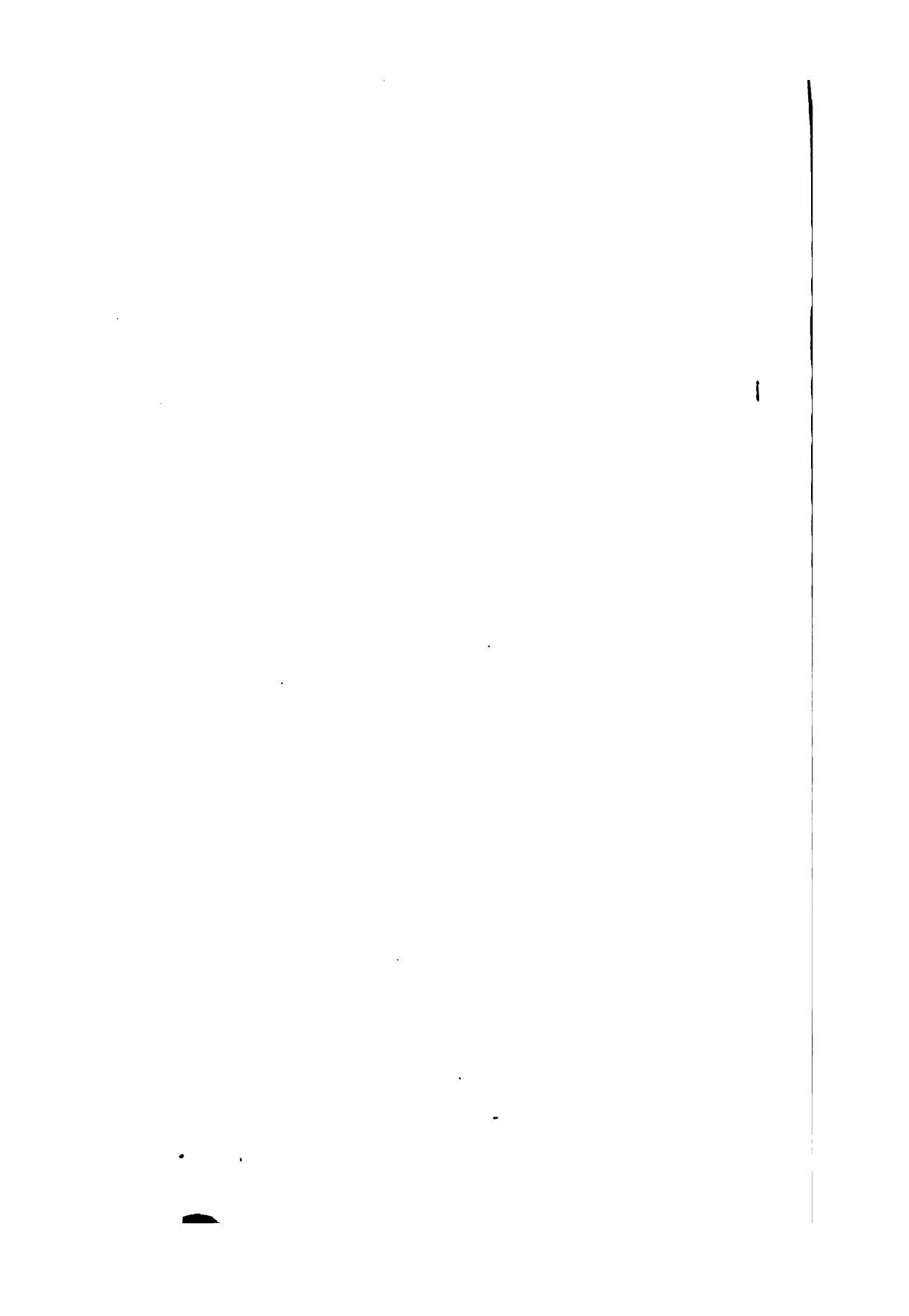












VOL. I.



JOURNAL

OF

PROCEEDINGS.

*'The Great, The Mighty God, The Lord of Hosts, is his
'name; great in counsel, and mighty in work:—which hast
'set signs and wonders in the land of Egypt, even unto this
'day.'*

JEREMIAH XXXII 18-20.

CHAPTER I.

APPLICATION TO HIS HIGHNESS THE VICEROY.

HAVING left Edinburgh in November 1864 for Egypt, impelled only by the hope of contributing, during the following winter and spring, towards new and improved measures of the Great Pyramid being obtained,—*our* course, for my wife always accompanied me, became pretty definite after we had once arrived in the metropolitan city of Cairo.

The local authorities were of necessity to be consulted, especially as centring in their honoured and powerful head, His Highness Ismael Basha, Viceroy of Egypt; for without his countenance nothing could be attempted in such a land, at all times rather uncertain near its desert boundaries, and now requiring a long-continued and undisturbed visitation at a critical point.

The British Consul, Mr. T. F. Reade, was accordingly called upon without delay, and happily found to be actuated, within the limits of his instructions, by all praiseworthy enthusiasm and cheerful alacrity to do whatever belonged to his official part. That part was indeed rather unfortunately confined to

merely procuring me the honour of a presentation to His Highness the Viceroy, and then leaving me to plead the case as best I might ; and see how far the ruler of all Egypt, freed from any approach to diplomatic pressure or consular advice, would voluntarily condescend in this instance of being applied to by a solitary and entire stranger, and for the cause of a peculiar branch, of a not yet very popular subject, of learned research.

Mr. Reade having, however, as a first step, suggested the advisability of a written memorial being prepared beforehand, I not only drew up at once something of the kind, for his private inspection, but during an enforced delay of several days caused by the non-arrival of certain boxes from Alexandria, endeavoured to obtain some assistance from local criticism, if not the benefit also of native counsel on a few of the special topics included.

Nor was this step by any means to be thought lightly of ; for Cairo, during many years the seat of the Egyptian Scientific and Literary Institute, has its own *savants*, its own history of their labours and successes, its own rules of philosophic faith, and above all, its own ideas of the Pyramids, the monuments of the monuments of Egypt. Highly important therefore to learn from those gentlemen whatever they could teach ; and in case of finding that they confirmed the recent Northern suspicion of there being still many sensible improvements that might be made in the exact mensuration of the

Great Pyramid,—would any of those experienced members of the old Egyptian Society, some of them Europeans by birth but now long naturalized in Egypt, be willing to join in, or of themselves to undertake, an immediate attempt to supply such defalcations of knowledge? and to what extent could the labour of such a work be divided, and the authority of its conclusions multiplied, by combining the efforts of different nationalities?

The many friendly conversations which were generated in discussing these questions with such few members of the late Institute as we could hear of or meet with in Cairo, proved highly interesting; for they showed that theories of the monuments, and sometimes of a most ingenious kind, were rife in Egyptian minds; that Egypt itself was looked on as having a superior right to settle many general scientific questions, by reason of the far greater length of time, measurable only by thousands of years, that written records of natural phenomena have been kept up in the cities of the valley of the Nile, than in those of any other civilized country whatever; and that much good investigation had been carried on during late years, by one person or another, even in the way sometimes of actual Pyramid measures, though they were to be met with as yet nowhere, except in the original manuscript.

But after giving full weight to every piece of information that could be brought up on this side,

the conferences also proved pretty plainly,—not only that large omissions in the metrical description of the Great Pyramid did really exist,—but that no one *savant* then in Egypt was believed to be either at liberty to undertake, or inclined to prosecute, the subject of supplying them during the coming season, in any manner or to any degree.

I should not then be interfering with the researches of any one else, or standing in any other man's light, if furnished with the Viceroy's permission to go out to the Pyramid and measure it in European fashion ; and that was something to be assured of in the present day of multitudinous prosecutions of similar branches of knowledge. So after a little further counsel with special friends, the memorial was finally drawn up with more polish, though in a shape not radically different from its first sketch ; and on December 21st, Mr. Consul Reade procured me the long-desired opportunity of presenting the paper to the Viceroy himself in his island Palace of Gezeereh, on the Nile, opposite to Boolak.

This facility of approach has long been a favourable characteristic of the rulers of Egypt. For, upwards of five hundred years ago, Sir John Maundeville, after stating that whoever will travel through this part of the country ' where the Sowdan of Cayr ' dwellethe comonly, he moste gete Grace of him ' and Leve to go more sikerly thorghe the landes,'—adds thereto—

‘ And also no straungere cometh before him (the
‘ Soudan of Cayr and Lord of 5 Kyngdomes), but
‘ that he makethe him sum promys and graunt, of
‘ that the straungere askethe resonabely, beso it be
‘ not agenst his lawe. And so dose othere Princes
‘ bezonden. For thei seyn, that no men schalle
‘ come before no Prynce, but that he be better, and
‘ schalle be more gladdere in departynge from his
‘ presence, than he was at the comynge before hym.’

In Sir John’s day of tumult and war, the Sultans were nearly confined to the Citadel, which yet frowns on Cairo, from the heights leading up to the Mokattam Hills; or, as the antique traveller expresses it :—

‘ There dwellethe the Soudan in a fayr Castelle,
‘ strong and gret, and wel sett upon a Roche. In
‘ that Castelle dwellen allewey, to kepe it and to
‘ serve the Sowdan, mo than 6000 Persones, that
‘ taken all here necessaries of the Sowdan’s Court.
‘ I oughte right wel to knowen it, for I dwelled
‘ with him as Souldyour in his Werres a gret while,
‘ agen the Bedoynes.’

But now, in times of peace and tranquillity, the chief of Egypt has descended from that warlike perch, and sought the amenities of modern life in a fertile island, and a palace near the level of the Nile.

Quite a new erection is this viceregal residence of Gezeereh, indeed hardly yet completed, and seeming to aim at the picturesqueness of a single-storeyed, cottage style of rural seclusion for one of the great

ones of the earth : surrounded by gardens, irrigated all day long by many water-wheels lifting up and pouring forth the muddy water of the Nile ; and abounding with evergreen shrubs and graceful date palms ; winding ponds with frequent bridges of white marble and gilded iron work, and with globes of ruby, silvered, and tinselled glass, putting, under a bright sun, all the tints of the flowers to shame. There were sufficient military and civil officers about to illustrate the character of the residence, but extreme quiet was the order of the day ; and on entering a half-dark room by an open French window from an ornamental terrace, we were at once face to face with the ruler of Egypt.

His Highness had been admirably punctual in preparing for the interview he had vouchsafed, and was blandly courteous as well as free from all display in his manner. He had already been made aware of the contents of the memorial, which he was now pleased to accept, together with a copy of two late works on the Pyramid ; and was well inclined to do something in the way of help towards more measures, of such parts of the Great Pyramid as were presently open, being secured. Not much though did he apparently like the prospect of himself undertaking any of those more important excavations and clearances which were alluded to in the second part of the memorial, and without which some of the most crucial measures of the building could not be obtained either by myself or any one else. But His

Highness had great trust in his officer in charge of the antiquities of Egypt, Mariette Bey, and into his department my application would go, with the understanding that *something* should and must be done.

At eight o'clock, accordingly, next morning, an officer from the palace arrived to conduct me to the Museum at Boolak, and there make the introduction to the said Mariette Bey. With him a long discussion ensued, and at its termination I was asked to write out my objects and requests once again, but somewhat in conformity to what I had now just heard of possibilities and practicabilities, as a memorandum for the Bey to take over to the palace and refer to in further consultation with the Viceroy.

I wrote out therefore something as follows :—

1st, A scheme of only moderate assistance to a small scientific party, but such as would be thankfully acknowledged, and consisting of the following items :—

A. Government leave to go out to the Pyramids of Jeezeh, and observe there for three or four months.

B. Loan of Government tents, and right to occupy any tombs that should be found suitable as a residence.

C. Protection for the time mentioned to person and property ; and

D. A general cleaning of the *interior* of the Great Pyramid, as a preliminary to accurate measures.

2d, A scheme of such far more important and larger assistance, as would inevitably give the first place beyond all compare, in the contemplated re-measurement, to the Viceroy ; and perhaps even cause his name to be remembered hereafter in the history of the Pyramid, in connexion with that of Khaliph Al-Mamoon who opened, and of Kings Shofu and Nu-Shofu who built, the mysterious structure.

This scheme to be composed as follows :—

A. In addition to the several items of scheme No. 1,—to uncover all four sides of the base of the Pyramid.

B. To remove altogether, or pierce a three-inch observing-hole straight through the centre of, the granite portcullis at the beginning of the first ascending passage.

C. To clear the two ventilating channels of the king's chamber ; and

D. To sink a shaft down to the water-level from the floor of the subterranean chamber.

The Bey rather shook his head at the probability of any of the last set of requirements being undertaken, but thought that all the former were very likely to be granted ; meanwhile he obligingly introduced me to the Museum, and a very creditable institution to the Government of Egypt and to himself it certainly is.

A Frenchman by birth, and with his fortune still to make, as with many and many another man who

has done precisely the right thing at the right time, or in other words achieved a great success by dint of his own native genius, M. Mariette came into Egypt in the train of the Duc de Luynes, a number of years ago, and as little more, we believe, than an assistant excavator. But his gift for the employment, both the practical field-work, and the far higher one of hieroglyphic interpretation, in connexion with the classical notices, developing itself,—he was not only able to stand alone when his patron had left the country, but to continue making some minor explorations productive of antiquities, until he was in a position to come out with the full desire of his heart.

He had been distressed, and deeply, at seeing the remnants of ancient Egypt for ages ill-treated by the natives of almost every country. For years and years no one from Europe had visited the time-honoured valley, but to see what and how many art-memorials he or they could carry away. Belzoni was a well-intending individual ; but we are inclined to doubt his advanced position in ethics, when he expresses contempt for the fellahs of Egypt, because, merely, they ceased to appropriate statues and columns on finding there was no actual gold inside them. He, Belzoni, flattered himself that he belonged to a higher civilisation ; for, knowing what golden prices the said sculptured remains would bring in the Parisian market, he carried them off in scores : or, he knew a reason for stealing, and stole

accordingly. European Governments also competed in theft with private individuals, until from the largest obelisks down to minute signet-rings the treasures of Egypt became scattered over the earth ; and the 'monumental land' itself seemed to be in danger of lapsing at last into the pre-monumental and entirely unliterary condition of either South Africa or Australia.

It was time, thought M. Mariette, that the pillagings of the ancient country should cease ; and by first displaying his own collection of antiquities in the form of a Public Museum, and then calling the attention of the authorities in a variety of ways to the case, he got them both to adopt his Museum as the nucleus of a national one for Egypt, and at once to stop by law the exportation of native antiquities to other countries. He himself too was appointed to look to the safety of all the monuments, and also to conduct any excavations which the real interests of science might demand ; in fact, to carry out his own system, in which the Museum formed a necessary part ; for thereto were carried all the very small articles discovered, and which, if left at the place of their discovery, might be easily stolen. Nothing, too, but such portable curiosities were ever taken there, and no destruction of any large monument has at any time been made, in order that the Museum might have specimens to exhibit.

'How different,' says M. Renan, who was in Egypt at the time of our visit, and has published his ideas

on Egyptian antiquities in the *Revue des Deux Mondes* for April 1865,—‘how different is all this ‘from the Egyptian Museum at Berlin; for while ‘that collection of the late Prussian king was formed ‘by carrying the saw and the hatchet among pre- ‘cious monuments, which, since the passage of M. ‘Lepsius, have offered nothing but the aspect of ‘destruction, the inappreciable Museum of Cairo ‘has never required the demolition of the least morsel of a building.’ It encloses, in fact, only loose, and in size minor subjects of antiquarian interest.

Entering, accordingly, the handsome and airy halls which the Government has recently built at Boolak, we see there chiefly the miniature work of the old Egyptians, and may well wonder almost as much at their peculiar artistic excellences therein, as we are ordinarily disposed to do on witnessing their triumphs in the colossal. The late Augustan Viceroy, the gorgeous-minded Said Basha, of whom every one seems to have a good word to say, was so well pleased with the early results of the new institution, as to appoint M. Mariette to the dignity of ‘Bey,’ equivalent to a baron of the turbulent Mameluke times, and gave him further powers, fully confirmed by the present Viceroy, both for protection and investigation in every part of his dominions.

Large excavations are therefore continually going on, in several divisions of the country at once, but all under M. Mariette’s direction; and even his

enemies confess his genius 'in that he never put 'pickaxe into the ground without finding some-thing;' occasionally, too, he alights on remains perfectly priceless for their literary worth, though the unlettered public may not think so; for the Bey seeks chiefly such 'inscribed' stones as may enable the blanks of old Egyptian history to be gradually filled.


Of his success in this praiseworthy object, a most glowing encomium has been recently published in the Report to the Minister of Public Instruction in France, by M. le Vicomte E. de Rougé, a name long respected as amongst the foremost in Egyptology, descriptive of his mission to Egypt in 1863-4. The mission consisted of a notable party; and 'during six months we have copied,' says their learned chief, alluding to Egyptian inscriptions, 'we have copied, copied, copied without resting; we have brought home six volumes of hand-copied inscriptions, and 220 photographs, and yet far more remain;' so immense was the amount of inscribed stones to which he was introduced by his countryman, Mariette Bey. The most precious of these inscriptions belonged to the earliest division of Egyptian history; and M. de Rougé mentions a certain 'tablet of Memphis,' discovered by Mariette, and which is to be to the kings of the third and fourth dynasties of Lower Egypt, what the celebrated tablet of Abydos has long been to the later dynasties of the Upper country.

But the crowning prize of all, was the discovery

of works of sculpture by the fourth dynasty ; their architecture was already known in the Pyramids, and their flat-work in the tombs, but their performance in the round had never been witnessed before, and is the oldest in all the world.

What then was this most ancient example of sculpture belonging to man like, equal to, or reminding one of ?

When Mariette Bey shows you the chief piece of it, you stand almost appalled before the presence it conveys. It is the life-sized portrait of a king who built one of the Pyramids, seated in the calmness of majesty and the isolation of rank, gazing honestly straightforward, and on high thoughts intent, into space. There is neither the total nudity of Greek sculpture, nor the encumbering frippery of modern royalty ; but the man is there, slightly more muscular in the arms than the Apollo Belvedere, though not less justly proportioned or exquisitely rendered ; yet still, his *forte* is thought and administration rather than manual labour, and his manner that of one who can afford to bide his time, and expects with solid reason to see all things eventually combine for good. The eye is large and peaceful, the lips are rather fine as well as precise, the nose straight and thin, but not so much in the Grecian as the Anglo-Saxon manner ; and almost the only decoration is the quasi-heraldic supporter of a hawk developed out of, rather than exactly standing on, the summit of the back of the rocky seat, and folding its



wings with benign protective influence towards the monarch's respected head.

And in what material is this relic of the primal age of the civilized world? At first, you might be inclined to say, a greenish-grey black-veined marble. But had that been strictly the case, the men of the fourth dynasty would scarcely have had strenuous successors in another age equal to working in the basalt of Philœ, the granite of Syene, or the hardened porphyry of Gebel Dokkan. Marble was, in truth, effeminate stuff to the authors of the work before us, and they had rather sought out for themselves one of the hardest varieties of the proverbially hard trap rocks, 'Diorite.' This substance looks certainly at a distance not unlike such marble as described above, and is capable of taking even a higher polish; but by what means? for the diorite will cut like a file into the materials which modern sculptors usually think hard enough, if not overhard, to work in.

Called 'Chephren'¹ by some, and 'Rekof'² by others; but as we may be able to show by and by, much rather to be termed 'Shafre;' yet generally acknowledged both to have been of the fourth dynasty,³ and to have had a share in the Pyramid building at Jeezeh,—this king's statue has been recently copied in plaster moulds, so that repro-

¹ Baron Bunsen's *Egypt's Place in Universal History*, vol. iv. p. 657; and M. Renan, *Revue des Deux Mondes*, for April 1865, p. 675.

² Hoskin's *Winter in Upper and Lower Egypt*. 1864.

³ William Osburn, in his *Monumental History of Egypt*, says the fifth dynasty, but reigning contemporaneously with the fourth.

ductions of full size are obtainable at the Museum. Now, therefore, would seem to be the time for all those countries of Europe who have hitherto been revelling in the spoiling of Egypt ; and who, whether in their Governments, or their wealth-endowed individuals, have been flattering their hearts, or quieting their consciences for so long, that, in tearing down, or breaking off pieces, and carrying away Egyptian 'antiques,' they were saving those remarkable treasures from destruction by the ignorant natives,—let them now, acknowledging the conservative Museum of Boolak, with the new system to which it belongs,—let them send back the choicest specimens of their former dilettante plunder to the country such things should never have left, and receive in return a copy of the earliest statue in the world, the most solemn and monarch-like figure that has ever yet been produced in stone.

CHAPTER II.

WAITING IN CAIRO.

RATHER anxiously passed on the time from day to day after that conference in the Museum of Boolak ; for as yet no promised letter came, and no sign was given. Both my wife and self were desirous to be ready to start, the instant that the Government permit arrived ; but on what scale, style, or footing was it to be ? That must depend entirely on the manner in which His Highness the Viceroy should finally respond to the application.

We had, indeed, already brought out in the steamer from England, twenty-seven boxes of various sizes ; but they were almost entirely occupied with scientific instruments intended for Pyramid mensuration ; to be, in so far, my professional contribution, if any joint-stock scheme of working should be matured. 'Most extremely inconvenient,' had the mate of the said vessel remarked to us, 'would *he* think it, to travel about the world even with half that quantity of packages ;' but we had the whole ; and everything connected with living was still to be added. With no sparing hand too,

it soon appeared, must these additions be made ; for to set up house in the desert for any long continued period, according to Egyptian ideas of what was right, most compellingly required almost interminable *etceteras* to complete our European outfit ; and each article was purchasable only at a more extravagant rate than another, because, forsooth, Cairo in the winter of 1864, was in the height of what they called a 'cotton fever.'

This peculiar social malady, of which we had heard nothing in England, was positively raging on our arrival in the Valley of the Nile. American cotton having been withheld by the then four years' war, Europe demanded supplies from all the rest of the world, and at almost fabulous prices ; whereupon, obedient to the call, both Upper and Lower Egypt were instantly turned into a cotton-garden, and with such terribly complete effect, that on a sudden there arose a cry, in a land that had hitherto fed others, that its people were starving for want of bread. Their cotton was certainly fetching extravagant premiums, but railway, and river, and roads, were insufficient to convey it quickly enough to market, or to carry back plain food to the agriculturists. Money was flowing into Egypt at a rate never heard of before, but rather with the effect of encouraging the wildest speculations, running up the price of all necessities to the poor and needy, and unhinging the relations of different classes of society, than producing any solid improvement to the community.

'Egypt,' said a native to us, 'is now like an inflamed arm; there is plenty of blood in it, but it is not flowing in constitutional channels, and the arm is therefore not strong.'

Already had this state of things metamorphosed the Nile travelling for this year; seeing that against one hundred tourists' boats that had started for Upper Egypt in 1861, only twelve were known to have set forth in 1864; for it is not every traveller who can afford £500 or more for three months' boating; nor is it agreeable to know you are actually throwing your money away, by purchasing in such an exceptional region; and where every trading man seems bent on raising each day the prices of his goods or services, and cheating the newly-arrived Franks, of all people, at every turn and every step.

Deeper gloom, however, than this was further overshadowing the country; for though a glut of wealth in some quarters had come to pass by dint of cotton and American war combined, the harvest had been a bad one. This arose from the inundation having been scanty; it was the second year too of insufficient Nile flood, and 'after a bad Nile, then comes the plague in the following spring,' is the maxim there. Plague indeed to man had not yet occurred, but it had broken out grievously upon the cattle; and in the summer of 1864 almost all the horned animals perished. Hence the real working agriculturists were in consternation; for how could they turn their sakiyehs or water-wheels without oxen? and without the continued supply of irriga-

tion furnished thereby, how could any crops be raised in a rainless land, under a ceaseless daily scorching sun? Was the cattle visitation too to be followed by something similar to man? Many appeared to expect it, and their expectation was most fully confirmed, as the thousands struck down by cholera in the May and June of 1865 sufficiently attested soon after; but meanwhile the ruling principle was too generally 'eat and drink now, and make money with maddened ecstasy.'

Though living ourselves as economically as possible, it was quite horrifying to see the pile of useful gold that we had to pay at the end of every week for mere hotel accommodation, without the measurement of the Great Pyramid being thereby promoted in any degree. Worse still, in those times of waiting and weariness of soul, my wife fell ill of the city fever; and the wonder is, looking at the stagnant marsh that lies evenly spread just under the festering, dead-flat, blackened soil of Cairo, and the bringing up of its unwholesome waters again and again to the surface by the numerous public water-wheels to serve for damping the slime-covered streets and supplying the inhabitants, the marvel is that every one therein is not always laid up with the worst of fevers. You see, too, round about the city's suburbs, earth's and heaven's fair horizon mostly cut off from view by huge artificial hills of hardened excrement, the immense scavenger accumulations, through rainless centuries, of drainless streets without any inclination; and yet

M. Vansleb, writing, alas! before European attention had been awakened to the virtue of sanitary arrangements, could fervently ejaculate of Cairo, 'This great and illustrious city, she is situated on ' a plain the most *delicious* in the world.'

Of Cairo and its narrow streets, gaudily dressed population, and crowded bazaars, a thousand and one English tourists, following the lead of the eminent Mr. Lane, have written abundance and superabundance praisingly. To an artistic eye, and to a rich man having nothing to do beyond going forth, like the Khaliph Haroun Al Rasheed, to see what street adventures should befall him, or what might happen out of which occupation could be extracted for hours hanging heavy on their owners' hands, things may appear thus enchanting and commendable. But the plain-spoken Signor Belzoni was nearer the ordinary British mark in thinking 'the ' multitude of tedious manners, luxurious customs, ' and inaptitude for direct business, but proficiency ' in dissembling,' rather a nuisance to a man of moderate means, and with a definite task to accomplish within a limited time. From a similar point of view, too, Dr. Clarke was inclined to question the truth of the epithets of those who had styled Cairo the 'Wonder of the World,' the 'Delight of the Imagination,' the 'Great among the Great,' the 'Holy City,' the 'Victorious;' and to agree with Bruce, who declared that he had 'never seen a ' place he liked worse, nor one which afforded less

'pleasure or instruction, nor antiquities which less answered their description;' and he added thereto of his own experiences much touching what he called the 'innumerable abominations of the dirtiest city in the whole world.'

From the window of a sick-room, overrun with flies by day and mosquitoes by night, even in mid-winter, the prospects were not likely to be encouraging. At night certainly there was a short calm, and the stars beamed down over the silent city in their own pure beauty; but long, long before day, began both the noise and the stir; first the cats, then the dogs awakened by the cats, then the pigs (our hotel was in the Uzbekésh, adjoining the Copts' quarter) awakened by the dogs; then the pigs awoke the geese, and the geese the turkeys, and the turkeys the cocks and hens; then came choruses of several or all, sometimes in succession, sometimes in simultaneous rivalry.

By this time, the ruddy glow of morning began to appear, reflected only upon a few thin, horse-hair-like, cirrus clouds near the eastern horizon. There are never, as a rule, any more bulky water-carriers of the sky in this rainless land; for its atmosphere is clean deprived of all the visible agents and misty scenery that belong to the lower current of the atmosphere; and even those fainter cloud-forms of the upper stratum, undergo some further thinning and evaporation still in passing, high as they do, above the dried-up desert plains on either

side of Egypt,—a land whereof the ‘Knyht of Saynt ‘Abone’ remarked so truly, ‘Egipt is a long contree, ‘but it is streyt, that is to saye, narowe; for thei ‘may not enlargen it toward the Desert, for defaute ‘of Watre. For there it reyneth not but litylle in ‘that contree; and for that cause they have no ‘watre, but yif it be of that flood of their ryvere. ‘And for als moche as it ne reynethe not in that ‘contree, but the eyr is alway pure and cleer (dust ‘excepted), therefore in that contree ben the gode ‘astronomyeres, for thei fynde there no cloudes to ‘letten them.’ But to return to our dry Cairo day-dawn, let us note, as next in order, the yellow and stronger light in the East, and that then the disk of the sun itself comes up like a ball of liquid fire; glaring, as it beams through the dusty atmosphere and shoots its long luminous arrows both athwart picturesque minarets, ragged with the flag-staves and lamp-holders in this lazy land, of some last year’s illumination, and amongst ‘mulqufs’ of tumble-down houses,—the ‘mulqufs,’ those ancient, Coptic, garret-like, angular wind-sails, all turned towards, but not succeeding now in catching, the ‘life-giving Etesian winds.’¹ Here and there indeed is seen a smart-looking, Maltese-painted, new house; but then come acres of ruins, or ruin-

¹ The ancient mulqufs were double, and the two openings turned in opposite directions, which would tend much to establish a circulation of air throughout the house, such air entering at one aperture and leaving by the other; but the modern mulqufs seem to be all single, with their openings turned to the N. or N.W.

looking structures, little better than shapeless heaps of sun-dried mud-bricks ; while a tall, graceful, date-palm waves, lamenting over the decay ; and, as a mourner, is covered from head to foot with clay dust. But so are all other objects around ; for none of them can partake, in this most earthy land fed by irrigation alone, of the rain of the waters of heaven to wash them clean.

Such roofs too, as the existing and inhabited houses generally had, viz., piles of old rubbish heaped upon them at top ! for anything will do in a climate without rain. And there, on those roofs, are the cats of every house, muscular and most sculpturesque models of cats, sprawling in lion-like attitudes through the livelong sun-baked day, and intently occupied in merely regarding each other. With the early noon too comes on the rolling of *grandees* in their open carriages through the square of dust-covered sycamore and acacia trees, the prancing of others on horses, and scuffling through of others still on adorned donkeys ; all 'cotton, cotton,' as a half-pay Bey, in a seedy coat, remarked wofully to us. But then the more distressful picture that always went to our hearts, of the little girls of Cairo as they ran after all the animals ; those poor little girls supposed to be without any souls worthy of the name of souls, but with their long tails of platted hair and gauzy blue drapery flying behind them in the wind, as they vied with each other,—in an emulation certainly worthy of a better cause and quite superior to what-

ever is usually understood as that idle thing, 'le 'vrai génie Egyptien,'—in seeing who, even at the peril of diving in between the very hind-feet of a colossal camel, shall first pick up its hideous droppings, and pat them into nicely-shaped cakes with her braceleted fairy hands, and then deposit them in the flat reed-basket she carries so deftly balanced on her head ; until she, the tender little girl, can triumphantly carry the morning's collection home to some haggard old being, who utilizes a stray corner in the ruined streets, by carrying on there in the sun, too truly a *manufacture* of such high-scented ammonia-fuel, as a supply for all the cooks of this gorgeous, illustrious, and resplendent city, the great 'Masr-el-Kahireh,' or 'the Victorious Masr.'

Yet was the period of sickness enriched to us by making the acquaintance of the Chaplain to the consulate, and his family. He had only recently arrived from England, an invalid from overwork in his parish there, but must needs begin immediately to do something in his new neighbourhood, in order to be of the workmen rather than of the idlers in Egypt also ; well seconded too by the ladies of his family, whose extreme kindness and sympathy did almost as much in restoring my wife, as the prescriptions of the very clever Scottish doctor whose assistance was called in.

'In Cairo,' said Bruce, ninety-eight years ago, 'nothing can be concealed. All nations, Jews, Turks,

‘ Moors, Copts, and Franks, are all constantly on the ‘ inquiry, as much after things that concern other ‘ people’s business as their own ;’ and it is very nearly the same still, whence it arrived that my having made an official application about Pyramid measurements to the Viceroy, came to be known and to travel. Some persons were sure that there must be great diplomatic influence working in secret, to result presently in a magnificent expedition being organized ; in which, too, they might possibly find a well-paid post for themselves ; not with any of the dull labour of looking after the thousands of workmen who would be employed, or of being accountable for ropes, and picks, and ladders, and other materials of excavation works,—but a sort of social science overseership, with mounted cavasses perpetually galloping about to carry orders to make every one else work, long ranges of viceregal tents wherein to receive visitors to public feasting, and absolute power over the peasants far and near.

But as Dr. Clarke long since most truly remarked of Cairo, and even anything or everything in Egypt, ‘ it has always been the subject of *amplification*, from the earliest periods of its history ;’ nor did we think the description less true, when on another day an acquaintance rushed in upon us and proclaimed, ‘ All Alexandria is in an uproar, and an uproar ‘ about you and your unwarrantable and tyrannical ‘ application to the Viceroy ; they say you want to ‘ stop all visitors from seeing the Pyramid, and they

‘ won’t hear of it. They report too that the Viceroy
‘ told you in answer, that he could not think, as a
‘ just ruler having the good of his people at heart,
‘ of standing between the poor Arabs and the
‘ presents they were in the habit of receiving from
‘ visitors to the Pyramid ; and you were dumb-
‘ founded, they say, at the virtuous rebuke ; and
‘ there has not been such a pitch of indignation in
‘ the maritime city for years.’

Well, thought we, if that is true, it shows that the population of Alexandria are still of the same nature as of old, when they had their great insurrection, because a Roman soldier killed a cat ; a people always ready to be fanned up into a ferocious tumult, and on account of nothing, or next to nothing. How truly wrote the Emperor Adrian to the Consul Servian : ‘ I am convinced, my friend Servian, that of
‘ all the inhabitants of Egypt, the Alexandrians
‘ are the most trifling, wavering, changing at every
‘ change of public rumour, inclined to sedition, vain
‘ and insolent. But I wish them no other curse
‘ than that they may be fed with their own chickens,
‘ which are hatched in a way I am ashamed to relate.’

So I went on quietly as before with the only scientific question there had been a possibility of commencing in Cairo, at all bearing on any of the matters to be looked into afterwards at the Pyramid ; viz., the mean temperature of the soil. The numerous wells in and about the city, delivering up water from a depth of from 300 to 400 inches in a constant

stream by the sakiyehs, seemed to offer a favourable opportunity for this sort of observation, and evidently enabled the subject to be treated at once very closely ; for while in the winter months of December and January, with air varying from 45° to 65° Fahrenheit, the waters of the Nile were found to be 58.3° and 58.9° ; those of the wells were all between 66° and 71° . Evidently the great heat-wave of the previous summer was settling slowly down into the earth at its average rate all the world over, of about 360 inches of ordinary soil in six months ; and its maximum point, blunted no doubt by all the badly conducting substance it had passed through, was to be found just then very near the level of the great stratum of quiescent water which all these wells were drawing upon. Yet there were minute differences in the temperature of different wells, not very easy to explain ; and one of them, the ' White Well,' on the road to Boolak, was always warmer than any other by two, three, or more degrees, though seldom a degree different from its own temperature ; so that, at the early morning hours, or as soon as the many religious ablutionists had one after the other given the wheel two or three turns, lifted up a few buckets full of water, and performed their day-dawn orisons to the east and departed, allowing me then to move up with my apparatus before the bullocks arrived for the regular service of the day,—there was actually a difference in temperature of more than 22° between the air and the water ; and a great crowd

of the faithful would presently gather close about, to see the temperature of many successive glasses of water tried ; and to admire the nimbleness of the mercury in rushing up on each occasion through a large part of its scale.

Those wheel-worked water wells have a further feature of interest ; for they appear to be the sole means by which large parts of the plain country east and north-east of Cairo,—formed, no doubt, of the mud of the Nile, but, as we were told, never now reached by the inundation,—can be cultivated. Except, indeed, the surface is artificially irrigated, it becomes, not only in summer, but all the rainless sun-shiny year through, as dry and desolate as a brick ; yet irrigate it artificially by raising up the water from some 300 to 400 inches in depth, where the supply is nearly inexhaustible, and the whole plain may become a garden of herbs, even such as Moses described Israelitish Egypt to be.

Now there is at present,¹ and indeed has long been, much earnest discussion going on in literary circles as to the position of the Goshen of Scripture. The general idea first arrived at, is to place it eastward, or north-eastward of Egypt ; but that leads to such barren lands, that many have followed the views of Bryant, who placed it in the Delta, near its southern termination. Yet there are many objections producible to that hypothesis, which would not apply to a position skirting the outside of the

¹ *Athenaeum*, October 7, 1865, p. 269.

Delta in the eastern direction on the same parallel of latitude,—if only it could be shown that the normal fertility of Egypt might be secured there, in addition to the free run of the neighbouring desert-hills and plains.

But it was precisely at the southern beginning of this probable site of the Goshen of Jacob and his sons (for it was more extensive afterwards), that we saw much ground rendered habitable and useful to man solely by the water-wheel wells ; or rather by the work performed there ; for the first and total cost of the home-made machinery in each case seems very trifling indeed, while the labour is, on the contrary, so difficult to supply, more especially since the recent murrain amongst the cattle, that many wells are already falling into disuse and decay, to the decrease immediately of the cultivated area. Given therefore a people with a superabundance of cattle in this particular region, and there is no doubt its garden produce would increase immensely ; and such a cattle-possessing people the Israelites of the captivity pre-eminently were.

Those speculations were presently cut short by a most timely letter from Mariette Bey, informing that the Viceroy had been pleased to appoint His Excellency Zeki Bey, Master of the Ceremonies, to arrange our affair, as I should duly hear on calling at the Palace of Gezeereh. There accordingly they detailed to me, next day, that all the items in scheme

No. 1 were graciously allowed by the Viceroy ; with the very liberal addition of the following,—1st, Conveyance for the whole party from the east bank of the Nile to the Pyramids, and back again after the work should be completed ; and 2d, Peremptory orders to the nearest villagers to furnish us with supplies of food at the usual market prices, during the entire period of our stay,—a piece of thoughtful care which we found in the end to be highly required in the country districts of Egypt. The polite officials further gave me two Arabic letters, one to the Commandant of the Citadel for tents, and the other to the Governor of Jeezeh, who was to be responsible for our transit to the Pyramid.

The last letter on being delivered, with some kind assistance from the Consul, disclosed a very courteous Turkish official, but brought to light a peculiar Egyptian traveller's difficulty. The reserve inundation water, long expected from the upper country, had just at that very instant come down and drowned all the land in the direct route to the Pyramids. This was not the inundation of the Nile—which had been over nearly three months before,—but was a certain half intended, half accelerated irrigation accident ; and the Governor of Jeezeh was momentarily receiving in his little Court of Justice excited messages from one village or another, telling of the arrival of the destroying flood, and describing the depth of the waters around them. He promised, however, to send out his own people to make special

inquiries and fordings in the line of the Pyramid road, and let us know in a few days how soon he could undertake to conduct us along it.

Now, therefore, the domestic preparations were pushed on rapidly ; and my wife, nearly recovered from her illness, and assisted by a bright-eyed, young English married lady, resident in Cairo, and accompanied by our two servants, an Abyssinian, and an Arab-Copt convert (both recently engaged by the kind advice of a very obliging member of the American Mission), perambulated the bazaars and wider streets to purchase the furniture, cooking-apparatus, provisions, water-jars, and all other *impedimenta* that were deemed essential to Egyptian life. Scarcely, too, was all this completed, when, on January 3d, we received notice that, on the following Saturday, the 7th of the month, the Governor of Jeezeh would be ready to perform his part of piloting us through the overflowed land, if we would repair with bag and baggage to the ferry of Old Cairo,¹ at an early hour of the forenoon.

This was indeed delightful, and we sent immediately for the two servants, Hanna Intana, the

¹ Old Cairo, Fostat, or Masr El Ateekak, lies, like Boolak, on the east or nearer bank of the Nile, but about three miles farther up the stream, and in the neighbourhood of the ancient city of Babylon of Egypt, concerning which Sir John Maundeville thus discourses :—
' And undirstonde zee, that that Babyloyne I have spoken offe, where
' that the Sowdan dwelleth, is not that gret Babyloyne, where the
' dyversitee of langages was first made for vengeance, by the Myracle
' of God, when the Grete Tour of Babel was begonnen to ben made ;
' but wyte thee wel this Babyloyne of Egipt, near the Cytee of Cayr,
' sytt upen the Ryvere of Gyson, somtyme clept Nyle.'

Abyssinian, and Wahabee Michael, the Arab Christian, and let them know when the real work was to begin,—their pay had been going on for three weeks, and their *baksheeshes* had been many, both on account of Christmas Day and New-Year's Day (when they had knocked at our door before sunrise, to remind us that they were in the new year, as much as in the old, our devoted slaves, ready for whatever was to occur at the Pyramid), and in compliment to some of their native holidays besides. But now, on receiving the stirring information, they were confused, talked seditiously to each other, and then wanted to know if I could not write to the Governor of Jeezeh to delay starting until Monday morning.

Why ?

'Because Friday was the Copt's Christmas Day ;
'and they would be so worn out with the festivities
'that they would be quite unfit for travelling next
'morning to the Pyramids.'

Yet neither of them was of Coptic faith ; and while the tall, thin, high-cheeked, consumptive-looking, though coal-black Abyssinian was only inclined either to give very general reasons or to explode into anger if questioned why he brought up another Christmas, after having accepted the holiday and *baksheesh* of the Frank anniversary, —his shorter, brown-visaged, hatchet-faced, hook-nosed companion at once declared that, although he and all his family had long been converted to the evangelical Presbyterianism of the American Church,

his grandmother was a Copt ; and, in honour of her, it was perfectly necessary for him to keep the Coptic idea of the day without omitting any of its honours, and without regard to any other Christmas Days he might, or might not, find it expedient to keep.

After a laboured discussion of their fancied difficulties, these geniuses were at length brought apparently to see that the date for starting, fixed, after so many preliminaries, by the Egyptian Government, was not to be lightly altered ; and that the sun really rose at so very moderate an hour at this mid-winter season of the year, that there was no valid and sober reason why they should not be perfectly ready for work by the late daylight on Saturday morning, let Friday be whatever religious anniversary it might. So at last, with that day secured to them as a whole holiday, and final instructions given on Thursday afternoon, as to their going down very early to Boolak on Saturday to gather up certain water-filters, sacks of charcoal, and crates of fowls,—which they themselves had asked to be allowed to purchase there, because they could be had there so much cheaper than in Cairo, and were necessary to give the last finish to the completeness of Mrs. Piazzi's arrangements for the desert-home,—we dismissed them with good wishes for their second Christmas Day in the season, and congratulations on being engaged in a scientific Pyramid measurement which the Government of their own country had condescended to approve of and promote.

Late on Friday evening, visitors called,—the head of the American mission, and two brother missionaries, one from Alexandria, and the other from Syria. They kindly mentioned much of their professional objects, labours, disappointments and successes ; also of the general spirit of inquiry that is springing up in Muslim minds to test the truth of their book ; and of the inevitable though secret removal from this world of any young man of rank, should new-light manifestations on his part become known to the authorities that be,—authorities evidently wise as serpents to nip in the bud all attempts at free examination there. But the worthy chief has come to us bent on other objects too ; for, though learned, literary, and fully employed, he can think for others even in the common affairs of life as well ; and in the course of the day he had met our Abyssinian and Arab, and had not liked either their looks or their answers ; in fact, he suspected they were going to desert their engagement to us when the morning came, though he could not get them explicitly to declare themselves then. But he had come down at this late hour of the evening to our hotel to forewarn us of what *might* happen, and to say that with the earliest daylight he would proceed to look out for any other servants who were to be had, if in any degree suitable and willing to enter on life at the Pyramid.

We were of course exceedingly obliged, though as much astonished ; for the Arab had taken to such

airs of importance over his fellows on the strength of being engaged for the Pyramid expedition ; and the Abyssinian cook, thinking as much of himself as if he had been of the Emperor Theodore's own establishment, had been allowed to lay in amongst other stores, every possible luxury he could think of for himself after the manner of his nation and to his own taste,—until some of the packages reeked again with garlic, and lard, and African maccaroni ; and both the men had professed such personal attachment to us ! The ungrateful traitors ! we thought. ' Ah ! ' but then suggested the philanthropic Christian missionary, ' do remember how the morals of ' the country, especially of the lower orders, are ' strained by the sudden accession of these Californian times of unbounded wealth arising from the ' cotton mania. Such extravagant prices are given ' now in all the merchants' offices for assistants of ' almost any kind, if they can but speak a little of ' any European language, that few will remain in ' any ordinary service.' The actual circumstances, he assured us, would turn and spoil any human nature, more especially ' Arab human nature, which ' is so gentle, simple, touching, and easily deceived.' And therewith, after certainly saying all that could be advanced for that side of the question, he left us for the night, with the further parting, earnest request, that we would not judge generally of all Arabs by what we should see of the Pyramid Arabs ; for they were wild, cunning, vindictive, and lawless to a

degree, as all travellers were continually complaining to their several consuls. But those Pyramid men were an utter exception, he argued, in the whole of Egypt, and not really to be thought of as Arabs at all.

Morning broke on January 7th, 1865, bright, dusty, and rainless, as usual with a winter Cairene day, but no servants came. I went over to the Merchant Company's stores hard by, and had all our collected stock of goods there packed on waggons, whereon room was still left for the additions to come up from Boolak ; but yet these traps did not make their appearance, nor the servants either. I had previously applied, on the strength of both English and Scottish letters of introduction, to the said Company—who are the recent successors in a ' Limited ' concern to a firm of great and deserved good fame in the history of the modern commercial development of Egypt,—that they should send down one of their clerks, or any one who could speak either English or French as well as Arabic, to accompany the waggons to the river bank, where the Governor of Jeezeh's men were expected to be found awaiting them. But one of the Directors, a portly man, with something of an Indian complexion, answered magniloquently ' that they really ' could not do anything of the kind ; their business ' was so extensive, so rapidly increasing, and so ' lucrative, that they could not afford me the assist- ' ance or spare the time of any one on the establish- ' ment, either clerk or porter, to accompany the

‘goods even to the distance of only a couple of miles ; and the keeping of them in their stores for the last three weeks had been extremely inconvenient to the Company ; for the room occupied, would have been much more profitably employed in holding cotton, of which they had vast quantities, and were daily making immense gain.’

These merchant princes, nay far more than merchant princes, had also been recommended to our bankers ; and, after notable percentages charged, were ready to advance what money was required, but only in gold ; for ‘they did not deal in silver money,’ they said, pure and simple, when asked for small change suitable to country villagea. But by an act of private grace the Secretary had this morning procured a bag of Austrian silver dollars, great pancakes of things dedicated to Maria Theresa ; and with this very important help from our agents, I returned to the hotel once again.

There, behold a janissary, obligingly sent from the Consulate by Mr. Reade. We could not converse with him certainly, but he knew something of the work to be done ; and when at a late hour the Arab servant, almost driven over by the American missionary, did come, but only to announce, with a sulky air and a savage tone, that he had taken another service,—that the Abyssinian had got the ophthalmia, and he did not know what he had done with the money for the contribution from Boolak,—Janissary Osman, though lame of one foot by a

recent fall, walked Mr. Wahabee over to the 'Chancellerie' of the Consulate to finish his explanations there. We then mounted our donkeys, following the waggons loaded with whatever they had, down to the prescribed rendezvous at Masr-el-Ateekeh ; and not having a single person in the party with whom we could exchange an intelligible word, or consult on what we should do on arriving that night at the Pyramids, deprived of some of the first requirements of life.

It really called for courage in a lady to set forth on such a journey ; but the spirit of her who was here concerned rose equal to the occasion, and encouraged itself by indulging the firm conviction that some turn in our fortunes for the better would surely soon take place ; or some unexpected assistance befriended our efforts to hold to a complicated appointment in a good cause, after we had done everything that of ourselves it well lay in our power to do. But it was not until we had actually embarked on board the roomy boat sent over to the eastern bank by the Governor of Jeezeh, with all the packages too out of the waggons securely there on board under our own eyes, and with a gentle breeze from the south slowly swelling forth the great lattine sail that shot up high and brightly white into the pure blue sky, and gradually bore us noiselessly, as well as with delightful smoothness, to the west, across the ancient river, in that broad reach which extends in front of the Mekias or Nilo-

meter Observatory,—that we began to feel any large amount of rest or relaxation of spirit, from the nameless little vexations and anxieties of the last several weeks.

My wife's commissariat then produced some plain buns, and Janissary Osman, after duly washing out, filled one of the earthenware water-bottles we had bought in passing through the bazaar of Old Cairo on our way to the river side, with Nile water as the accompanying beverage ;—muddy no doubt and as opaque as milk with suspended clay ; but then was it not *Nile* water, so celebrated by nation after nation through four thousand years ! Did not that glorious old Roman, Pescennius Niger, silence his murmuring legions by exclaiming, 'What ! crave ' you wine, and have Nilus to drink of ?' And in a subsequent age, did not an educated Saxon describe with equal admiration, but greater particularity, if not exact adaptation to our case, did he not detail lovingly 'how Nile water cureth the dolour ' of the reins, and is most sovereign against that ' windy melancholy arising from the shorter ribs, ' which so saddeth the mind of the diseased' ?

At all events we ate our bread in thankfulness and took the water with satisfaction. For why ? behind us now, and to be so for many months, lay the purse-proud modern Muslim city and its spring-tide of tulip-clothed individuals struggling after wealth ; while in front rose the Jeezeh shore and the calm of the ancient land.

CHAPTER III.

REACH THE PYRAMIDS.

THE entrance into Jeezeh,¹ after climbing the steep clayey bank of the river, is effected between two little coffee-houses, and then by a narrow winding lane overshadowed with trees; a grain market on one side, and earthenware goolah shops on the other. This narrow thoroughfare was crowded with passengers to and fro; soldiers also, in their bright nizam dress, were numerous, and on the elevated stone bench before one of the coffee-houses a gallant Turk was blowing enormous clouds from a hookah, while we surveyed the scene from chairs placed for us on the opposite erection.

Confusing at first, yet method there was in it of some sort, for by degrees things were got into evident shape; camel after camel was introduced on the scene, made to kneel down, soldiers clustered about it as thick as bees, packed its back most

¹ Of the name of this little town, after which the chief Pyramids have been designated in modern times, we have collected the following spellings from different authors; besides the idea of Bryant, that it is derived from Gashen or Gashen, the location of the Israelites:—Gyzeh, Ghizeh, Gizah, Gisah, Jizah, Jeezeh, Gheezeh, Geezah, Djizah, Dejjise, Dachiseh.

astonishingly with our various boxes, lashed them on firmly, and then made each creature rise and wait ready loaded a little farther on up the winding street. When five or six camels have been thus treated, we quite lose sight of the earlier ones in front, but more still are brought up in succession—eight camels at last. One, a very vicious animal, who cries out at every one, shows his fearful incisor teeth all round, exudes a red bladder-looking thing at the corner of his mouth,¹ makes a sudden struggle to get up before half his load is on his back,—but instantly a dozen soldiers are upon him, and have him by the ears and stand on his bended legs before he can straighten them, and he is compelled to take a share equal to his fellows.

‘How fortunate,’ remarked my better half to me, ‘that the Viceroy has ordered all this to be done for you; *you* would never have been able to manage it.’ I confessed how much we were

¹ In W. R. Wilde's *Narrative of a Voyage to Madeira and other Places*, is given the then recent explanation of this red-bladder phenomenon, as determined by Dr. Paolo Savi of Pisa, who had discovered that such ‘guttural bladder is nothing else than an extraordinary development of the uvula, which is usually fourteen or fifteen inches in length, and attached, not to the free margin of the soft palate, as in other mammalia, but to its anterior or adherent edge, and also to the arches of the palate; so that hanging like a curtain in front of the *velum pendulum palati*, it appears to shut up the opening into the fauces.’ And he then adds the necessary anatomical and physiological particulars for explaining how, when the animal gives a forcible expiration, the air, not finding a ready egress by the mouth, owing to the *isthmus faucium* being closed by the enlarged and distended uvula, forces it forwards in the shape of an elongated bladder, until it is protruded from the side of the mouth, and then retracted by the *azygos muscle*.

date-tree grove, *Phoenix dactylifera*, was almost a forest in extent, and remarkable for the bright green grass forming a velvety sward on the soil below and amongst the trees ; exhibiting therefore a delightful combination of the best English meadow-grass, with continued colonnades on every side of what is so peculiar to the south, viz., palm-tree trunks ; while high above our heads, through the groined and fretted roofs formed by the interlacing of curving compound fronds, the afternoon sun was darting its oblique and coloured rays.

On and on we thus went, passing mud-built villages, and date-tree groves, and mud-land, the day wearing away apace ; then by boat over a canal running north and south ; and then along another line of elevated mud-bank, trending south-westward, and on either side of which symptoms of the recent flood began to appear, in shape of cotton-fields half drowned in water ; thus we progressed, gradually entering at last one broad scene of water desolation, where every green or growing thing was either carried away or completely covered over by the dark slime of the waters ; the celebrated '*donum Nili*,' the agricultural gift of the patriarchal river. The landscape was now one huge plain of chocolate-coloured mud, coursed through here and there by several snake-like streams of yellowish water, the rearguard of that great and overflowing army which had so recently passed that way, leaving only those few stragglers to follow on behind.

Presently we arrived at a break in the embankment, for a whole section of it had been carried away by the flood, and a notable stream was now rushing violently along through the gap northward. Here the donkeys were sent back by their accompanying boys, and we crossed in a rickety boat with the toga'd Sheikh to the opposite side—only, however, to sit on the driest part of the ground, for there was no one there. And though the Sheikh every half minute folded his blue toga about him in some new arrangement of noble folds which would have captivated a classic painter, and used his hand for a peak to his red tarboosh where the ulemas of his religion allow no such projection to exist, and tried to peer into the extreme and sunshiny distance of the plain, just under the western hills, which were now fast throwing their shadows towards us,—he could see nothing but the motionless ranges of far-off date-palms. So asking us presently if we were afraid of being left alone, and receiving an answer to a quite contrary effect, off he started on foot to the west, and was soon out of sight.

Here then was an opportunity for studying Egyptian landscape, at the very witching hour too of setting sun and evening's purple tints. Dark mud, mud, mud on every side. I went to the edge of the water stream to collect from its very bank an undeniable example of inundation slime for subsequent examination in the microscope; but could

not manage it without getting huge clogs of mud sticking to my feet and increasing at every step ; and even when I had returned to the top of the embankment, the difficulty was to get quit of them ; for stone or stick or even blade of grass there was none, and what looked angular semi-rock like soil proved to be only old mud, dried somewhat hard, —with its microscopic particles of mica slightly glistening in the light, and ready to attach themselves on to, with every rub I gave to clean off, the great clay balls on my feet.

Then the much-bepraised soil of the Nile, thought we, must after all, with its adhesive pot-clay properties, be more adapted to brick-making than to agriculture. It is certainly untoward for trees, which as a general rule would have their root-pores completely suffocated in it ; and what shall we say for the comfort and cleanliness of the inhabitants in a land of none but muddy water, and where all the soil is soft adhesive clay ? We could only hope that Pharaoh's daughter had a nice set of stone steps, kept duly clean from all the peculiar and dark 'gifts of the Nile,' whereby to descend to her bathing there. Yet though the valley of this river is prevented by its clayey quality from comparing with that of, say the Ganges, the Irrawaddy, or Mississippi, for large botanical glory, it does derive some advantages from its close plastic composition ; nay, perhaps it has even therein, considering Egypt's position in the rainless belt of

northern Africa, the very right thing in the right place. For had the ground been porous, what would have become of all the crops committed to its charge, when it only gets wetted once in the course of a whole livelong thirsty year? In other regions, and even where the soil is rather more compact than ordinary agricultural loam, we have seen attempts to water gardens artificially under an African sun; and half an hour after the watering they looked very much as they had done half an hour before, so very short-lived was the effect, and so utterly did the great furnace of that sun-illuminated sky of brass, laugh to scorn all the attempts of man to bring into play an opposite force.

But here in Egypt, it was nature herself that was concerned: and only observe how *she* brings on the power, whatever that be, of water; viz., in a sheet so vast as almost to rival the spread of the blue sky above, and in quantity so portentous that the husbandman begins to tremble and fly from its presence as from a rushing mighty danger. In fact the water is brought upon this Egyptian land, whenever it is brought at all, in a quantity, and depth, and for a time and in a manner that enable the fluid to enter into and thoroughly soak that proverbially *impervious* clay; and then when that is wetted, what shall extract the moisture out of it again? Not even the mighty sun shining in its African glory for six months at a time, or until the destined inhabitants of the ancient valley have

gathered in their year's supply of food ; for the clay holds in tenaciously the lifegiving moisture against all external influence, just as those thick-leaved plants of the succulent order, the euphorbias and aloes,—Africa's own special desert progeny,—resist all evaporation through their thick-skinned leaves, and remain the only signs of vegetable life, through the most scorching season of an ever torrid year.

Something else too could be said in favour of Egypt, wet, as we saw her then, viz., the colour and force of the landscape in a picturesque point of view. How frequently do we in many travellers' books meet with Egyptian views, characterized by being hard and red ; or all red and yellow, in light tints too that weary themselves with sameness, and are flat, flat without air or distance. But now to the north-west, what a scene ! The Pyramids of Jeezeh on their far-off desert hill ; the Great Pyramid fully revealed with its confusion of sepulchres on the steep below, and underneath that again, on the flattened plain, a few thin fretted lines of distant villages with their beloved date-palms just showing their crowned heads. The second Pyramid is also visible, but half concealed by large palm-trees in the middle distance ; and the third, conspicuous enough with an undulating Libyan background, but too small to interfere with the notability and majesty of that one of the three which all the world has long agreed to call the Great Pyramid. How far off through a tenderly illumined atmosphere are

all these monuments of the past ; and how much farther by the aid of the tinted hills, and intervening plains and distant villages hardly to be made out but by telescopic gaze. And then came the strangely pronounced forms of the waving fronds of lofty palms in middle distance, with the sun's light striking full amongst them,—eclipsing some in rays of golden splendour, and again eclipsed itself in their deep purple shadows below ; while, lower and nearer still, the eye wanders over long reaches of the dark-brown wetted plain ; dark almost to intense blackness, yet always in some rich tint of Vandyke brown or chocolate-colour, that gradually lightens and brightens up to the more immediate foreground, with its tumultuous river of yellow waters and sentinels of snow-white, crane-like birds ; reminding one of the mediæval traveller's description,—that ' about this Ryvere Nyle ben manye briddes and ' fowles, or Sikonyes that thei clepen Ibës ;' for this fair bright egret is the nearest living representative here of the ancient ibis, and is equally a friend to, and confiding in, man.

On the opposite side, again, or to the south-west all gorgeous with the rays of the setting sun falling full in its direction, what force and power are given to all the nearer and middle distances by these mellow browns of the overflowed land ; and then beyond them comes the end of a village into the view, its mud-hovels illuminated so resplendently on one side, and throwing shadows so pronounced

on the other, as to look like some natural fortifications improved by ancient kings. Beyond still, and south of these forms again, what distance is expressed in the dark green plain, where woods of date-palms rise behind woods of date-palms ; each mellowing gradually into the far-off air, like the successive elm rows of the more fertile parts of England, when seen from an occasional height. But here the vision does not finish yet with these faint small forms ; for beyond all the distance that mere tree-covered slopes and leafy vales can make manifest, rise to view, on the eastern or Arabian side of the Nile, the exquisitely aërial lilacs and blues of the Mokattam Hills. From their gaunt and serried sides were brought, four thousand years ago, the most compact of the blocks for building the Pyramid, and still they furnish the corner-stones and pavements for modern palaces in Cairo ; and we can distinguish even from this spot the square and more determined angles of their composition over all the other hills, and see too the warrior faces of many a noble cliff, which lighten up for a moment into a golden glow with the last look of the sun upon them ; and then only blues and aërial greys are seen encompassing their forms, while evening hastens to fall over the whole valley.

By this time many figures began to be perceived coming along the eastern or now farther line of the embankment we had already travelled over. They are the camels with our boxes and baggage ; steadily

they come striding along, but at the appearance of the breach they are stopped, made to kneel down in a group, all the packages are removed, formed into a wall round about, and preparations evidently begun by the drivers to bivouac there for the night. The ancient Ibraheem, whom we had long distinguished amongst them by his white beard and his witch-like pointed hood, now thrown over his head, having seen all these arrangements duly completed, crossed the water and came over to us, but could give very little explanation. The stars were appearing one after another, and the silvery lustre of the crescent moon thrown down from a high angle, the complement of the sun's then wintry and night position, was overpowering the faint remains of day's twilight ; imparting without doubt new beauties to the scene, but making it not look very much as if we were going to be at the Pyramids that evening.

Presently, before the absolutely last faint tinge of blue illumination had left the western sky, dark forms of horses, men, and camels, were seen, relieved against the low streak of faint level light in that direction, and all of them hurrying along towards us. Nearer and nearer they approached, following the top of the embankment. At last they arrive ; first our friend in the toga, whom we can just recognise in the party by the light of the moon, and then a variety of other, and even higher grandees of rural kind. With salutations respectful, they request us to mount on the animals they have brought ;

and we ride along, a winding cavalcade, leaving the high embankment after a time, and then closely following our leaders through the dark shades of palm groves, and through cultivated land, with sheets of water reflecting the horned moon and evening star; until finally, pushing up a steep ascent to a village, a true Egyptian village of mud-built huts, and then through an archway, we dismount inside it; are shown through a garden, and then into a notable house beyond, where, in the largest room, they seat my wife and self on the most honourable cushions at the head of the apartment; and we learn with thankful satisfaction that for the rest of the night we are to be the guests of the worthy Sheikh Deadar, of the village of Khatremar Omar,—a locality indeed far south of our original destination; but then, what an unsought and unexceptionable opportunity for seeing Egyptian manners, as they do really practise them amongst themselves in Egypt!

The guest-chamber was about thirty feet long, fifteen wide, and twenty high; covered over its floor with matting, and near the upper end with a Turkey carpet besides. There were three or four British chairs, but nobody used them; and the only other furniture was a huge lantern, standing about four feet high, and acting both as furniture and decoration too, so smart was it made with gilded tin-work, and so many piastres (230) had it cost the

Sheikh in Masr. They put one candle into it, but were so little satisfied with its illumination, that a second candle was brought, in an English green glass candlestick, and placed on a dirty little stool amongst the party seated in all decorum on the floor. This party numbered now three brothers of Sheikh Omar,—all of them Sheikhs together, if we understood aright,—with large white turbans, and extensive blue togas folded around them ; our friend of the Pyramid village, full of gravity of expression ; a Turkish officer in semi-military costume, representing the Jeezah Governor ; a variety of other village notabilities ; and Ibraheem, who was alone able to interpret.

The honest men really did all they could to make the British strangers feel at ease ; apologized often for their smoking, and tried to make it up by producing frequent cups of coffee, very full of sugar, and amazingly hot. Then came the dinner, a *multum in parvo* truly,—a dozen dishes all packed on a round metal tray, that was placed on a little stool of a table : mutton, fowl, and various vegetable dishes, both sweet and savoury, as well as the large flat cakes of bread that were to serve as plates, but no plates of course, or knives and forks either. It was, to tell the truth, the dinner prepared for the Sheikh himself, his brethren, and Muslim friends ; but, with rare courtesy, offered to the Christians first to partake of as far as they would. The Muslims indeed could not remain in the room to witness such defilement ; and one by one they departed, when a

Nubian slave entered, bearing a brazen basin and tall ewer, with two table-napkins. He proceeded to pour water over our hands, first the one, then the other, presented the napkins, which he left with us, and signified that all was ready to begin the repast ; but before our actually commencing, the Sheikh returned with his youngest son, a child of about five years of age, dressed in blue and gold, a yellow sash, and red tarboosh. *He* may eat with us, though the father cannot ; but the latter is amazingly pleased when we pull off with our fingers a tender piece from the scalding hot boiled fowl, and stuff it into the mouth of the innocent one.

O Sheikh, Sheikh ! this is all most admirably meant on your part ; but what a far warmer welcome should we not have appreciated it, and what a sunshine to the soul would there not have been in that room, if the ladies of your household, ‘the ‘angels in the house,’ albeit you know them not as such, could have visibly assisted your hospitable endeavours ! How the poor man has to labour, in consequence of his self-deprivation of helpmeets ! for no sooner have he and his friends finished their dinner—and which we suspect they partook of under the archway outside, by the light of a blazing fire they have got up there,—than behold him returning again with Ibraheem, bringing two rolled-up masses of bedding, which they proceed to spread on the floor ; and discuss again and again over the method of doing it, with the dignity of sultans and the sageness

of the greatest pundits that ever the East produced. Then, again, the Sheikh brings in sundry carpenter's tools, and works long and confusedly at the door of the room inside, his Roman toga requiring refolding many times during the operation, until at last he shows that the locking machinery will work, hands me the key, and we are left to ourselves until the morning.

Up early that next morning ; Ibraheem soon appears ; all symptoms of the bedding are quickly removed, and he is complimented by my better-half on how well he understands what requires to be done. ' Excuse me, madam,' says he,—his grey mustaches curling upwards with his honest smile,—' excuse me, ' madam, but I have been a great deal with English ' ladies and gentlemen, and have learned much from ' them ; and besides that, I was with Colonel ' Howard Vyse, when he lived at the Pyramid.'

Here was news, and good luck too ; and so with cheerful prospects we went out into the little garden, and admired to Sheikh Omar his great plane-tree, hoped he would see his young date-trees grow very high and have much fruit ; and inquired the names of the copper-coloured wood-pigeons, and the crested black and white striped birds that were fitting about here and there, and the exquisitely blue-flowered creeper on the wall, until breakfast was announced. There the young man in the blue and gold cloak again appeared, and besides stuffing him with sugar, we gave him a portrait of Maria Theresa ;

paid out small sums of money, under the advice of Ibraheem, to various members of the household ; and finally mounted the carpeted donkeys in the midst of half the villagers congregated to look on ; finding ourselves after that once more under the lead of the Pyramid Sheikh, and trudging along the great westward-trending embankment,—that long mud-mound some twenty feet high above the land on either side, and forty feet broad at top.

Across presently, by an Arab stone bridge of several arches, the Grand Joseph Canal ; not the Patriarch's, but Sultan Saladin's, they say, but do not prove it ; and then we can trace our way clearly enough to the desert edge without any further impediment. Pass a few acacia-trees with long white thorns, very similar to *Acacia Capensis* in South Africa, then perceive a pebble or two on the hitherto pure mud of the embankment, and in a few minutes more reach the desert itself with its world of yellow ochre sand, quartz or jasper stones, and little else besides. Next we turn sharp round, due north, riding thenceforward by the narrow sandy flat that lies all along between the light brown hills on the west and the cultivated land on the east, direct to the Pyramids ; i.e., those of Jeezeh, for their Abouseer and Sak-kara rivals, which we had before closely approached, are now left far behind our backs.

South-eastward from us under the winter's morning sun were the Mokattam Hills, in the most delightful

faint-blue, or lilac of true distance ; relieved below by the dark olive-green of many intervening ranges of palm-tree groves, and set off above by exquisite banks of delicate white clouds, all transfused with pure sunlight, and of a texture that made them look like level streaks of bright and wavy floss silk, extending all along the horizon from south-east to south, and even south-west. But due west were only the blue sky and the yellow hills. A strange appearance too they had, these hills of a ' rainless' land ; for it was an appearance, first and most remarkably, of washing, and even superabundant washing, by rain ; there were no cliffs about them, and except the sprinkling of brown pebbles over their summits they had no other natural markings than the distinct drainage of rain, forming young ravines over all their flanks.

It was rather a long ride that, approaching the Pyramids from our extreme southern starting-point, with the sun right behind us, and the country in front therefore very yellow and shadowless ; but inventing improvements in the primitive saddle-gear of our donkeys partly occupied the time ; and while still two or three miles off, the Sheikh, giving a great swing of his toga round his shoulders, and arranging it in a new manner still, called our attention to the Sphinx.

It is what we had been noticing for some time past, but could hardly believe in its paltriness and complete distinction from the Pyramids. It is ver-

tically under the Great Pyramid certainly, but so far under, as to be three times nearer the base than the top of that long table-formed hill, on whose summit not only the Great, but all the other Pyramids of Jeezeh, are situated. In fact, the Sphinx appears to us to be vulgarly shoved in at the base of the hills, merely to be away from the cultivated land, just like any trifling modern tomb! The head and face are visibly reddish, the neck and line of the back white, on the yellow sand; while a clump of plane-trees and a group of date-palms close in front of it, add another proof of how far below the eternal drought and solitude of the Pyramids, the said Sphinx must be.

At length, after heading the 'Southern Causeway,' and passing the trees with a dervish's well amongst them, we reach the man-monster, the andro-Sphinx as it has always been, though some writers will still call it 'she;' find there the camels and boxes, as well as a colonel's tent lent by the Egyptian Government out of the stores in the Citadel, already erected on the sand, 'for the lady and gentleman.' But we hold the position to be untenable as a permanent abode, for many reasons; besides expecting no grace from living there under the shade of the Horem-hou, the biggest, if not also the oldest, idol in the world. 'Where, then, will you have the tent erected?' said the guides, 'for it had better be put up in its final position before the men of the Governor of Jeezeh leave!'

The where was of course at that moment a problem ; and though we would far rather have spent the rest of the day in quiet, we immediately organized a walking-party, consisting of the Sheikh, Ibraheem, and a few Arabs, who appeared no one knew how, to perambulate the Pyramid Hill all over, and endeavour to balance the respective advantages of the various sites for habitation.

First of all they took us west of the Sphinx to Dr. and Mrs. Lieder's tomb ; a sepulchral chamber cut out of the rock ; yet not where that worthy couple, who were still living in Cairo, had been buried ; only where some other person's mummy was deposited four thousand years ago, and turned out of it again with ignominy one thousand or three thousand years afterwards ; and where finally Dr. and Mrs. Lieder had entertained for several weeks a whole party of their friends, both ladies and gentlemen, one joyful springtime in Said Basha's reign.¹ But we found the place now half-full of sand, with seas also of moving sand in front, and the Sheikh said something about there being snakes there.

'Excuse me, madam,' put in Ibraheem, 'but let

¹ Poor Dr. Lieder is now dead, having fallen a victim in Cairo to the fearful visitation of cholera which occurred there in June 1865. Besides his life-long missionary labours, remembered with gratitude by many, he is honourably mentioned in Bunsen's *Egypt's Place in Universal History*, as supplying one of the great data in 'the beginning of the second period of the modern history of Egypt in the fourth age of the world ;' or thus, under date A.D. 1834, 'Coptic again made intelligible to the Copts as the language of the Bible by Protestant missionaries (Coptic School in Cairo, Gobat and Lieder).'

‘ me show you Colonel Howard Vyse’s tomb :’ and thereupon he led the whole party round by the east or south-east side of the Great Pyramid Hill to a quiet nook there, looking out in front over the green Egyptian plain, and gently spared by the storms of sand which come sweeping over the hill-top under violent winter winds chiefly from the south-west. On most parts of the hill-side, the sand-streams had buried the original outline ; but in this happy corner there was part of the primeval escarpment or limestone cliff to be seen, and now stuck full of ancient tombs ; that is, of little rooms with doorways opening through the face of the cliff, but their contents of humanity plundered ages ago, and distributed throughout all the museums of Europe. There were two or three storeys of the tombs, of various sizes and shapes, and they extended for several hundred feet along the length of the cliff, with various designs of architectural finish. Climbing up with difficulty above the lower storey, much encumbered with rubbish, we entered by a particular doorway a room carved into the substance of the hill, and some fourteen feet broad by twenty-five long : that was Colonel Howard Vyse’s tomb, *i.e.*, the old Egyptian sepulchre which he used partly as a residence and partly as a storehouse during the many months of 1837 which he spent at the Pyramids. Down again, and up another rude staircase in the face of the cliff, and we entered into Mariette Bey’s tomb, or one which he had excavated and cleared since

Colonel Howard Vyse's visit. Not quite so large as the former, but with a window-place as well as a doorway,—and decorations at the farther end of *alto-relievo* figures, as large as life, showing the former possessors of the property somewhere in the reigns of the fourth and fifth dynasties of the earlier Pharaohs before Abraham, and with some *basso-relievo* carvings about the entrance,—this tomb, on the whole, seemed to be the most desirable residence we had yet met with ; protected also by the entire bulk of the hill, from being heated up at mid-day by the sun, as the tents would infallibly be, and with its doorway defended by a projecting rock from the direct attack of winds from any quarter.

But were there no tombs a little higher up the hill, nearer the Pyramid, and therefore close to the work for which we had come ? One Arab, by name Alee Dobree, immediately offered to show tombs on any and every part of the hill ; and he knew precisely what we wanted without having it explained. 'All right,' he said, 'I know,' and away he led us, with long vigorous strides, up the face of the hill, and over its sloping top towards the north-east corner of the Great Pyramid. Abundance of tombs and sepulchral wells we passed, but all open at top and encumbered with ruins ; then reached the Great Pyramid itself, rounded its northern heaps of rubbish, and amongst other half-destroyed tombs, towards the north-west, came to a cleft in the ground, masonried on either side. 'Here is the place,' said

he ; and winding his toga tightly about the upper part of his body, and leaving his shoes behind, he descended, straddling from side to side, sticking either toes or fingers into small joints of the stones, until at last he leapt on the solid earth at the bottom, went along a subterranean passage northward, and then turning west, declared that there were five rooms there.

So there might be, thought we, but the mode of entrance is rather against them. That, however, he could not understand at all ; it was as simple as possible to his Arab activity, and the rooms below so beautiful and large. 'Yes, but then the view from them was bad,' we suggested ; 'could he not find something from whence we should see a date-palm waving in the wind ?' So then he marched us to the west ; but there was nothing particularly adapted there, though the external forms of the tombs rose often temple-like above the ground ; then we passed between the Great and second Pyramids, and having inspected a tomb in the south-east, which had a spacious enough porch looking eastward, but of no great breadth, and attended with the inconvenience of a square well some seventy feet deep in one corner, we returned to Mariette Bey's tomb in the eastern cliff. (See Map, Plate II.)

'Excuse me,' began Ibraheem, 'but I knew it was the best from the first ; and pray look here at this nice little tomb just opposite your door,—I'll make that into my kitchen ; and we'll have those two

‘ mummy-pits that lie between, filled up to the surface, and then I can put up my great water-filters there in a quiet corner shaded from the sun ; and if you’ll only go three steps down the face of the cliff that way, what another beautiful room you come to there,—it will just do for the lady and gentleman to take dinner in.’

All this was quite true, and not only so, but a semi-secret passage within the face of the cliff led from this last apartment into Colonel Howard Vyse’s grand saloon ; so we immediately determined to have all our instrument-boxes brought into that stronghold ; and make it the workshop, storehouse, comparing-room for the measuring bars, and whatever else we might require for the scientific service about to commence.

The camels, therefore, with their loads, were brought round from the Sphinx to the foot of the eastern cliff ; by great hauling, and many hands, all the boxes were hoisted into the Howard Vyse apartment, secure there from all direct sun temperature ; coffee was made, presents given, the Jeezeh men returned to their homes, and we were left alone with Ibraheem to make appropriate arrangements by nightfall.

The Sheikh, however, in the toga, and a certain old Arab of deep design, and with the most marked *vertical* wrinkles on his forehead we had ever beheld, had not entirely departed ; for, after communing together at the base of the cliff for a while, they

came up again, and inquired 'how we were going to manage about guards at night?'

'In such a dangerous and out-of-the-way position,' they argued, 'we should not be safe without six men every night to guard us; and each of these men must be paid two shillings every ordinary night, and in cold weather three.'

'To guard us from what?' we asked. 'From the Bedouins of the desert,' they answered. 'Those hereditary robbers of peaceful men,' said they, 'might come down any night at a moment's notice, if they heard that unprotected travellers were there. Why! here in Colonel Howard Vyse's room close by, after he left, a Nubian tried to live and support himself by letting out lodgings to travellers; and he went on bravely for a time: until one dark night the Bedouins came down, killed him, robbed his wife of her necklace, ear-rings, finger-rings, nose-rings, and everything of value she possessed; and they, the perpetrators of the crime, could never be discovered, so there was no redress.'

From twelve to eighteen shillings a night during four months, besides cost of day guards, we thought a high tax to pay these children of nature; and for, after all, defending us from themselves, if the truth were known. So we told them that we had nothing to do with it, that the Viceroy had ordered them to see that no harm befell us, and if they thought that six men were necessary for our safety, they had

better send that number, and not one less, or they would be reported accordingly. This view of the case was not at all favourably received ; and when they became excited and tried to explain the whole affair to us from one end to the other, and prove every point of it, their semi-English passed into pure Arabic, and we failed to understand them altogether.

Evening was now advancing, and this grand question entirely unsettled, when help arrived. M. Vassalis, superintendent of excavations under Mariette Bey, and with instructions from his chief to aid our Pyramid projects, had just arrived in the neighbouring village, and now came up from there to see how we were faring. No sooner, too, was he seated in our dining-room bower of stone,—for it was that rather than a close tomb,—than he took up the disputed point ; while the Arabs, who were again collected in numbers, squatted on all parts of the cliffy staircase, wherever they could find any foot-room, between him and the sky ; and had a deal to contend about wordily as to the propriety of their views. But M. Vassalis, an Italian of the grand Belzoni type, had a powerful way of putting the case before them in a very few unanswerable words ; and indicated so clearly to them what the Viceroy's proceedings would be, if any harm happened to the lady and gentleman during their stay at the Pyramids,—that we were presently informed the guards would be duly sent, and we should have no further trouble about them.

After sunset, accordingly, and when we, thankful for the many mercies vouchsafed to us, were reading in our stone bower, or occasionally looking over the land of Egypt, spread like a carpet before this hill of tombs,—and there was just moonlight enough to show the landscape but not to dull the stars,—three warlike figures, wrapped in shapeless white burnouses, and with long guns strapped at their backs, passed before us to take up their position at the top of the slanting path or steps in the face of the cliff; while three others similarly armed stationed themselves below: so that then, with the cliff immediately above, and the cliff below, our doorways, and the one and only path of oblique access defended at either end, we were as humanly safe as an admirably strong position could possibly make us.

CHAPTER IV.

REPORT ON THE GREAT PYRAMID.

ON the next morning, 9th of January, there was work to begin upon early ; for M. Vassalis came over from his village in the plain, and announced that Mariette Bey, on the part of the Viceroy, had instructed him, M. Vassalis, to take twenty men, under two Reis or captains, from the Government excavations at Sakkára, and place them at my service during a month, as a help towards preparing the interior of the Pyramid for mensuration, or for doing anything else that might be required in the interests of science ; always excepting any 'breaking of the Pyramid ;' and M. Vassalis was to see particularly that I did not do that. These Sakkára men, moreover, were already arrived, and the question for immediate settlement was, on what subject were they first to commence ?

'Why, let them go and begin by brushing out and then washing down all the floors and walls of the several rooms and passages inside the Great Pyramid,' we answered.

'Oh, but that,' he urged, 'is not sufficiently pre-

‘cise for them to work by. You must go in yourself and see exactly how matters stand, for not until you have directed your own eyes to things connected with the monuments of Egypt,’—and therewith he pointed with both fingers to his two eyes first, and then to objects before him,—‘not until you have comprehended them so with the eyes, can you form any real notion in this country of what is to be done, and how. And you must be quick in coming to a conclusion, for it is not for a whole or complete month the men will be here to work for you; only from now up to the time when Ramadan begins; for Ramadan stops everything in Egypt, and not even Government can get its own orders executed then, for the people fast, and have no strength.’

Evidently at this rate not a day was indeed to be lost, for the Muslim month of Ramadan would be upon us within less than three weeks; and when the Viceroy had granted so much as the services of twenty men under two Reis, it was my duty to make it go as far as possible, for the credit of His Highness’ very liberal contribution, as well as the furtherance of Pyramid knowledge.

For himself, M. Vassalis declined, as he said, the pleasure of accompanying me, for he had been too often inside the Pyramid to love overmuch the stooping in its narrow passages. All that was possibly quite true, for nature had cast him in a heroic mould of more than ordinary human proportions; but his declinature also arose, in part, from the

higher-toned motive of wishing to leave me quite free and unfettered in forming first ideas of what should be done. But he brought up with him, to attend upon me, two lithe and supple Sakkára youths, capable of going in anywhere like eels ; and the local Arab, Alee Dobree, who had been so active the preceding day, volunteered his services also. Quickly, therefore, with their assistance, was one of the Edinburgh boxes unpacked, and a supply of its candles and candlesticks with glass shades taken out, to serve for our exploration.

‘What’s the use of those glasses?’ asked Mr. Alee, ‘there’s no wind inside the Pyramid.’

‘No natural wind,’ we replied, ‘but we shall make some apparent wind by our own moving about ; and that will cause the candles to gutter, and drop spots of wax on the beautiful polished floors.’

‘Well, but all the travellers, and the Arabs who go in with them, every day drop candle-grease all about,’ responded he ; ‘and why should not we do the same, and save ourselves the trouble of carrying the heavy glasses?’

The glasses were, however, insisted on ; and with them we were soon off on our march, under the brilliant morning sun, to the ancient Pyramid. A stiff breeze, as we approached its honoured form, was blowing from the south, eddying and whirling about the corners of the great building’s northern side. Every now and then, in the midst of the otherwise perfect deadness and immobility of this vast sepul-

chral region, away went in the wind some antelope-like thing, bounding over the stones, or behind the various tombs and heaps of rubbish, or at last disappearing over the edge of the hill; anything, in short, to escape the intruder's gaze, as though we had been sportsmen on ruthless slaughter bent; but the frightened, springing, flying object proved in every case to be merely a large sheet of paper, that had wrapped up some tourist's pic-nicing provisions on previous days, and had been left defiling the ground and even littering the air. In quantity too, these things were almost incredible; while, as we doubled the north-east corner of the Pyramid, the usual site of those gormandizing operations, we had to tread most cautiously, especially my barefoot companions, among fragments of black bottles, and other needless refuse of thriftless feasting. Climbing up, however, rather slantingly along the northern face of the Pyramid, first by ascending the long slope of the hill of rubbish that lies against it, and for the last few yards by the rectangular stone ranges of the Pyramid itself,—we arrived at that well-known hollow, about fifty feet above the base and twenty-five feet east of its centre (*i.e.*, the central vertical line of the northern side), where the entrance passage presents itself to view. There, too, are first seen those strangely inclined courses of stone surrounding and forming the passage, not at right angles to the general side of the Pyramid, but kept with exactest care a certain small angle different therefrom; and

they are further, as is quite evident even on a first glance, of a whiter and denser stone than the ordinary vertical and horizontal courses of the mass of the building. (See Plates III. and IV.)

The floor, again, of the passage, very much harder than any other portion of it, extends out far in front of either the walls or roof; for these have in part been broken away to the depth of many feet inward from the original Pyramid surface, and thus form something of a grotto on the northern face, which is always in the shade during the middle of the day. Hence, alas! more broken bottles, more greasy scraps of paper, and also names innumerable carved, cut, hacked, painted, and marked in various ways on the fair and once beauteous stone. Even while we were lighting our candles preparatory to entering, there were three 'travellers' and their dragoman, who had just finished their 'luncheon,'—as these desecrating feasts are always termed by the Arabs who behold them, no matter at what hour of the day they occur,—and all four were now standing above the roof of the passage, engaged in adding their names in the space exactly under that remarkable double pair of cyclopean blocks placed '*en décharge*' above the entrance. These gentry were in the very position of the figures in Sandys' view of 'The entrance into the Great Pyramid,'¹ even to

¹ The entrance itself in his Plate is strangely disfigured by a pudding-shaped lump of stone, the original of which, as such, is simply incomprehensible. (See our Plate III. vol. ii.)

the thirst-inspiring accompaniment of an Arab boy climbing up to them with a *goolah* (earthenware bottle) of water, and helping himself up by the same fractured western corner of the roof-block, which was used as a handle in his, Sandys', day; and yet Sandys began his journey so long ago, as to have passed through France 'hard upon the time when that ' execrable murder was committed upon the person ' of Henry the Fourth, by an obscure varlet.'

Many therefore are the inscriptions, and inscriptions upon inscriptions,—for these inscribers are no great respecters of each other,—in this neighbourhood; yet none of their handiworks can compete in size with that of Dr. Lepsius, who has held forth at enormous length in praise of the virtues of the late King of Prussia, on the highest and westernmost of these remarkable blocks. That inscription is indeed noble in the space which it occupies, but the site of it must have been rather unhappily chosen by the courtly philologist; for, in the few short years that have intervened, there would seem to have been torrents of rain, 'rainless' though the region be generally termed, torrents that have brought vilifying streams of mud from the upper masonry right through the centre of the modern hieroglyphics; nay, worse still has happened, for certain obscene birds of night, for their own foul ends, have presumed to take a particular fancy to that neighbourhood; and, by a style of marking peculiar to themselves, have made confusion more confounded.

But our candles are now lighted, and we must enter; enter too the largest building in the world by the smallest of all doorways—*i.e.*, only 47·3 inches high by 41·5 wide; and that also not in the most convenient position, but tilted over towards the south, by the same angle that the floor inside dips in the same direction—*i.e.*, 26·3° nearly. There *might* therefore be dangerous slipping,—for, as Sandys truly observes, the descent is made, and with much stooping, not by ‘stairs, but as down the steep ‘of a hill,’—were not this danger guarded against by there being shallow notches cut across the smooth stone at every two or three feet of distance. Before, however, we had got very far down this declining passage, behold these cross notches increasing, both in depth, length, and closeness, until they began to form long holes in the direction of the axis of the passage; and at last, such notable trenches, as to occupy all the breadth of the floor to within five or six inches of its edge on either side, and to have an almost uninterrupted run lengthways. Though excessively rough at the bottom, and occasioning many a staggering step,—yet they constituted an effectual lower level to the floor; and such as would enable any person either ascending or descending the passage, to perform the task with less of ‘that ‘uneasy benefit of stooping’ which annoyed the old explorers, than first appearances promised.

‘Who made all these holes in the floor, Alee?’ we inquired of our guide.

‘Colonel Howard Vyse,’ was his prompt reply.

We demurred nevertheless to his information, from the tenor of many paragraphs in the worthy Colonel’s book ; but could not fully discuss the matter just then ; for, with every step of each of our party, up rose such clouds of fine white dust, the abrasion of Mokattam limestone, and remained from their fineness suspended in the air,—that we were all immersed in a thick chalky haze ; in the midst of which, stooping, jumping, struggling downwards as the floor-holes allowed or obliged, and fending ourselves off with hands and elbows from either side wall to prevent going head foremost down in front,—we reached at last the end of this series of broken pits ; coming then to an untouched length of smooth floor, down which we slid on our heels, and finally alighted full bump against a steep bank of sand, that visibly terminated the passage at that point.

Now this point was after all, at a distance of hardly one hundred feet from the outside or beginning of the passage ; and all the world knows that ‘the entrance passage’ of the Great Pyramid, preserving the height, breadth, and angle given above, goes right down in one uninterrupted line to a distance of more than *three* hundred feet ; diving down indeed into the solid earth far underneath the base of the built monument, and there opening into the subterranean chamber, the largest of all the chambers of the Pyramid, and the chief of those works underneath the surface of the ground, the prepara-

tion of which, according to Herodotus, occupied so many years previous to the commencement of the building.

‘This is the road,’ said Alee, trying to lead the thoughts he saw rising in our minds, by over officiously showing the way into a large cavernous-looking hole, that opened out sideways from the west wall of the entrance passage, just above the anomalous sandbank.

‘Yes, I see it is,’ was the reply, ‘if you mean the way up to the first ascending passage ; for that is Khaliph Al Mamoon’s hole, and just where it should be ; but stop here for a moment, if you please, O Alee, who knowest more than any other Pyramid guide ; and explain what is the meaning of this great bank of sand, blocking up so cruelly all the lower part of the entrance passage beyond this point which we have reached ; and preventing any access to the subterranean chamber.’

‘Why,’ returned he with a faint smile, and having seated himself despairingly in the Oriental manner, ‘it just means what you say ; precisely that and nothing more, for no one can go beyond the sand ; but if they want to see the King’s chamber and sarcophagus, and everything else that all the travellers come to visit, they must turn off here into Al Mamoon’s hole, and so go up just as I told you.’

‘Pray, though,’ we asked, ‘who first brought the sand into the passage?’

But Alee was not well pleased with this question,

and tried to parry it by asking argumentatively, 'How the travellers could ever get through the Pyramid quick enough, if they had to go down the long subterranean passage, in addition to visiting the upper galleries and the chambers there. They had not strength enough for it too,' he said ; 'and so it was for the travellers' own good that the Arabs were *obliged* to stop up the passage completely, and show there was no hollow space beyond that ; for if anything at all of a hole were left visibly open, the travellers were so troublesome in asking where that hole led to, and then insisting on being taken there.'

'What length of time,' we asked, 'has the sand-bank been in this place ?'

'Oh, a great many years,' answered he, 'more than he could recollect ;' and then he became absorbed in philosophically examining the state of each and every one of his toes, in a sort of earnest and kindly manner too, as if they had been so many fingers on which he was about to draw kid gloves.

'And has no tourist, during all that time ever seen, or asked by name to be shown the subterranean chamber at the bottom of this entrance passage ?' we persisted in inquiring.

'But how are the travellers to know that any chamber is there, if they don't see it ?' urged he, 'and if they don't know there is such a thing, how can they have any desire to see it ? Once on a time perhaps there used to be travellers who knew

' all about the Pyramid ; but,' muttered he, ruefully shaking his head, and bringing the examination of his toes to an abrupt conclusion, ' there 's a ' great change come over all the travellers in late ' years. Formerly, whenever they visited the Pyramids they would stay several days, and be a long ' time looking carefully at every tomb ; and they ' would talk with us Arabs about our houses and ' our fields, and ask us how we were getting on, and ' seemed to think they would like to be Pyramid ' Arabs too ; but now the travellers are always in ' such a hurry, and they are getting more and more ' in a hurry every year. One of the Arabs looking ' out now at the village, has only just time to cry out ' that travellers are coming, and immediately the ' Pyramid Sheikhs and all the guides run to the hill ; ' but before they can get there the travellers are ' upon them, for they make their poor donkeys ' gallop through the sand ; and the moment they ' arrive at the Pyramid they call out for their ' luncheon, never waiting for the corks to be drawn ' out of the bottles, but knocking their necks off on ' the stones and letting the pieces fall all about ; ' and then they tell the Sheikh, " Now look sharp, old ' fellow, and get us three Arabs apiece to take us ' up to the top of the Pyramid that we may see the ' view, and be down quicker than any one else ; and ' we 'll time you by our watches ;" and they no sooner ' come down than they are on their donkeys again, ' and away they go over the plain to Masr, and we

' never see them a second time. Only a very few
' too of all those travellers ever go inside the Pyra-
' mid ; and as *they* don't pay any more than their
' friends who merely went up the outside,—the poor
' Arabs can't afford to let them know that there are
' many chambers or passages. It won't do at all to
' let the travellers stop too long inside the Pyramid ;
' outside it might be well enough if they liked it,
' but inside they are burning our candles all the
' time, and Arabs can't find wax-candles by digging
' any day in the tombs.'

' Well ! that will do, Alee, for the present,' said
we, ' as to the stopping up ; have the goodness to
' lead on now to the upper passages.' So therewith
he heralded the way with his candle in the glass
shade into Khaliph Al Mamoon's hole on the west ;
a ruinous place enough, where much of the compo-
nent masonry of the Pyramid must have tumbled
out, and the steep rising floor is a mass of dust and
broken stones ; but turning sharply round in the
recess towards the south, and then scaling a little
rock-like cliff by means of small holes worked in
the rough stones for Arab fingers and toes to catch
in, and turning eastward again while so doing,—he
entered by a large side opening into the bottom of
the ' first ascending passage,' at a point just above
its lower portcullis stop.

This, to us, new passage, is, as every one knows,
in the same vertical plane with the entrance pas-
sage ; but, instead of dipping, it rises, at an angle

of $26\cdot3^\circ$, more or less, as it proceeds to the south. The floor is furnished with shallow notches to prevent feet from slipping, but was to our examination sadly covered with dust and limestone refuse; while both walls and roof exhibited such lamentable decay as to give much of the lower part of the passage a large and rounded cavernous aspect,—by candlelight of course,—for we were now quite beyond the reach of any daylight. But we could see enough of the ruin to call to mind Professor Greaves' description, nearly two hundred and thirty years earlier, to the effect of the beauty of the architecture of this passage, and to the greater 'softness' and 'tenderness' of the stone composing walls and roof, over that of which the floor was constructed. 'The ingenious young man, Titus Livius Burretinus, 'the Venetian,' first made the observation, and Greaves afterwards confirmed it, apparently by trying the surface with his knife; and if the huge exfoliation of the stone now to be observed has chiefly been effected since their day, grave doubts may well be entertained as to how much longer those parts of the Pyramid are going to last, where the material is of the 'tender,' but the treatment by modern men of a decidedly untender kind.

Proceeding up and up, stooping always, and carefully carrying our lights, but immersed constantly in the dusty haze of our own stirring, we found the upper part of this passage in rather better preservation than the lower, as to the original plane

surfaces of its walls ; yet the highest and southernmost roof-stone was ominously cracked through the middle along its central line. This mischief occurred at a point where said passage opened into the grand gallery or second ascending passage. Instantly on entering that, there was a feeling upon us of greater solemnity and perfect quiet. We could now unbend our backs and stand straight up, rather wondering in the awful room of twenty-eight feet high above our heads, and its ceiling rising still farther, and one could think unlimitedly, as it proceeded southward. Close on the right hand was a square hole (see Plate v.), leading, by a short horizontal duct, to the mouth of that celebrated well going down to the lower parts of the Pyramid ; and so awfully deep, that the primitive Muslim who lucklessly fell down it in the year of the Hegira 345, ' was no less than *three hours falling*, according to ' his terror-stricken companions ; who heard the most ' horrible cries ; and then going out of the Pyramid, ' sat down in front of its northern face, and talked ' the matter over.'

Before us, southward, the floor was level to a small distance, and very narrow, but encumbered with fragments of stones ; and even when we had come to the end of this part, and had climbed, by straddling in the most inconvenient manner from hole to hole (and rather remarkable holes too), in either side-wall or bank ; and so had climbed up to the true inclined floor of the grand gallery, rising

The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that every entry should be supported by a valid receipt or invoice. This ensures transparency and allows for easy verification of the data.

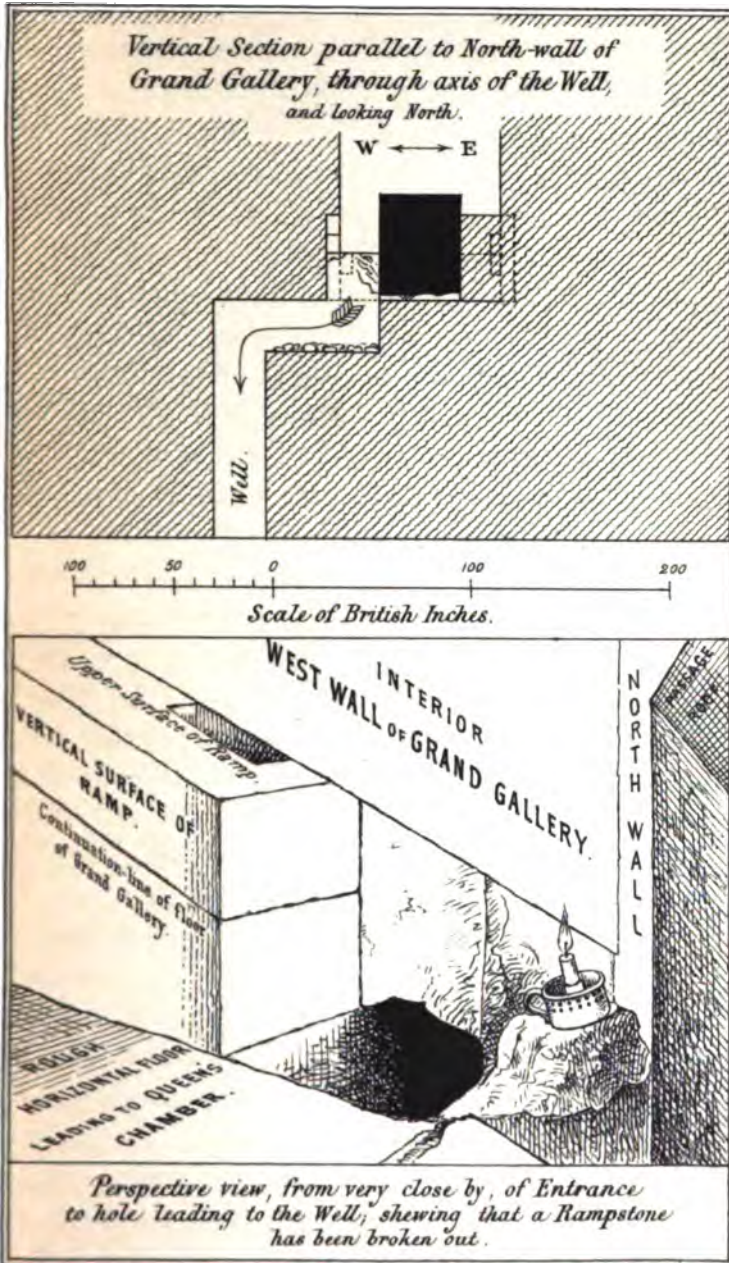
In the second section, the author outlines the various methods used to collect and analyze the data. This includes both primary and secondary data collection techniques. The primary data was gathered through direct observation and interviews, while secondary data was obtained from existing reports and databases.

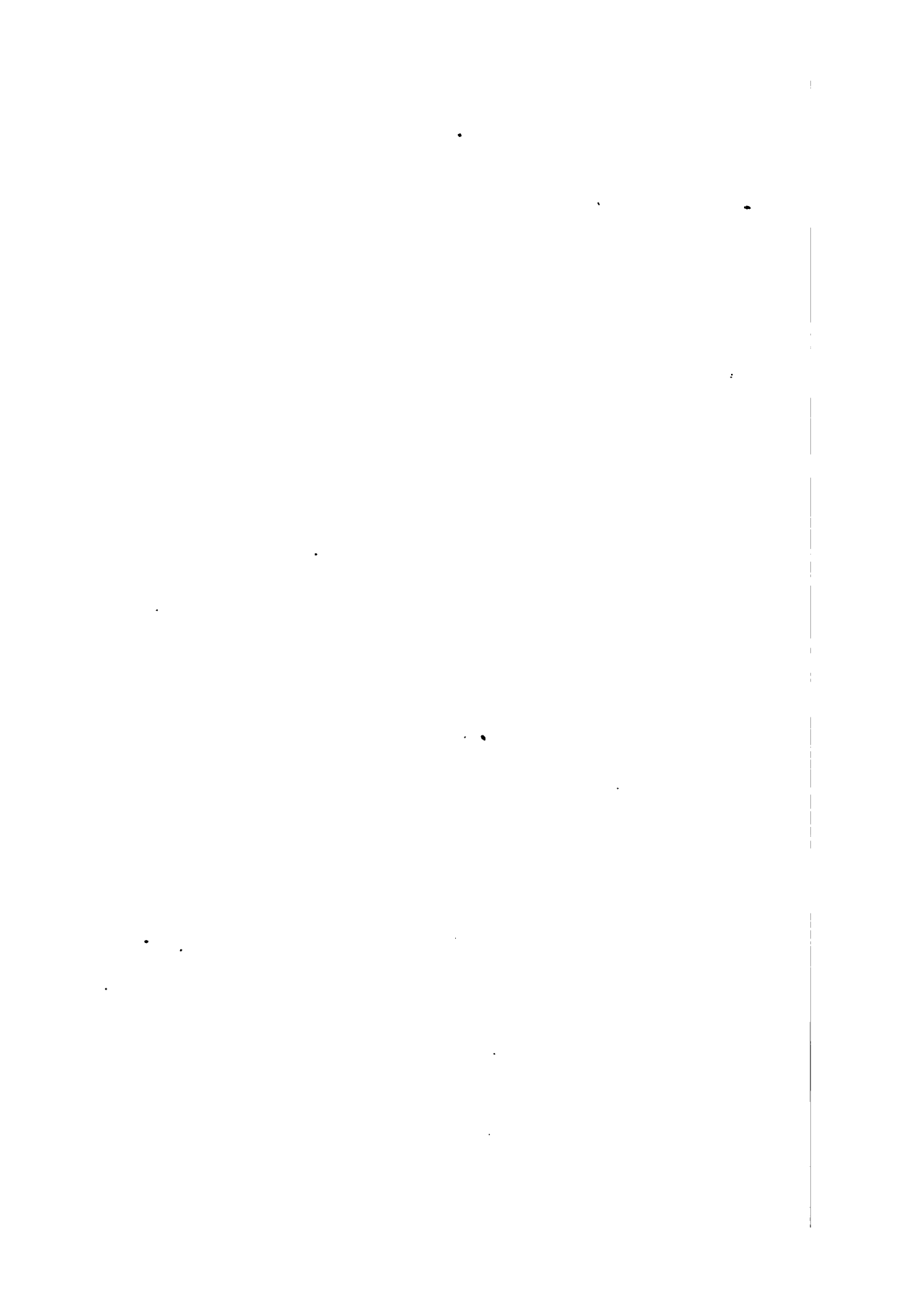
The third section provides a detailed description of the data analysis process. This involves identifying patterns, trends, and correlations within the data set. Statistical tools were used to quantify these findings and to test the hypotheses that were formulated at the beginning of the study.

Finally, the document concludes with a summary of the key findings and their implications. It highlights the significant impact of certain factors on the overall results and offers practical recommendations based on the research. The author also acknowledges the limitations of the study and suggests areas for future research.

The following table provides a summary of the key findings from the study.

Category	Key Finding
Primary Data	75% of respondents reported a significant increase in productivity.
Secondary Data	Market trends indicate a steady growth in the industry over the past five years.
Statistical Analysis	There is a strong positive correlation between investment and growth.





at an angle of 26.3° , and decorated on either side with the well-known ramps or long stone benches on the incline,—still every surface was thick with white powdery stone-dust, and the ‘ramp-holes’ absolutely filled with it. A long ascent there was, by that gallery-floor; stopping, as we did, every now and then to admire the lofty walls, and their ‘seven ‘overlappings of the tables of stone;’ though occasionally to grieve over huge fractures from their edges; and then to find perhaps the ramp itself completely broken away for a distance of several feet, and the ascent at such places rather hazardous from the absence of an accustomed support for the hand. (See Plate III.)

By aid, however, of the cross notches cut on this floor also, and gradually increasing in depth and power towards the upper end, we reached the top of the incline, and came to the grand upper step; a noted architectural feature of the original construction, and not a small embarrassment to any one requiring to pass over it with a heavy burden: for it was planned to be a fine bold step, rising at once nearly three feet high vertically out of the ascending floor; so that there must be no slip backwards thereat, or the results might be ruinous. But now, alas! how is this great step fissured by two deep, snake-like cracks, and broken away by hammers to such an extent all about the middle, that there is little feature of any kind remaining.

From this point you enter, stooping, the very low

passage that leads on southward, out of the upper end of the grand gallery ; entering thereby at once the *granite* constructions of the Pyramid, all previously having been in limestone of one sort or another. And now to see the chipping perpetrated on all the corners for 'specimens !' This was most apparent in the little 'antechamber ;' where the 'pilasters,' or projecting rims, between the supposed portcullis blocks had, bit by bit, been knocked almost entirely away, and some of the last fractures of the fine red granite looked very fresh indeed.

Stooping again after leaving the antechamber, another low passage brought us into the King's chamber, that grand and final construction of the whole Pyramid, for which, and towards which, the entire fabric was erected. Here Alee and his two Sakkára young friends sat very dutifully on one side, with a single candle amongst them, while I took the remaining lights in either hand and began an inspection.

A magnificent room without doubt ; granite the walls, the ceiling, and the floor ; with the important coffer standing solemnly at the farther or western end.

In the north-western corner, a long hole, caused by the taking out of three floor-blocks, that men descending thereby, might burrow under the granite floor, and especially under that part where the coffer stands, and search for possible mummy-pits

in the underlying limestone masonry; an old mischief long before Colonel Howard Vyse's time, though further worked in by him. But he describes the floor-joints as exquisitely true and fine, beyond almost anything else in the Pyramid; while now, on the contrary, the floor is remarkably dislocated, with some of its stones an inch or two higher than the others! Is this the result of recent straining on the building by reason of the large amount of quarrying performed above, below, and round about this precious room by the many curiosity-seekers, who have plagued its existence and perforated its structure in all directions? One almost thinks it probable, for in the south-eastern corner are some frightful fissures in the wall, going right through two or three courses of the granite blocks as they stand, and evidently therefore produced by pressure on those blocks in their present position; and that is close to the very place in the masonry, at the back and above, where the Signor Caviglia of Vyse in 1837, the Captain Cabilia of Belzoni in 1817, was for so many years quarrying and blasting, in his false and entirely unfounded hopes of finding another chamber connected with the south air-channel. These walls of the King's chamber had been so tenderly cared for by the builders, lest too much weight should press upon them, that the architect had constructed his curious arrangement of the five hollow chambers of construction over its ceiling: but when the divisions between those chambers were

recently blasted, and the limestone backing of the granite below, largely knocked away,—no great wonder that the walls are now found to be cracking, and the floor giving and rending; for this room is in the Atlas condition of supporting the huge pressure of the whole upper part of the Pyramid.

Then looking round the walls, elsewhere truly composed of the 'beautiful and spacious polished ' tables of red granite,' behold names, names, names; not many cut, for the material is too hard for pocket-knives; but what with white oil-paint, and black tar put on with a large brush, and in letters eight inches high, the stains in the classic 'marble of Syene' are villanous indeed. If, too, the travellers had not *carved* anything into the granite, they had chipped its edges wherever they could get at them; whence it came, that all round the doorway not an inch in length remained unchipped; similarly round about the openings of both the south and north air-channels; at several places in the floor, and in the western wall, where the joints were not quite close; and last and chiefest of all, on the poor coffer.

Every possible edge of this was chipped away with large chips along the top all round, both inside and out; chip upon chip, wofully spoiling the original figure; along all the corners of the upright sides too, and even along every corner of the bottom, the latter being rendered more amenable to the vile hammers of petty destructors by being tilted up on a large round pebble thrust in below at the

southern end ; while the upper south-eastern corner of the whole vessel was positively broken away by successive chippings, to a depth and breadth of nearly a third of the whole. Horrible in themselves, these extensive fractured surfaces had at least the merit of enabling one to settle in a moment the long-disputed question of the *material* of the coffer, and say it is not porphyry, but a blackish variety of red granite ; and all honour should therefore be given to those amongst past authors who pronounced in their day for red granite against porphyry, black marble, and whatever else the substance has been called.¹ (*See Frontispiece.*)

Except the mere alteration of the name granite coffer for porphyry coffer, this correction possesses no further influence upon anything theoretical that has been advanced in connexion with the Pyramid ; but our eyes almost at the same time caught sight of another feature, which appeared at first of most revolutionary character ; viz., the western side of the coffer is, through almost its entire length, rather lower than the other three, and these have grooves inside, or the remains of grooves once cut into them, about an inch or two below their summits, and on a level with the western edge ; in fact, to admit a sliding sarcophagus cover, or lid ; and there were the remains of three fixing pin-holes on the western side for fastening such cover into its place.

¹ Chief among these authorities who were right, are Sir Gardner Wilkinson, Dr. Richardson, Dr. Clarke, M. Denon, Dr. Shaw, and M. Maillet.

The import of all this struck us almost dumb for a time ; and we thought, if this cutting into the original proportions of the coffer, to convert it into a sarcophagus, is really an ancient work,—why and wherefore did the French *savants* of A.D. 1799, represent it, in the exquisite engravings of their great national work, without any such cuttings whatever ; or, as a pure box-shape, with sides of equal height and thickness all the way round,—depriving us now of the serenity of our dependence on that mighty series of books of theirs, the glory-idol of far more extensive sections of the French people than their scientific men alone ? But if, on the other hand, we really *can* depend on what the learned authors say they paid a great deal of attention to, and witness the special article criticising Professor Greaves' description of the coffer, (and he also mentions it as a mathematically formed solid, or 'two cubes set neatly together,')—why then, in such case of loyalty to Academicians of Paris,¹ this

¹ The following is extracted from the Travels of Dr. Clarke, who had several interviews with members of the Institute in Alexandria, shortly previous to their return to France :—'The French Institute of Egypt was divided into four sections, severally consisting of the Mathematics, Physics, Political Economy, Literature, and the Fine Arts. The following persons were its members :—

'Those marked with an asterisk had left Egypt at the time of our (Dr. Clarke's) arrival.

	' MATHEMATICS.	
*Androssy.	Costaz.	Malus.
*Buonaparté.	Girard.	*Monge.
Fourier, <i>perpetual</i>	Lancret.	Nouet.
<i>Secretary of the</i>	Le Pera.	*Queznot.
<i>Institute.</i>	Le Roy.	

modification must have been worked into the coffer in the course of the present century.

In the earlier part of it, however, would *now* seem to be the conclusion ; for we were not *then* aware of Mr. Perring's magnificent plans and drawings of the Great Pyramid, in Colonel Howard Vyse's folio

' PHYSICS.

•Beauchamp.	Delisle.	•Dubois (<i>père</i>).
•Berthollet.	Descortils.	Geoffroy.
Boudet.	Desgenettes.	Larrey.
Chamy (<i>père</i>).	•Dolomieu.	Savigny.
Conté.		

' POLITICAL ECONOMY.

Coranoy.	Jacotin.	Reynier.
•Dugna.	•Poussielque.	Tallien.
•Fauvel Bourienne.		

' LITERATURE AND FINE ARTS.

•Denon.	•Parseval.	Rigo.
Dutertre.	Protain.	Rigal.
Le Pere.	Don-Raphael.	•Ripaut.
•Norry.	Redouté.	

' To these sections of the Institute were also annexed the following persons, under the several heads :—

' LIBRARIANS.

Coquebert.	Méchain.
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' COMMISSION OF AGRICULTURE.

Chamy (<i>père</i>).	Delisle.
Nectoux.	

' COMMISSION OF ARTS AND SCIENCES.

<i>Antiquaries.</i>		<i>Chemists.</i>	
•Ripault.	•Poullier.	•Berthollet.	Descortils.
	<i>Architects.</i>	Chamy (<i>père</i>).	Chamy (<i>fils</i>).
Balzac.	•Norry.	<i>Surgeons.</i>	
Le Pere.	Protain.	•Dubois.	Lacypierre.
	<i>Astronomers.</i>	Labate.	
Nouet.	Méchain (<i>fils</i>).	<i>Artist for Design.</i>	
•Quenot.		Dutertre.	
	<i>Botanists.</i>	<i>Geometricians.</i>	
Delisle.	Nectoux.	•Monge.	Costax.
Coquebert.		Fourier.	Coranoy.

publication, dated 1837-1839 ;¹ where the sarcophagus features in the sides of the coffer are duly shown ; viz., cuttings into it suitable for sliding on a lid ; but no lid given or reported discoverable, even to the smallest fragment.

<i>Engraver.</i>		<i>Literati.</i>	
Fouquet.		*Denon.	Lerouge.
<i>Civil Engineers.</i>		*Parseval.	
Le Pere.	Arnolet.	<i>Mechanics.</i>	
Girard.	Caristie.	Conté.	Coutelle.
Fays.	Favier.	<i>Artists.</i>	
Le Père (<i>Gratian</i>).	Dubois.	Adnès (<i>père</i>).	Adnès (<i>fils</i>).
	Devilliers.	Aimé.	Couvreur.
Martin.	Moline.	Collin.	
Saint Genis.	Duchanoy.	Cécile, <i>Mechanical Engineer.</i>	
Lancret.	Alibert.	Lenoir, <i>Mathem. Inst.-Maker.</i>	
Fevre.	Regnault.	<i>Musicians.</i>	
Chabrol.	Bernard.	Rigel.	Villoteau.
Jollois.	Potier.	<i>Mineralogists.</i>	
Raffeneau.	Viard.	*Dolomieu.	Roziere.
<i>Geographical Engineers.</i>		Cordier.	Dupuy.
Jacotin.	Bertre.	<i>Naturalists.</i>	
Simonel.	Leceane.	Geoffroi.	Savigny.
Levesque.	Laroche.	<i>Painters.</i>	
Jomard.	Faurie.	Redoubt, <i>Pt. of Nat. History.</i>	
Corabeuf.		<i>Apothecaries.</i>	
<i>Engineers—Constructors.</i>		Boudet.	Rouhieres.
Boucher.	*Greslé.	<i>Sculptor.</i>	
Chaumont.		Casteix.	
<i>Oriental Literature.</i>			
Marcel.	Raige.		
*Joubert.	Delaporte.		
Belletete.			

¹ Published by James Fraser, 215 Regent Street, London, 1839. Originally the size of the book was 24 inches high by 36 long ; rather unwieldy, no doubt, though excellent for reference to the plates ; but a lately purchased copy of the same edition has had all the plates folded in two, and with them, of course, the printed pages as well, making the opening of them out for reference or reading, as inconvenient as well can be imagined.

We looked at the affair, therefore, for a short time in that point of view; and found undoubtedly, that the present sarcophagus appearance has nothing about it which is in *excess* of the assumed original coffer; the characteristic being merely a small amount of defect therefrom; so that, given the coffer complete as the French *savants* pictured it, or as it proves itself to have originally been,—a clever granite-worker with appropriate tools could very soon do all that was required to bring about the present alterations; that is, to take off some very modest parings, from one angle chiefly, near the top. So proportionally small are they, indeed, to the whole work, that they *may* have been effected long before the French visit, and even in a certain not only pre-Al Mamoon, but now suspected pre-Cambysean, entrance into the Pyramid by Egyptians themselves; and have, by their insignificance, escaped the Argus-eyes of the learned Academicians.

Be that, however, as it may,—the Pyramid theory which brought us to Egypt, concerns itself not with what the vessel may have, at any subsequent time to its birth, been cut down to and made to measure as a sarcophagus, nor with the names of the perpetrators of such reduction,—but with what precisely were the vessel's cubical contents in its first and original shape as a coffer; and for the determination of this query, sufficient materials fortunately remain. The coffer question was therefore, in this manner, found to be essentially similar to every other problem.

requiring settlement in and about the Pyramid, including the very Pyramid itself as a whole; for what that body measures now, after the injuries of four thousand years—injuries that have always been in the way of reduction of, and abstraction from, the original figure or size, never of adding anything thereto—is of no theoretical importance whatever; unless as leading to the discovery of original marks, capable of showing satisfactorily what the primitive size, at the time of the building, must have been.

With this general principle, therefore, strong on my mind; and some idea, too, that Bonaparte's French Academicians may have looked through the intervening reductions, up to what they concluded, on good mechanical ground, must have been the *original* form of the vessel before them, when they prepared its elevations, plans, and sections,—we went on with our present mere inspection of repair and disrepair; and, on looking over the edge into the coffer's interior, saw there only dust, dirt, and a huge lump of limestone.

'What is this great stone doing here, Alee?' I inquired.

'Why, the travellers want it whenever they come,' returned he, 'to hit the coffer with hard, and make 'a sound like a bell.'

'Then just have the goodness to take it out, and 'throw it down into that deep excavation under the 'floor,'—was the only answer that could be made

in the spirit of obedience to His Highness the Viceroy's desires touching the preservation of the monuments of Egypt, and with due respect to the principles of the Museum of Boolak.

But this little operation raised, into a smoke-like cloud, the dust that was more than two inches thick on the bottom of the coffer; and not for ten minutes or more could we see into it again. The whole floor of the room too was similarly covered with the infinitely fine, white, and dry limestone powder, that rose in misty haze with every step we took across it. This accompaniment causing the heat of the room to become oppressive, we examined interestedly the two openings of the ventilating channels in the north and south walls. Not a breath of air was passing through them. Alee Dobree said that was always so in the winter time; but that in summer, on a very hot day outside, a little motion of air could just be seen. He took us, however, afterwards to an excavation of Signor Caviglia's, tending north-westward from the entrance of the ante-chamber; and there we perceived the north air-channel, not only intercepted and cut in two; but the small remaining portion leading off to the King's chamber,—and where we had been experimenting very carefully for traces of ventilation-currents,—rammed full of stones and sand; and the same very modern choking was afterwards found to have been performed upon the larger remnant of the shaft leading outwards to the open

air ; as well too with the southern as the northern channel.

I questioned the guide specially about these air-channels, drawing a vertical section of the Pyramid to 'place' every passage we had yet visited or seen ; and he surprised me much by saying that there was another air-passage still ; and when asked to take the pencil and show where,—he drew a shaky line leading out just over the entrance passage of the Pyramid. This being quite unrecorded by Howard Vyse, Gardner Wilkinson, or any other explorers, I immediately demanded that he, Alee, should take me to where it opened on the outside of the Pyramid. So in our way out, we merely stopped a few minutes to look in at the Queen's chamber, and take note of a monstrous quarry-hole in the eastern side of the floor, under the strange niche in the wall, and a huge heap of stones and rubbish in the north-west corner, rising nearly a third the height of the room : 'noysome savour,' indeed, 'and grave-like smell,' such as offended Sandys, we did not perceive, but of his 'rubbidge' there were whole waggon-loads ; and then, in a few minutes more, we were ascending the outside of the Pyramid at its north-eastern angle.

Why we should go so far away from the vertical of the entrance passage, if the new air-channel had its opening close above that noted portal, did not appear ; but Alee declared he was going the shortest

and easiest way. Yet still it was a long climbing up and up and up ; so long, indeed, that at last we arrived at that large break-out in the corner, which is technically known to all the guides as 'half-way,' but is really rather more than half-way, to the top of the Pyramid ; and when Alee began climbing higher still, I was obliged to remind him that we were not wanting then to visit the summit of the Pyramid, but only to see the air-hole he had spoken of, and shown in the drawing to be very much lower down. Still he said he was going to it as straight as he could go ; and at last when there appeared very little more of the yellow Pyramid left between us and the blue sky, nearly overhead, he began to strike off horizontally towards the central vertical line of the northern face.

Now began the critical work ; for hitherto, though the stair naturally formed by the courses of masonry at the corner slope, was often most inconveniently high for any man, other than a long striding Arab, to step up, viz., forty or fifty inches at a time, yet they were sure and safe ; for they are generally composed of the hard Mokattam limestone, are free from *débris* ; and, rising only at the *corner* Pyramid angle of 41° , have more horizontal than vertical surface. But the courses forming the general *side* of the Pyramid, were composed only of the friable rock of the Pyramid's own hill ; were of the steeper slope of 52° , or necessarily with less horizontal than vertical surface ; and were so decayed by the

weather, or obscured by gravelly matter brought from above by rain, that the ordinary stepped side of the Pyramid, in some cases degenerated to little better than the sloping surface of a mouldering but dangerously steep hill.

However, in one way or another we contrived to climb along with our faces to the Pyramid, until Alee came to a worked hole trending down towards the centre of the Pyramid at an angle notably different from the passages proper, or $32^{\circ} 45'$, as a pocket clinometer seemed to indicate. On noting this angle, however, and the height above the ground, I was obliged to exclaim, 'Why, this is Colonel Vyse's 'northern air-channel! where, Alee, is the other 'lower channel you promised to show me?'

'This is it; and it is the only one in all the 'northern face,' said he. (See Plate III.)

'But this is not in the position you marked in 'my drawing,' I returned, taking the paper out of my pocket, and showing him what he had there put in with his own hand.

Whereupon, borrowing the pencil again, he began to discourse on air-channels, and passages, and chambers; and while showing he did really know a great deal about them in themselves, yet exhibited the most singular incapacity for accuracy with regard to a drawing. For although the one before him, was on the small scale of only about three inches for the whole height of the Pyramid, he considered that putting the pencil-point within a whole inch or two

one way or the other of the right place on the paper, was quite close enough for all practical purposes ; and that in fact, his zigzag marking for an air-channel near the bottom of the Pyramid was, to his eye and judgment, an absolutely identical line with my straight one near the upper part of the Pyramid ; and that they both spoke with equal accuracy to one and the same air-channel, viz., the well-known one of Colonel Howard Vyse.

We had therefore been led a most needless climb after a fatiguing inspection of dark interiors, and began accordingly rather to underrate the faculties of Alee Dobree as a Pyramid guide ; but when he presently turned round and pointed out, from that very notable height where we were then suspended on the Pyramid side, all the villages in the fertile plain of the Nile and southern end of the Delta ; and named them by their names, and spoke of the old Arab bridges ; discussed the recent inundation ; described the various species of agriculture then commencing in the dark brown, well-wetted ground ; and went into the hopes and fears and hard toil of the peasants at that, their cold season ; but painted a glowing picture of the happiness that would ensue on the arrival of genial summer, when all the plain, now so black, would be bright green, and there would be food for everything with life, for the birds, the beasts, and the Arabs with all their families ; that delightful Egyptian summer-time, he said, when all the crops would be so abundant, both the corn

in the fields and the cucumbers in the gardens, that every one might eat and have enough to spare for his neighbour, and no one need feel his heart contracted, or think the world was black before his eyes,—why, on hearing all this fluent outpouring both of local topography and good native sentiment, we could not but begin to see that Alee Dobree was a man of sterling moral worth; endued too, with quite enough general knowledge to become a very good helper in mechanical researches about the Great Pyramid, though not to be trusted again in any matter involving minute accuracy on a small-sized paper plan.

CHAPTER V.

WORKING PRELIMINARIES.

ON returning to the 'East Tombs,' affairs were found there greatly advanced toward the possible, for modern civilized life. Old Ibraheem of the snowy beard was fertile in expedients; he had rediscovered, too, most of the wooden plugs inserted by Colonel Howard Vyse in the rock-walls of these convenient chambers; and driven nails or hooks anew into them, whereby to suspend both cleanly tapestry and curtain-doors; while at the same time he kept a whole drove of little Arab boys employed all the morning in bringing him water and Nile mud, wherewith he plastered up unsightly holes that might conceal a snake. He also made himself a whole kitchen-range, by building several little cast-iron boxes into a bank of stones, cemented and finished off at top with this cheap substitute for lime-mortar, so conveniently present to the hand of every inhabitant in the favoured Egyptian valley.

He had a peculiar gift likewise, in spreading the native reed-mats, to make a flat and clean floor; of which full advantage had been taken; both in the

bedroom decorated with the alto-relievos of the 'lady and gentleman'—or rather of the ladies and gentlemen, for there were two pairs of them—of four thousand years ago ; and in the bower of stone, which had become a very respectable sitting-room for a modern party ; with table, chairs, and boxes that held both sideboard fittings and writing-desk luxuries. An assistant, moreover, had been engaged ; one Smyne by name, a regular Arab villager in look and costume, but very smiling, cheerful, and ready to help Ibraheem in anything and everything ; besides continually declaring his purpose to serve us as long as we should remain at the Pyramids, and then accompany us back to Scotland, if we would take him. He was perhaps rather too abundant in protestations, and had given out already a large variety of information about himself ; so that I was immediately instructed, among other things, that he was a pure Arab, and not an Egyptian at all, was aged twenty-two, and was going to be married the week after Ramadan.

Of course I complimented him on his prospects, which he acknowledged pleasantly, but then declared that his intended marriage was 'maleysh,' or no matter at all, and of no consequence whatever : which was of course thought very strange by the lady. But now Ibraheem demanded help, for dinner was ready to be served up, and the whole world would be out of joint with him if anything was to interfere with his arrangements there ; so

the table being spread with a fair white cloth and the appointments of a small canteen, we waited to see what would come. First, a messenger with hot plates, wrapped up in a towel to prevent sand blowing on them in the short transit along the face of the cliff from the tomb-kitchen to the tomb-dining-room. How has that ancient mariner, thought we admiringly, been able both to cook the dinner and heat plates too at that miniature kitchen-range of his, where only a pinch of charcoal is burning in each of his primitive little grates? But while we are wondering, and have heard the lid of the big box,—the biggest of all our travelling-boxes, and which when emptied of its original contents of bedding, tent (lent us by our kind friend R. M. Smith, Esq., of Edinburgh), etc. etc., Ibraheem had immediately applied for and conveyed into the recesses of his tomb, to be both closet and lockers for all the paraphernalia of his art and his kitchen,—had heard the lid of this box open and close frequently with vehement bangs that made its hasps ring again,—suddenly, behold a procession; Ibraheem in his dragoman costume leading the way with one element of dinner, and Smyne in a long toga following him with another, and after him a similar but smaller chocolate-faced youth, and after him another smaller still, but each having something or other out of Ibraheem's big box; and our table is covered in a trice with everything that hungry human nature need

desire. A really good soup, rich, well-flavoured, and fair to contemplate besides ; a small roast of lamb, done to an exquisite turn ; pleasant-looking potatoes, not over-boiled outside, and yet, strange to say in modern times, done thoroughly through to the heart, such was our Sindibad's magic skill ; and presently followed a sweet pudding, that looked pure as Oriental alabaster, and yet wanted nothing that pudding should possess. Of course we showered compliments upon the artist-author of all this performance in the desert, and the twinkling of his one eye which ophthalmia had spared, and the rising of the ends of his grey mustaches, told how much the praises were appreciated ; evidently expected too—as why should they not have been, when he had been continually, morning, noon, and night, imagining and arranging the whole subject in his mind with the enthusiasm of any French *chef* ; combined, however, in Ibraheem's case with the dignity of a Roman senator ?

Who, however, were these little mites of Arabs, small by degrees, and, by courtesy, beautifully less, following Smyne ? Oh, these, we were told, are his younger brothers ; he has brought them over to do his work for him ; it is not usual in Egypt for any one to perform other than the lighter and more ornamental parts of the work he may be paid to do. From head Basha to cook's scullion it is all the same : the man who is paid, pockets the money, and then looks out for some smaller or younger

man whom he can compel to do the hard work for him. The true 'génie Egyptien,' of all Cairenes, and others too, is to recline all day long on luxurious cushions ; accomplishing nothing more than smoke tobacco and drink coffee in the cool shade, and see other men in the distance and broiling sun doing their work for them.

'Well, but all that is very immoral,' we remarked.

'Oh, not at all,' answered our Sindibad philosopher, 'not at all *here* ; this country is not like yours, and there is no other way of getting work performed well in our land. If a man had to do with his own hands the work he is paid to do, why, his first thoughts would of course be to spare and cherish his own flesh—for what does a man care for so much as his own self?—but if he has some unfortunates under him to do his work for him, he never thinks about sparing their flesh or cherishing their muscles. Only look at Smyne now, so dignifiedly smoking a huge cigarette of his own lazy twisting up ; he is already retired for the day from all active work, and which he can so well afford to do, because he has his small brothers before him to attend to any little *et-ceteras* there may be about the kitchen or the water-jars ; and if they attempt to shirk the smallest portion of such duty, he cries out at them like an "efreet ;" so then you see it is excellent education for them in the way of learning what they will have to perform as men ; and it is not

‘less useful for him, because it teaches him how to
‘comport himself in any high office to which the
‘Governor of Jeezeh, or the Kaimakan may raise
‘him some of these days; and, as he says, who
‘knows how soon Smyne may be elevated to be a
‘Reis, and perhaps even made a Sheikh of Pyramid
‘guides? But poor Smyne is always fancying that
‘he is just going to become a great man, or that
‘some very good fortune is to befall him,—though
‘it never comes, and his friends are rather afraid
‘that he is not very wise in the head.’

As we were far too much of strangers to presume that we understood the affairs and modes of going on in this country, we heard all and denied nothing. Besides, a report had to be written out on the state of the interior of the Great Pyramid, together with a project for its thorough cleansing; and the sensible Alee Dobree was waiting all this time to take said report over to M. Vassalis in his village on the plain. He had to wait too long after dark, for although there had been a blazing sunshine, blue sky, and high temperature throughout the day, yet the darkness came on lamentably soon, for it was yet the winter season of short days and long nights in this southern land; whence strange differences as well as resemblances began to develop themselves, day by day, between such an Egyptian sojourn and an ordinary summer excursion in the northern hemisphere,—where, when the weather is warm enough for tent life, or open cave and stone-

bower occupation to be indulged in with pleasure,—the days are so long, that little of stores for the night are required. But here, in Egypt, during January, we soon found that our hopes of making the best of opportunities, depended in no small degree on abundant supplies of lamps and candles, and the utilization of many of the nightly hours.

It was some time after my wife had retired to the sculptured room for the night, and I was still writing at the table in the stone bower,—when Ibraheem looked in at the upper corner, from the staircase ledge on the face of the cliff, and called my attention to something. ‘Oh, so fat!’ exclaimed he, while the fitful rays of two wax-candles twitching in the open but not windy air displayed his sage smiling countenance, and his hands holding up a couple of unfortunate fowls; and ‘Oh, so fat!’ exclaimed he again, on perceiving he was recognised.

‘Are they not always fat?’ I hastily answered; but the worthy man’s philanthropic visage implied deep grief for my ignorance of the important things of life; for fowls in the Egyptian country are as a rule kept starving until close upon the time they are wanted for the table; and though several had been brought from the village that day, Ibraheem would have none of them, they were so poor and lean, fit precursors only to a famine in the land. So he had sent at last a special messenger to a village a great way off, where there was a Sheikh reported to have a couple of fowls really presentable before a cook.

Well, the time passed on again ; moths from the desert came flying into the bower in abundance ; and every now and then a great scarabæus entered with a grand tantarara of sound, knocking himself violently against something or other, and requiring to be forcibly turned out. The Egyptian land in front lay level and silent under the silver moonlight and the sparkling canopy of stars, while every now and then the Arab guards at top of the cliff were calling to those at the bottom, or *vice versâ*, 'Are you awake? open your eyes, open them very wide.'

Presently in comes Ibraheem again, looking now very solemn, and arrayed in a long white robe like a ghost ; he seats himself on a tent-package half in and half out of the bower, and says, with a gravity that admits of no declining, that he has come to 'count with me.'

On what system of numeration? I am almost inclined to ask, raising my eyes from the paper ; but he immediately begins to unfold an impressive tale,—so many paras spent for one article of provisions, and so many for another, and his powers of memory must not be disturbed in calling up the vision of the whole day's proceedings, for his brains are his only account-books. But as soon as the drift of his visit is apparent, he is told that he must not come to the gentleman about these difficult things ; let him speak to the lady about them every day in the forenoon, and she will 'count with him' as far as he desires, and let him have all the money

too which he needs. And in fact that system was found to act ever afterwards so perfectly, that the gentleman was left with nothing but the Pyramid and its proper mensuration to think about, during all the rest of our occupation of the Eastern tombs.

Up soon next morning, and in time to see the earlier dark and coloured dawn of day before the brighter one, when colour is mostly lost in light ; and splendid depth of coloured hues too did appear, —for the green of the cultivated land in the middle distance, relieved by the brown-yellow of the desert sands in the foreground, went off in the further distance actually into deep Prussian blue, before they faded again to join the haze on the horizon,—that warmed once more as it rose up to the general glow of lurid red, which belted all the lower sky. Such intensity of blue we had never seen before in any landscape, and the accompaniments rendered it perfectly harmonious.

As the day approached, the colour-effect decreased ; but when the sun itself rose above the Mokattam Hills, and darted its long arrows of light through and amongst the palms of the nearer villages in the plain, there were powerful effects of simple light and shade that balanced or overcame everything else. Our night-guards were now seen on the illuminated sandy plain below, having performed their prostrations towards the east, wending their way towards their respective villages ; whence

the shepherds with their flocks, as often leading as driving them, were diverging to their search after scanty herbage in stray nooks and corners of the desert ; while between the nearest Pyramid village and our tombs, were observable, in long straggling line, Smyne and his little brothers coming in easy style to their practical school ; with sundry others too, whom the calculating Ibraheem had organized into a service for bringing water and butter and eggs, and we know not what besides.

When during breakfast, he came to show a large plateful of fresh eggs just procured, and to receive compliments on their beauty ; but was asked ‘ had he not got in plenty of eggs the day before ? ’ then this untiring factotum explained, that for the present time merely, he had ; but it would never do in the desert, to have supplies to last only from hand to mouth. For not on the ultimate, but the penultimate furnishings must we live, if we would avoid an occasional *contretemps* ; and that at all events it was his duty to have something more and further always safe in his big box, beyond what all the Arabs round about knew anything of.

His calculations were indeed incessant, and ever forerunning the time ; and were guided apparently in his mind by such an awful sense of the responsibility that rested upon him, combined with the duty of a certain amount of gentle despotism,—that it was quite bewitching to behold. So that, when my wife complimented him after breakfast this morning on

the magnificent bowls of coffee and milk; and asked, as an innocent matter of course, 'Are we to have coffee again to-morrow?' 'No!' said he, with the ponderosity of the Medes and Persians, but at the same time with a respectful bow, and a smile to assuage the rigour of the announcement,—'No! *tea* 'to-morrow: coffee the one morning, and tea the 'other.' There was, in fact, no disputing such a degree of firmness, relieved with philanthropy, and all being exerted for our good.

But now comes another party over the sandy plain from the village El Kafr, and bearing right to our tombs. It is M. Vassalis, and his host, the Reis Atfee; and when M. Vassalis arrives, he is in consternation at the report sent to him.

Now, the paper had rather struck me in writing it, as very moderate; for I had carefully omitted all notice of the four more important subjects contained in the second part of the memorial to the Viceroy,—as the contemplation of them had not seemed very agreeable to the Viceregal feelings; and I had merely described a cleaning of the interior of the Pyramid, beginning with the King's chamber, and so going downwards.

'Very well,' said the Superintendent of Egyptian excavations; 'but to effect that, you require that 'the coffer should be lifted up, and the flint pebble 'that is pushed in under one end, should be re- 'moved; and you want all the rubbish, filling the 'ramp-holes in the grand gallery, picked out; and

‘ the broken stones on the floor of the Queen’s chamber carried away, or filled into the hole there, and the obstruction in the lower part of the entrance-channel removed ; and then, to have the whole of those chambers and passages swept out, and finally washed down with soap and water. Now, all that,’ added he, ‘ will occupy a great deal of time, and Ramadan will be here before it is finished, and what will you do then ? ’ Upon which the Reis Atfee shook his head in chorus, and intimated that he, Reis Atfee, did not understand how it could be done at all.

But M. Vassalis went on, regretting that he had not near enough men for the work ; they were called twenty men, but there were really only two or three grown men amongst them, and all the rest were merely little boys. He qualified that indeed presently, by saying, that Arab men were too lazy to work, and all the great excavations in Egypt were carried on by boys. Colonel Howard Vyse’s conclusions, after he had had the experience of employing from one hundred to three hundred, of men and boys, for six months together, was very similar ; and the local report is now, that the Arabs are not such good labourers as formerly, even to the very moderate extent they ever attained to. Formerly, they were ordered to work, and beaten if they did not ; whereupon they accomplished whatever they were desired to do ; but now, men say, there is a new order of things—no compulsory

labour throughout Egypt for nothing. On the contrary, each man is paid something as labour-wages, and instantly the ungrateful fellahs exclaim,—‘ Hah ! ‘ hah ! the Basha is afraid of us ; that is why he ‘ pays us ;’ hence they care not to work overmuch, in order to show their independence. It was a pity, some think, that the Basha, in his improvements, had rather put the cart before the horse ; for he ought to have *educated* the people, *before* he treated them like free and civilized men. But in the meantime, were it not for the more pliant natures of the little boys, there would be little progress in all the land. Each of these boys was to be paid by Government one piastre a day, and the Reis five piastres.

But then, to return to the case before us, whether they were men or boys, what could a mere twenty do inside the Pyramid, when they had come here without anything beyond their baskets and hands ? That was actually the primitive fact ! for they had no brooms, no cloths, no soap, no ladders, no ropes ; and in short, no anything at all, of all the many things that were absolutely necessary in any proper redding-up of the inside of the Pyramid.

Then, could not M. Vassalis apply to his chief, Mariette Bey, to furnish him with necessary stores ?

Not then, for Mariette Bey had gone to Upper Egypt in company with M. Renan, and such stores were rather in keeping of other officials, who had their strongholds in the Citadel. The supplies existed there in immense quantity for the public

works ; but the keepers thereof would not listen to him, M. Vassalis ; or, if at all, not for weeks and weeks, and then Ramadan would be down upon us, and the whole thing would be over. In short, he considered there was nothing else for it, but for me to write to the British Consul, and ask him kindly to intercede with a certain Minister in charge of the materials of public works ; applying urgently for an immediate supply of these stores, so evidently necessary to the good intentions and favouring orders of His Highness the Viceroy, towards Pyramid mensuration being carried out.

The Reis Atfee again shook his sapient head, as he sat just on the edge of the cliff outside the stone bower, enveloped in his toga, listening to everything ; and remarked that he could not see how anything was ever to be done. But we thought there was much in the last part of the Superintendent's remarks, for the Viceroy had no doubt come out excellently well in favour of a scientific project, had given most liberal orders, and now his intentions were being neutralized by some want of correspondence between certain much smaller officers of his state.¹

¹ Something of the same sort, but on a larger scale, had occurred to Colonel Howard Vyse, which he describes thus, under date April 24, 1837 :—

‘ The work at Campbell's Tomb was again resumed. As the depth, particularly in the foss, had become very great, and the ropes were much worn, and therefore ill calculated to sustain the weight of the casks, which were secured with iron hooping, I entertained great apprehensions for the safety, not only of the people who worked at the

So the affair resulted in my writing a full account of it, both to Mr. Consul Reade and to our Consul-General also, for he had now returned from England ; requesting their action in the matter, and mainly as they should see it for the interest of the Viceroy's credit in European scientific circles, that any small obstruction to the carrying out of his enlightened and liberal orders should be removed.

This done, and funds for the payment of boat-hire, etc., being supplied,—M. Vassalis and his attendant Reis left us, to see that the letters were immediately taken to Cairo by two of the biggest members of the youthful working party ; though indeed Reis Atfee expressed his fears, that if they were very big, they might take the opportunity of running right away and never coming back. But when *he* had at length taken himself away to his

' windlasses above, but also of the boys, who were employed below in
' filling the casks. The greatest care was taken to keep the latter out
' of the way when the machine was at work, and luckily no serious
' accident happened : and an application was made to M. Piozan, the
' consul, by which I obtained an order for a rope to be made at the
' citadel ; but, notwithstanding the order proceeded from Habeb
' Effendi (the Governor of Cairo), the people refused to make it,
' alleging that a "new machine was required to do so," although
' larger ropes had been made by the same people for Mr. Hill, when he
' had the care of the steam-engine at the copper-works in the citadel.
' As the application failed, Mr. Hill found in the Basha's stores some
' rope, that by splicing would have answered the purpose tolerably
' well. Another order was obtained, and was signed by the Governor
' and by all the different authorities, excepting one person, who, upon
' being informed that the rope was wanted for the Pyramids, refused
' to sign it. I was therefore obliged to send to Alexandria (one hundred
' and forty miles distant), and in the meantime to buy up any old
' cordage of sufficient size that could be met with at Boolak.'

darling village,—there attended upon us the other Reis, viz., Reis Alee Shafei, to see what could be done as a beginning of Pyramid-cleaning, pending the arrival of all that magnificent furniture now applied for from the Citadel.

Reis Alee Shafei was as brown as the Reis At-fee, and similarly costumed in red tarboosh, with bright blue tassel, a dark purple-blue toga folded around a nondescript dress of white, and supplied with sulphur-yellow slippers ; but he was a much more noisy man ; his eyes were large and prominent, as belonging to a loquacious temperament ; and his beard, with the chin included, projected continually forwards, after the fashion of the language of self-esteem. He belonged apparently to Sakkára, from whence he had brought up his detachment of little men, and was now living with them in some of the tombs of the lower storey of our sepulchral cliff. Being furnished, therefore, out of our private stores, with lamps, candles, brooms, and lucifers, and taking with him his long wooden-stemmed pipe, off went Reis Alee Shafei and his little ones to the Pyramid, accompanied by Alee Dobree (who had now entered our service permanently), to show how the beginning of the cleansing was to be effected.

The latter soon returned to the Vyse instrument-room, and announced himself ready for work. Now the first thing was, to make a window-frame, door-frame, and door for the tomb-bedroom ; whereupon

he stripped himself of all outer clothing down to his long white shirt, and was ready, he intimated, for most egregious carpentry. 'All right, I know,' was his constant remark; but he set about hacking the wooden planks with the saw in such a style, that I had to stop his sawing, in order to teach him how to draw a straight line with a chalked string. 'All right, I know,' was the word again as soon as the paraphernalia were produced, so I left them with him for a time, while attending to other matters; but on returning, lo! he had discarded the string, chalked a wavy line, some two or three inches broad on the board's surface, and was sawing away anywhere within its broad limits; expending his strength uselessly in forcing the flat plane of the saw into a sinuous cut, but really flattering himself all the time that nothing could be straighter or more exact. So I found, alas! that I must do all the sawing myself, and there was much to be done before our rooms were properly fitted; but it proved excellent practice and useful preparation for the scientific carpentering, that afterwards fell to my undivided lot, inside the Pyramid.

Meanwhile the Reis Alee Shafei contrived to fill nearly all our horizon. Twice a day would he come for more candles, and lucifers, and brooms, and wooden apologies for scrapers, picks, and shovels; and announce that his work was going on gloriously, but was supereminently difficult. Each time that they swept the King's chamber, the dust for the

most part rose in clouds, filled the air, and made their breathing so difficult that they had to leave after a couple of hours of it; and when they went back next day, there was all that raised and flying dust of yesterday, neatly deposited again on floor and coffer and everything else, very much as before. Then when they came to the Grand Gallery, and began to sweep out its centuries of dust, and clear the ramp-holes of their collections of ages,—he made out, that the limestone powder rose in whirlwinds perfectly volcanic; and they heard travellers entering at the lower end, and saying ‘What’s all this? Dreadful!’ and then exclaiming wildly, ‘O take me out, take me out, or I shall die!’ But the gallant Reis and his little men went on bravely for all that, and worked, they said, until they could see no longer; that is, they worked and he looked on, squatted orientally on the great step, and smoking his long pipe until the air was so thick, that there was no escape for the clouds he puffed out of his mouth.

When these heroes returned to the tombs, they did most assuredly look very dusty; and the poor little boys had white lines round their black eyes, caused by the quantity of white dust which had settled on their long eyelashes. And they were well worked too; for the Reis Atfee came over from El Kafr quietly and seriously, with very little talk and no noise, and gave them a spell at the sweeping, whenever an expedition to a neighbouring village for more tobacco or any other equally important

occasion prevented his co-chief, Alee Shafei, from occupying his usual post of distinction.

Once there was great excitement,—the Reis brought out of the Pyramid one of the little fellows in his arms, they said, half dead ; first it was reported that he had fallen down the well ; but then, that it was one of his companions had let his pick fall from a height on the other's forehead, and the news-telling in and about Ibraheem's kitchen was immense.

When my wife went to ascertain the facts of the case, and had the little boy brought up that she might see him,—finding him with a severe cut above his eyebrow,—she had the wound cleansed and bound up with plaster and a cambric handkerchief, desiring the wound to be looked after and kept clean. But Ibraheem said, ' O no ! Arabs never touch a wound from the time it is bound up until it has become whole ; ' and true they kept to this maxim, as the little boy left a fortnight afterwards with the handkerchief still about his head, and certainly looking more black than white,—though, too, with a little care and quiet, not forgetting occasional tea and cake, the child had been able in a few days to resume his work merrily with his companions.

Next day, January 13th, arrived letters from both Consul and Consul-General ; each of those powerful officials stating, that application had been duly made to the proper administrative Basha in the Citadel, who had admitted the propriety of the request and granted it to the full ; so that the stores required,

would be sent out to us immediately. The only alteration, indeed, which one of these obliging officers had made in the text of my letter, was, that whenever I had asked for any smaller number of articles, a full dozen had been at once interpolated ; and that instead of a few spars of palm-tree wood, a whole palm-tree trunk would be sent, and a carpenter also to cut it up, as we should desire : so that evidently the Government working-party at the Pyramid would soon be overflowing with ladders, and wooden scantling, and ropes, and candles, and lamps, and soap, and brooms, and water-skins, and everything else that was necessary to their employment ; and likewise to prove before the world, that modern Egyptian civilisation is no untutored inefficient sham,—but a reality, capable of acquitting itself satisfactorily before Europe and America, even to the intricacies demanded by a new scientific question of the present day.

This was indeed good news ; and the Reis Alee Shafei, whenever he was out of the Pyramid, was parading continually up and down the catlike path that led from the base of the cliff, past our bower of stone, into Ibraheem's tomb-kitchen, where coffee in little cups was always dispensing. Thereabouts was the Reis for ever to be seen ; going and coming with his purple upper-garment gathered about his shoulders in many folds, and his brown legs protruding below out of his manifold white wrappers, —as he picked his way gingerly along, in his prim

sulphur-coloured slippers. But though in ever so great a hurry otherwise, yet he never failed to stop before our open sitting-room, to describe the excellence of his work in the Pyramid, and the unwearied diligence he was displaying; and to apply, at all sort of inconvenient times, for more of our candles and lamps; or, more frequently still, to express his deep regret, at our not appearing to know that there was in our service one of the best Reis in all Egypt, a man with few equals in looking after and making others work, and a perfect lion at cleaning out, by their means, the inside of a Pyramid. Ah! such neglect he might experience now, he would exclaim, but when once the Citadel stores from Masr should have arrived,—according to the magical effect of that wonderful letter which had been written,—then his light would no longer be concealed; and we should witness such performances, as should teach us from that time forward, eternal admiration for the abilities of the first captain of the excavations at Sakkára, viz., that inimitable ‘warrior,’ the Reis Alee Shafei.

CHAPTER VI.

ARRIVAL OF RAMADAN.

ON the 14th of January a regular meteorological journal was commenced at the East Tombs; not merely for that general satisfaction to the mind which one feels, when something of the sort is being carried on during a temporary residence in localities seldom observed in,—but as having a bearing on one of the great standards, believed from theory, to exist in the Great Pyramid.

In this point, as well as every other that was successively examined by measurement either in or out of the Pyramid,—the sole use made of any theory, was merely to direct attention as to what to try to measure with all available accuracy, and by means of checks from various sides; but that amount of assistance having once been obtained, all further reference to theory was postponed for a year and a day, or until the whole mass of observations should have been finally taken, recorded, and set in their proper order as mere observations of facts and phenomena.

The time, indeed, during which we were to stay in the neighbourhood of the Pyramid,—a portion of

time too short for all desirable objects, but yet too costly for extending,—was to be even further restricted to nothing but observing; all reductions as well as discussions being left to other times, places, and perhaps hands also.

Thus it was that we set up the little Venetian-blind box containing several thermometers, wet-bulb and dry, with an aneroid, duly tested, in the stone-bower dining-room tomb,—a famous place, with its broad, breezy opening to the north-east for true *shade*-temperature; and began the register, which, after three or four months' daily work, seemed in bulk at least to give promise of some useful data. And if that eventually prove to be the case, the credit is due to my wife, who took almost entire charge, even to the hourly observations which were frequently indulged in.

On first unpacking the thermometers, which had been lying for a week in the Howard Vyse instrument-room, in the midst of the generally non-conducting matter filling some of the large boxes, they all showed a temperature of 59° ; very probably a good mean temperature for the early part of January in this region; though for the latter part of the month, something like 60° or 61° seemed to be closer to the true quantity; and with a range between maximum by day, and minimum by night of from 12° to 18° . At all events, whenever the night-air was registered below 50° , our Arab guards were very restless; complained of cold; and the three men

at the top of the staircase—would establish themselves all night in the little court between our bedroom and Ibraheem's kitchen ; and there they would smoke and spit and eat dates, throwing the stones all round about, regardless both of Jinn and the sons of Jinn, while they did continue to talk, talk, talk incessantly ; and all their talk, we were told afterwards, was about money.

Sometimes we had to call out to Ibraheem, that the lady could not sleep on account of the noise, and he would reprove the talkers with the dignity of a prophet ; but when they had given us time to doze away again, back they came to their favourite subjects ; viz., gold, and the astonishing prices that Arabs were now getting for every article of produce in these times of Egypt's cotton-fever ; as well as the wealth, dimly alluded to, that they themselves were hoarding away somewhere or other, unknown both to the Government and their Coptic tax-gatherers, —all these mammonian topics would afford them occupation for an earnest, steady, grinding sort of talk, that went on thenceforward, without one minute's interruption, until daylight did appear.

Whenever, on the other hand, the noontide temperature rose to 70°, the day was voted hot ; and the 'travellers' from Cairo would be so exhausted, that great six-foot men scorned not to be carried up the steep slope of the Pyramid hill, sitting on Arabs' shoulders. Where all these streams of travellers, as their generic appellation among the Arabs seemed

always to be, were coming from, we could form no idea. Divers and sundry books of modern travel, had led us in past years, rather to infer that their respective authors had distinguished themselves among their kind, by an act somewhat uncommon, combined even with a dash of heroism,—in that they had not only visited, but actually ascended, the Great Pyramid. Yet now, behold every day, and day after day without fail, party after party of travellers, either coming to or going away from the Pyramids ; and continuing so to do, from early morn to an eve, which here was not dewy, but warm and, for expression of dryness, maintaining a difference between wet and dry bulb thermometers of from 7° to 10°. This never-ending succession too of strangers was occurring, notwithstanding that the late irrigation-flood had left such long deep pools of water remaining persistently behind it,—that the riding donkeys from Cairo, unable to ford the depths, were still obliged to remain on the farther bank ; while their late riders performed the concluding part of their journey either on foot or Arab-back.

Our position, too, in the East Tombs was singularly convenient for overlooking all these social phenomena, and yet without being positively disturbed by them. For, right in front, or eastward, lay the nearest Pyramid village ; and when the travellers had rounded its mud-houses and date-palm groves, and passed through its breadth of cultivated land in Indian file, and in line directed due west or straight

to us,—they always slanted off ultimately, slightly northwards or southwards, on reaching the sandy plain at the foot of the hill: the former parties intending to visit the Pyramid first, and return by the Sphinx; and the latter parties blessed with the idiosyncrasy of doing it *vice versa*. So that those who with them, charged the hillside about a quarter of a mile to the *south* of us, running straight towards the great idol's face, and then were lost sight of for a time away at our backs westward, as they went round to where the Pyramid stood,—would reappear several hours after, their bulky luncheons disposed of, and the sights 'done,' descending leisurely about the same distance *north* of our position:—a happy position, left thus unannoyed personally by visitors, untouched by traffic, and solitary in the health-giving desert; yet having withal streams of human life passing by it within easy eye-shot on either side.

So easy, indeed, that we could speculate, by the air of the several members of a party, as to whether they were English, French, German, or Dutch. And yet, abundant specialities though they had connected with their nations, there was one point in which they all coincided; viz., in having such an abundance of white drapery about their hats, that they looked, all of them, more or less like a set of negative undertakers, or as funeral mutes displaying a wedding-garment where the crape should have been. Of course, all this was to keep them from having sun-stroke; and being so generally adopted

must be concluded to be necessary ; but then what should make the sun strike so fearfully hot in an Egyptian winter-time, when the sun rises no higher in the sky at noonday, than it does in Scotland at springtime ! Nay, it rises in Lower Egypt, whether in winter or *summer*, hardly any higher towards the zenith, than it does in our healthy colony of the Cape of Good Hope ; and yet men are not there for ever putting tablecloths round their hats, either in the hot, or much less in the cold season of the year.

So we began to doubt whether our meteorological journal was correctly representing the climate by rendering only the shade-temperature—which was exquisitely moderate even at noon-day, say 60° to 70°,—and not that in the open sun also, which might occasionally rise to 100°. A few trials, however, soon showed where the puzzle lay ; and that though there was a certain amount of effect from the general surrounding temperature, the main influence was the wind ; for, in a perfect calm, the exposed thermometer got extraordinarily hot ; but the instant a breath of wind began to blow, away went the heat, *i.e.*, all the excess of heat above a shade-temperature, to visit distant lands, or wherever the movements of the atmosphere should carry it. One and the same sun, therefore, shining from the same angular height in the sky at the Cape and in Egypt, is, in the former region, quite innocuous, because there is always such an eternal wind blowing for ever and ever there, from one end of the year to the

other ; but in the latter region, we were daily entering in our journal, 0,0, for the wind return : and *therefore* no Frank ventured forth without his head-gear enveloped in seven-fold white linen, and with streamers of the same hanging down at the back of his neck, to protect the spinal marrow.

Ought a meteorologist then to note in his journal exposed, as well as shaded, thermometers ? If his object is the climate for social and agricultural purposes, for the good of those constant crops, crops, which one always hears of in a landlord's meteorological society at home, let him do so if he has time ; but it is not necessary ; for, given the shade-temperature, height of sun, and velocity of wind, the exposed temperature can be readily approximated to, within such limits at least as it need ever be inquired about. If, however, his object is to obtain, in the interests of high physical science, the direct radiating power of the sun, quite apart from the temperature actually impressed upon anything material, under circumstances too which include many other unknown quantities,—let him shun an exposed thermometer as he would the Evil One ; and take instead to regulated observations with Sir John Herschel's blue-fluid, adjusting, actinometer ; the only instrument ever invented which really meets the case ; and at once, the most exquisite, troublesome, and ungratefully treated by practical meteorologists, of radiation instruments which the learned world has ever had placed in its hands for noble ends.

All this attention to matters of the weather was not paid without divers interruptions ; the most conspicuous of which were without doubt, whenever the gallant Reis Alee Shafei came out of the Pyramid, and had yet more magnificent accounts than before to give of the progress of his cleaning operations ; or demanded still more of our candles and other stores, all to be repaid when the Government supplies, promised through the British Consuls, should arrive. But one Sunday morning came another and a more serious affair ; for, enter Ibraheem into the stone bower, looking very solemn, and he seats himself at once on the tent-bundle, near the entrance, as if there was a long piece of business to discuss ; behind him comes Alee Dobree, who sits native fashion, on his heels, all crouched up within a few inches of rock ; Smyne follows, leaning half in and half out of the bower ; and on the rock-cut flight of steps beyond, or on any projecting crag of the cliff, wherever a view of the interior of our bower can be obtained, clusters a variety of Arabs whom we have never seen before.

To something of this congregation kind, indeed, we had become tolerably well accustomed ; viz, to living not only in the open air, but in open view of every one who should choose to take the trouble of coming to sit down on the rock and look at us, whether we were, at the time, observing, writing, dining, or anything else ; while, if strangers called on us for any purpose whatever, these Arabian chil-

dren of Heth sat themselves closer still in our doorway, so that they might hear every word that was said; and rather thought they were showing profound respect, and paying us immense honour thereby, than otherwise. But on this Sunday morning they accumulated to an unprecedented degree, and Ibraheem began to unfold before them, as well as ourselves, what he had come about.

He commenced indeed with his usual clear English of 'Excuse me,' but then passed into a sad jargon of several languages; so that we had to appeal for explanation to Alee Dobree, who cleared up some parts of the other's harangue, but mystified others by the frequent use of 'I know,' and 'all right,' accompanied by other words which were totally unintelligible; and then Smyne sometimes put in his speech to assist, one-fourth in English, one-fourth in French (the which he gave too with infinitely more of the true Gallic *verve* than we could do), and one-half in his own tongue unalloyed.

So after listening patiently to all three, we had to sum up the several intelligible items, and then put it to the speakers whether we had understood the case; viz.: Alee Dobree's brother lives in the Pyramid village yonder in the plain, whence all our milk and eggs and fowls are derived, and he is a Pyramid Sheikh. He is not Sheikh of the village—that is quite a different office,—but he is Sheikh of the guides who attend upon travellers when they visit the Pyramid; he is one Pyramid Sheikh, and

the Sheikh Murri of the second and southernmost Pyramid village, who accompanied us from Jeezeh, is the other. Now, only yesterday, Alee's brother, or Sheikh Abdul Samed, was going into Cairo on some business of his own ; and when he was passing through Jeezeh, the Governor there got hold of him and put him into prison,—the news whereof had just arrived in village El Kafr, and the people were all in dismay.

'Is that what you mean to say ?' we asked.

'Yes, that is it,' gravely replied Ibraheem ; and 'Yes, that is it,' shouted all the children of Heth sitting in our doorways and pathways, and wherever they could look in upon us. 'That is it, and 'that's the way the French Consul treats us ; and 'we have no liberty at all, and we are always 'afraid of our lives whenever we pass through 'Jeezeh.'

'But what has the French Consul to do with it ?' we inquired.

Then began Ibraheem, and after him Alee Dobree, to recite,—that there had been a party of French travellers at the Pyramid the previous week, and one of them on returning to Cairo found that he had been robbed of his purse : so he reported the matter to his Consul, and he to the Governor of Jeezeh, who then laid hands, as described, on the first Pyramid Sheikh who came into his neighbourhood ; and that one, as fate would have it, happened to be poor Abdul Samed. Yet Abdul Samed had

not committed the theft, nor yet any of his people ; but it had been the work of the 'bad Arabs' of another village, much nearer to Jeezeh, where the travellers had had to leave their Cairo donkeys, and be carried through the water on men's shoulders. And Abdul Samed had told the soldiers so, but they would not listen to him.

'But of course the Governor of Jeezeh,' said we, 'will inquire into the whole affair ; and when he finds that it was the people of another village who committed the theft, he will immediately release Sheikh Abdul Samed.'

'Ah ! that might be so in your country,' replied Alee, 'but it's not so in Egypt ; for here, the Governor of Jeezeh will only listen to the French Consul, and he again will only believe what the French traveller says ; and then they will order my brother to be bastinadoed, if he does not produce the purse the Frenchman lost.'

'Yes,' added Ibraheem, looking very doleful indeed ; 'they'll throw Abdul Samed down on the ground, and they'll fasten his feet to a piece of wood, and hold up the soles of his feet,—and then two soldiers will stand on either side with sticks, and they'll beat the soles of his feet until they are all broken and the blood running down. Poor fellow ! poor fellow !'

'Yes, poor fellow ! poor fellow !' cried all the children of Heth outside ; 'and that's the way the travellers treat us poor Pyramid Arabs. We

‘take the travellers up the Pyramid, which they
‘could not do by themselves, and bring them down
‘again so safely that their feet never slip; and then
‘they go back to their Consul and tell him what-
‘ever they like, and the Governor of Jeezeh puts
‘us into prison. So the poor Arabs have no
‘peace or comfort, and all because European travel-
‘lers will come every day to eat their luncheons at
‘the Great Pyramid.’

‘Well, this is a very sad story,’ we replied;
‘but what can we do?’

‘Oh, you can send a letter to the English Consul,’
answered one of them, ‘and that’ll make it all
right.’

‘I don’t see that at all,’ was naturally the reply;
‘it is a case of a French traveller and the French
‘Consul.’

‘Well, that’s precisely what makes it so bad,’
said another of them; ‘because the Basha always
‘does whatever the French Consul asks him to do;
‘and he’ll send Sheikh Abdul Samed to dig in the
‘sands at the Suez Canal, and the poor fellow will
‘never see his village again.’

‘Then if the French Consul is so very powerful
‘with the Egyptian Government, what is the use of
‘writing to the English Consul?’

‘Ah, it would be of great use,’ was the Arab’s
answer; ‘because he could tell the Governor of
‘Jeezeh that it was not the Pyramid Arabs that
‘stole the Frenchman’s purse, but the Arabs of the

‘ other village ; and then the Governor would send
‘ for them, and he would find out the truth.’

That was certainly not any very extravagant demand, yet we pleaded that we had no power with the English Consul ; and that, if he thought in his own mind, and for his own reasons, that it was not a case where he could with propriety interfere, he would not do so, though we should write him letters never so many on the subject.

But one or other of the party argued, that if we were to describe the case just as it had happened, or rather been related to us,—the English Consul would then know something that he did not know before ; and perhaps he would then do something which otherwise he would not have done ; and in his, the British Consul’s land, the governors did not punish one man for what another had done ; and then a letter was in itself, the Arabs averred, a wonderfully powerful thing ; it was a talisman : and had it not produced all the stores of candles, and spades, and ropes, and ladders, and everything else that I had wanted from the Citadel for cleaning the Pyramid ?

The promises of them only, we explained ; for the articles themselves had not yet arrived.

But all the children of Heth sitting in our doorway again raised their voices together, and declared that a letter would do everything, and without a letter being written Sheikh Abdul Samed would never be let out of prison ; so at last I wrote a mere description of the event, as of what had just

been told us, to Consul Reade : and warning them all that it could not *oblige* him to do anything, read the contents before the assembled multitude, and then handed the paper to Alee Dobree ; who, with a particular friend of his, immediately started off to walk with it under the broiling sun to Cairo ; while the rest of the assemblage peacefully dispersed, and were soon lost sight of among tombs and sand-hills, leaving us to that quiet which we so much desired.

But it was of short duration, for within two hours, back came Alee Dobree with the letter unopened, and with Sheikh Abdul Samed too and his eldest son,—the prison deliverance having already been accomplished. A large French pic-nic party had wished to visit the Pyramid that morning, and desiring to have a particularly good guide, their Consul requested the Governor of Jeezah to release Abdul Samed for the office,—the affair of the purse notwithstanding,—and it had been done ; wherefore here was the Sheikh sitting in our bower, delighted at the escape he had made. Of course Ibraheem brought in coffee, and after handing cups to the Sheikh and Alee, we innocently did the same to the son, who was standing behind them ; but the elders cried out at him, on account of the unheard-of indecorum he was about to commit, viz., a young son to take any bodily sustenance in presence of his father ! and the youth had to dive behind a projecting corner of the rock and drink off

the draught there out of our view ; which he did, however, in a masterly fashion, from the quickness with which he returned presenting the empty cup.

Next morning came our standing dish of excitement, viz., the Reis Alee Shafei with one of his peculiar difficulties ; he had tolerably well cleaned all the upper part of the Pyramid in a dry way, and was now exceedingly busy removing the obstruction in the entrance passage ; he had already taken from thence unnumbered baskets full of sand, if we could believe him, but had just come suddenly to some great blocks of rock which he could not move. We paid him therefore a visit at his work, and found him seated with the dignity of a Basha, smoking a long pipe, on one side of the top of the entrance passage, and timing the poor little boys, who came up at intervals, one after the other, and then emptied their baskets of sand and limestone rubbish over the cliff-like edge of the lower part of the Pyramid side,—whence there rolled up again a white smoky cloud on each occasion.

Giving the boys therefore a respite for a while, I went down the passage, and found sure enough that some monstrous blocks of stone were included in the remains of the bank of obstructing sand : but then they were no part of the passage itself, having been rolled into it out of Al Mamoon's hole to give strength and solidity to the abnormal heap so recently put there for no good purpose. I noted

therefore that if the blocks were so big that they could not be pulled out whole, they should be broken in pieces where they stood, and so be taken out ; and this opinion I sent to M. Vassalis. But then came that gentleman from the village, attended by his faithful henchman, Reis Atfee,—as woe-begone, desponding, and respectful as usual,—inspected everything, agreed perfectly as to the architectural correctness of my views ; yet feared, that as his instructions so pointedly said he was not to allow me to ‘break the Pyramid,’—he might get into trouble if he allowed anything whatever to be ‘broken up ;’ for mere officials would take hold of the fact of breaking, and not care to inquire what it was that was broken, whether the Pyramid itself, or something recently brought there to do mischief. Besides, added M. Vassalis, he had not at present any hammers, or wedges, or necessary implements for breaking up such large stones ; all these things were still in the Citadel ; could I not therefore forego the full cleaning out of the entrance passage, and find something else to utilize the remainder of the men’s time, until Ramadan came ? But he would in the meantime write to Mariette Bey, and when that chief had finished attending upon M. Renan and M. Pereira, the rich French banker, in Upper Egypt,—doubtless he would come to the Pyramids with plenty of men and means to do all that was further required.

Now, it did happen rather fortunately for such a

conjunction of affairs, that according to John Taylor's theory of the Pyramid, there is very little scientific importance in the lower part of the entrance passage; and we had, in the meanwhile, in our daily walking and exploring round about the Pyramid, alighted on certain features on the hill-surface outside, which seemed to have something about them that promised to be, theoretically, of amazing interest. These features were, a system of three large trenches on the eastern side of the Pyramid, radiating from a common central point; that, could not be accidental, if it was exact; and there seemed also to be something special in the angles, at which the forms diverged one from the other. (See Map, Plate II.)

Now, these trenches are represented on most modern maps of the Pyramid, though not very accurately, nor with any geometrical qualities hinted at as belonging to them; they are, on the contrary, by some called tombs, and by others said to have been places for mixing the mortar in. With all such explanations, we did not then presume to quarrel at all,—but only set Reis Alee Shafei and his little men to clear out the rubbish from the ends of each trench,—and thereby found square terminations chiselled more or less accurately into the firm and solid limestone rock of the hill. These fiducial terminations, therefore, rendered us happily independent of the generally ragged and mouldering sides of the trenches (reduced to this state merely from having been more exposed to the weather), in fixing the

positions of their central axes. On removing, too, a certain intercepting heap of stones, a fourth trench, cut likewise in the lime rock at some antique date, but of much smaller size than the rest, was found to trend on the same centre as the three larger ones.

But meanwhile, time was flying apace ; and daily did the Reis Alee Shafei warn us of the approach of Ramadan, and how soon we must lose his valuable services. So at last we turned again to the inside of the Pyramid, leaving the exact work at the trenches to a future occasion.

One day, indeed, besides the ordinary Frankish travellers, and their attendant Arabs, the whole plain was in motion with Turkish soldiers, galloping hither and thither on spirited Arab horses, and in attendance around a cavalcade of some extraordinary native grandees. Who can these be ? thought we. Our desires prompted the ready answer,—‘ Of course it is Nubar Basha, from the Citadel, with all the ladders, and ropes, and water-skins, and building materials, so long promised, so long deferred ; and he must be accompanied by the British Consul-General in full costume, with his cocked hat and long white feather ; for that eminent official must, by this time, have become determined to see that what was promised to him, as the representative of the might of Britain’s Queen, shall be performed ; and that the very moderate character, and trifling amount of a scientific demand, are not therefore to be the excuse for breaking faith,—which is holy, and

' regards alike both small and great.' But, alas! the party was nothing of the sort. The grandees were from Constantinople, attended by Egyptian troops, and their feasting was glorious at the foot of the Pyramid; a few went to the summit to look at the fatness of the land; and one private soldier of all that enormous party of Bashas, Effendies, and Nizam, one private soldier was the only man who had curiosity or enthusiasm enough to go inside the Pyramid. It made Alee Dobree quite mournful to have to tell how the Pyramid had that morning been despised by the present national owners thereof.

But for ourselves, we now gave up all hope of the promised stores, and in default thereof, turned out all our own pots, pans, tin boxes, portable bath, and everything that could hold fluid; made up impromptu mops, etc. etc.,—and then there was soon a great carrying of water to the Pyramid, and a grand washing down of its interior floors, which had been already, in preparation for it, dry-cleaned again and again. Then an inspection was made by M. Vassalis, myself, and both the Reis,—and the several chambers were found cleaner than they had been for ages; the ramp-holes unchoked; and the floor of the Queen's chamber freed from all that hideous encumbrance of 'rubbidge,' that had for ages quite destroyed its fair proportions.

The coffer was still tilted up by the stone shoved under one end; 'but when Mariette Bey comes,' said M. Vassalis, 'he will doubtless bring beams of

‘ wood and powerful cranes, and he will lift the
‘ coffer right up ; and besides taking away the stone,
‘ let you see if there is anything on the under side,
‘ as some persons suppose ; and then he will put the
‘ vessel down flat on the floor again, so that it may
‘ stand without any strain, and enable you to get
‘ the most exact possible measures.’

So we had every reason to be thankful for the large amount of preparation of the Pyramid that had by this time, in one way or another, been accomplished by orders of His Highness the Viceroy, as well as for what more was now promised ; and therefore took kindly leave there and then of M. Vassalis, who was to quit his village for Cairo early next day. But the Reis Alee Shafei, being anxious to start off for Sakkara, with all his little men, immediately required our attention ; so Ibraheem was ordered to prepare an immense amount of coffee, and to sugar it well ; and all the little men were brought up to the level of the tomb dining-room, regaled with coffee and biscuits, had some silver baksheesh given, and a little speech made to them,—as to how, if they continued working on bravely as they had been doing, they might all come to be Reis, even like the gallant Reis Alee Shafei. But prospect of promotion on account of merit, seemed incapable of conception by any of them, and caused not the brightening of a single eye ; or at least, not to the hundredth part of what the first glimpse of either coffee or silver produced.

The Reis Alee Shafei, as his merits demanded, received a speech too, and a golden baksheesh ; and, at his particular and urgent request, he had a 'letter' written for him also ; everything was then complete ; and after a great shaking of hands, he descended the cliff, bestrode his bridleless and saddleless donkey, fired into the air his huge flint-and-steel horse-pistol, charged with about four times as much powder as was safe, 'to show that he was very 'happy,'—and in a few minutes more, he with his little troop were seen small as ants on the distant plain ; while their tombs, those they had so long occupied just below ours in the limestone cliff, and where they used to make their smoky fires every night of grass roots dug out of the sand, were now as silent as the grave.

A little too much so indeed that night, for no night-guards came ; and Ibraheem was greatly troubled, urgently requesting me next morning before sunrise, to send in a special letter about it to M. Vassalis before he should leave the village. This was done, and that gentleman very kindly took such energetic action, that presently the Sheikh swore to him, by a most immortal oath, 'that such a neglect 'should never occur again ;' and in the course of the day he, the Sheikh, came over and described all his arrangements for securing the service, repeating on his fingers again and again, sounding Muslim names of all the men who were charged to come in turns to defend us during the hours of darkness.

Thus encouraged, Ibraheem returned with complacent satisfaction to our instruction; both telling us how he had seen the new moon last night, and describing the grandeur of the month of religious fasting, which was therefore (*i.e.*, so far as the moon was concerned) to begin for him and his brethren that evening, January 27th; he even went beyond the law, declaring that he not only would not eat all day long, but that even by night he would only partake of anything at midnight,—yet that all our meals should be prepared just as usual, and Ramadan should make no difference to us. Smyne was also loud in his declarations of the heroism with which he was going to act when the time came; but Alee Dobree was more quiet, and both of those men took themselves off early in the afternoon, to have one more daylight meal in their village, before the period of abstinence should begin.

So it came to pass, that with Ibraheem alone in our neighbourhood, we saw the sun's light that evening gradually fade,—saw the long-pointed shadows of the Pyramids slowly advance over the plain towards the east; further and further, even to the distant palm-groves on the Nile banks; and then to the rock-faced Mokattam Hills beyond,—decorated at their northern termination with the dome and minarets of Mehemet Ali's mosque in the Cairo Citadel, and the sterner single minaret tower of the mosque of Sultan Hassan below.

We gazed on them from our elevated cliff until

the last reflection of sunset had faded from the scene,—and then, flash like lightning went one gun, then another, and another,—first from the southern side of the fortified keep, and then the northern,—then from out of a concealed battery some way off on the top of the hill-range, came a new series of cannonadings, in answering flashes like the return-strokes of many lightnings, or like their fitful playing about some high mountain-top, when dense clouds have accumulated during hot and calm summer weather. Presently the booming sounds of the guns began to arrive, though, on account of their great distance from us (about 38 seconds in time), at no intervals very easily recognisable with the immediate flashes ; and when twice twenty-one reports had spread their low thunders over the valley, old Ibraheem exclaimed, with extended arm, ‘Fasting, fasting,’—and Ramadan had fallen on all the Egyptian land.

CHAPTER VII.

OF PASSAGES AND ANGLES.

ON the first morning of Ramadan, Alee Dobree made his appearance punctually ; and, taking him into the instrument-room,—where, though I was rather appalled to look round at the number of boxes, and think that all their contents had now to be employed in measuring the Pyramid in one way or another, yet he uttered the encouraging sentiment, ‘ Some of them may be very heavy, and require many men, but let us see first what we can carry ourselves,’—taking him there accordingly, I gave him for load a variety of measuring-rods ; and, furnishing myself with pens, ink, and paper, was just in the act of setting off to begin my own particular portion of work in the enduring monument of the primeval ages of the world,—when behold Reis Atfee, and looking more cast-down and hopeless than ever.

‘ O Reis Atfee, what hast thou now come to tell us cannot possibly be done ? ’ Then he calls Ibraheem, and they both sit before us in rabbit-fashion on the stone step in front of the bower, and explain,

that though the Reis Alee Shafei had made all the noise in the recent Government proceedings for cleaning out the Pyramid, yet a full share of the work had been performed, or superintended by Reis Atfee ; wherefore he, having heard that Alee Shafei had had a *letter* written for him, now desired a similar document for himself.

So then a raking-up of the coals takes place ; and Alee Dobree, joining the sitting-party, assists in testifying that Reis Atfee, though much given to lugubriously mourning the impossibility of things as seen in the future, and always distrusting his own capabilities for what may fall eventually to his share to perform,—yet ever attended to present work with unflinching perseverance and an abiding sense of duty. That whenever it was his turn to take the boys to the Pyramid, he conducted them there and back by the shortest road from their tombs, and *that* lay out of view of ours ; whereas Reis Alee Shafei as invariably made a detour with them purposely past our doors, so that we might see to the utmost everything he was doing on our behalf. From all which, the public opinion of the Arabs seemed to be, that if the Great Pyramid was now in a cleanly condition, as much of the credit,—granting always the superior places occupied by M. Vassalis and Mariette Bey, with the orders of His Highness the Viceroy,—fully as much was due to Reis Atfee as to Reis Alee Shafei. This being the case, a letter, as requested, was forthwith in-

dited, in no very glowing style, though Reis Atfee accepted it most gladly; deposited it low in an endless depth of pocket; and when we added bak-sheesh, declared he had not come for any purpose of that sort, but merely for the unnameable advantage of a 'letter,' which he could not read, and I had no opinion of. To carry out, however, our notion of even-handed justice, we were compelled to force the money upon him, and then escape up to the Pyramid.

There, at the north-east corner, were already assembled not only the Cairo servants and travellers, feasting as through the last month,—but now all their donkeys were there as well, glowing in those scarlet saddles and decorated bridles so invariable in the city, so rare in the country. The intervening water, it then appeared, had shallowed so much that those small quadrupeds could now ford it, and were made without scruple to bring their hirers the whole way to the Great Pyramid itself. We saw accordingly marked off on their haunches and saddle-girths, precisely how far the water had reached; noting, too, day after day, from this time forward, on these moving Nile-overflow-meters, how the depth abated apace; until in three weeks' time they all came through dry-shod, and then Cairo travellers swarmed over with their luncheon-boxes, and experienced neither let nor hindrance any more.

Meanwhile, on this first morning of the country's solemn fast, Alee and myself made up to the entrance passage of the Pyramid, on measures alone intent,—

but found the place completely in the hands of a host of travellers, their Arabs, and half their donkey-boys ; and such horrible confusion was enacting as to the prices they would have to pay for going in or going up, combined with declarations that they did not believe there was anything to be seen in either direction, but that it was a mere sham and imposture of the Pyramid Arabs to get money out of them, the travellers,—all this, united with the discussion amongst the Frankish portion purely, as to whether they should have their luncheon before or after they had seen the sights,—made us willingly abandon the place to them for a time.

On returning after an hour and a half, the region was silent, the travellers had seen all they cared to see about the greatest of all the seven wonders of the world,—the only one of them that has come down to our own times,—and were back to the ‘victorious city ;’ while the Pyramid Arabs had wrapped themselves up in their multitudinous woollen garments, to sleep under shadow of a few projecting stones at the north-east corner, but be ready and on the spot for the next party of travellers at whatever moment they should arrive ; keeping themselves too under favourable circumstances, for stifling the calls of forbidden hunger within them. Under this improved aspect of affairs Alee Dobree and I returned to the entrance-passage work, and now came the question what were we going to measure ?

The length of the passage, of course. But what

defines that length ? Originally, the exterior surface of the Pyramid above, and the subterranean chamber below ; but the latter,—thanks to those great blocks of stone which the hero Reis Alee Shafei could not move (as, indeed, the Reis Atfee had duly warned him before he made the attempt), and the great bank of sand below them,—was inaccessible ; and the former, or exterior surface of the Pyramid, has been removed ages ago, to a depth of eight or nine feet inwards from the ancient crust. Nay further, the material of the Pyramid has been removed to a greater depth still, about the mouth of the entrance passage ; and so unequally, that the floor now begins at one place, the walls at another, and the roof at another different still ; and each of them is hacked, chipped, and fractured to an extent totally depriving any one of them, of all claim to form a starting-point for linear measure,

Then if there are no quasi-natural marks to measure between, shall we make something in the way of apology for them, according to the method of accurate base-line work in modern surveying ; i.e., cut a microscopic line near the top, and another near the bottom of the passage, or as far towards the bottom as we may go, and measure the interval between such marks to the thousandth of an inch if we can ? Well, such distance, to carry the surveying principle out completely, must be reduced from its length on the inclined surface of the passage to its true horizontal length ; and then, what should we

have obtained ? Nothing, so far as I could see of any theoretical or practical importance to the Pyramid ; and nothing that could be checked by subsequent observers with any certainty,—if piece after piece of the end of the passage is to be broken off from time to time.

Then is the entrance passage a something after all, to which accurate measure cannot be applied, and which does not deserve it ? No certainly ! Such a doubt would be erroneous, and such a suspicion unjust ; for, only enter within the actual walls of the passage, and then, see how fine and straight the joints of the masonry courses are there ; so straight that no modern optical instrument-maker could work better straight edges, and so close, after four thousand years of wear and tear, expansion and contraction, lightning and earthquake, as to compete with the best of recent work in stone anywhere.

Now this fineness of these particular passage-joints, is a something totally different from the masonry of the Pyramid generally ; for there, where mere internal substance was all that was wanted, at least so says theory, and experience does not indicate anything different, the breadth of the joints is often measurable by inches ; and they are rammed full of a coarse pinkish mortar mixed up with fragments of pottery, stone, and other matters ; making however a substantial style of building, for the stones are arranged to break joint scrupulously, and both vertical and horizontal chinks are equally filled

with cement. Yet precisely hence, when one comes on the very much closer joints at the beginning of the entrance passage, also cemented both in the vertical and horizontal seams, but with a fine white cement in a sheet almost microscopically thin,—why, the fact is immediately evident that the builders of the Pyramid took a great deal of trouble, and must have gone to great expense about these parts; and the conclusion may well be allowed, until disproved, that they had some good reason for their proceedings.

‘Then let us measure these joints,’ I was compelled to say, ‘and note all their particulars step by step throughout the passage laboriously; and it may be, we shall be enabled at last to look on the work performed there with *some* of the same feelings as those men were influenced by, whose hands performed it in the early ages of the world.’ The style of measurement therefore, now became transformed from a rigid mathematical admeasurement, aiming at extraordinary minuteness between two artificial terminal points only,—into a physical description of all the visible phenomena; and where, a less amount of extreme accuracy to numerous decimal places of an inch, was made up for by many points being submitted to moderate measurement.

First, then, we took the floor; measuring in inches and tenths of inches the distance from joint to joint, noting the character of each joint, the

quality of the stone, nature of surface as influenced by weather or otherwise, etc. etc. ; and this was done first on the west and then on the east side of the passage. As moreover, the steep incline of the floor, or $26^{\circ}3'$, is some ten degrees greater than the 'angle of repose' for wood resting on stone, according to frictional philosophy,—the 100-inch measuring-bar had to be held at every moment by Alee, while I clambered up or clambered down to get repeated readings at an upper, and then lower, joint some sixty inches apart ; and had to make quite sure, that what I entered in the observing-book as the length between those joints, did not include a slip of the measuring-rod in the interval, often not very short, between two readings. Errors of this sort have been indeed the great bane of most Pyramid measures yet published, sometimes to an extent of whole feet ; and I therefore proposed to myself not to attempt to be any authority on tenths, hundredths, and smaller quantities of an inch, until the whole inches should be satisfactorily settled. Hence after going all the way down one side of the passage from top to bottom, we then began measuring again from bottom to top ; and in some cases went over all the joints even a third and fourth time.

Now this operation having to be performed to critical satisfaction, on each side of the floor, on each side of the roof, and at the top and bottom of either wall, extended itself to several days ; for the air was mostly something choky with dust, not

very wholesome in chemical quality, daylight faint towards the lower part of the passage, and both forenoon and afternoon spent in it rather more than any man's constitution would stand; not to say anything of the frequent bursting in, and rattling down upon us, without either notice or apology, of whole tribes of travellers,—driving us, measuring-rods, note-books, and everything else right down before them on to the sand-bank at the bottom, and filling the narrow tube with a dense earthy haze, while they were bundling into Al Mamoon's hole *en route* for the King's chamber.

At length a sufficient stock of measures being obtained, a comparison of them began to be instituted *in situ*, and results educed as follows. The floor blocks are very much harder than those of roof and walls; but all of them have better stone and closer joints near the top and bottom of the passage than the middle; there is no regularity in sizes of stones in any of the sides, but they all break joint well; the object is evidently to make the passage as a whole, and insure its truth on the entire run with the least possible expenditure of money or labour; hence no ornament, no cutting of stones merely to make them tally to the eye of the mason on opposite sides of the passage; the end and aim of the whole of it appearing to be, merely a tube of that length pointing upwards at a certain angle, and in a given azimuth. That such must be the ruling principle of the whole follows also

from this, that both in the broad sheet of fine stone which passes under the walls of the narrow passage to form its floor, and equally with the parallel sheet that forms the roof,—errors in the rectangularity of the joints, as compared with the axis of the passage, to the extent of two and even three inches on a run of forty-one inches, are common ; but in the joints forming the walls, excepting certain two joints approaching a vertical direction, the others have seldom an error of even one-tenth of an inch on a run of forty-seven inches.

To test this matter still further, I constructed with my own hands, in the Howard Vyse instrument tomb, a large wooden square, with a tail-piece of fifty inches, and a vertical bar forty inches long ; and we went over all the joints on either wall at the Pyramid, reversing the square upon them, and finding in the end,—that the errors of the ancient joints from a perpendicular to the axis of the passage, were smaller than the error of my laboured piece of carpentry ; or rather, I may perhaps be allowed to say, for it had stood some close tests before leaving the tomb, smaller than the errors induced in it by the sunshine, as it was being carried to the Pyramid. But when after many days spent in this one particular passage,—I discovered a line on either wall, ruled apparently by a master hand as a guide to the original working mason,—and applied and reapplied the square to that,—the mean of all the readings for error, came out 0.

Alee was not acquainted with these lines until I pointed them out to him, and he gazed at them in silence. But when I asked him about the evident injury inflicted on certain finer wall-joints at the top of the passage, he knew all about that, and only wondered I did not too; 'Why, it's the travellers again,' explained he; 'one of them says to another, 'I say, Peterkin, isn't this a fine joint? and there-with, not content with pointing to it, he must rub down all along its length with the point of a cork-screw. Whereupon the Peterkin alluded to, tries it with his knife and says, Why, I can't get the blade of my knife into it anywhere; they must have been ingenious dogs those old Egyptians; but could not, for all that, compare with us, you know,—because we live in the days of electric telegraphs and lucifer-matchea.' However, I am happy to add, that there is one joint in that neighbourhood, which has escaped the notice of all these examples of modern march of intellect men; it is a joint that only manifested itself to me on my third time of going over the wall, so extremely fine and next to invisible is it through the whole of its run; and any one who chooses to read the more serious numerical pages of the second volume of this work, will find there where to look for it.

~~A more practically important discovery, fortunately, waited us at the lower end of the passage. Some seven or eight feet in length of that part, as~~

already mentioned, is untouched by the ditch-like holes that have marred all the upper and middle portion, and forms in consequence a sort of smooth slope down which every traveller must slide as he or she best can. Now the reason of such singular preservation appeared to be simply the extraordinary hardness, hard as flint, but tough as slate, of the stone just there introduced; so that it had alike fatigued the devouring tooth of time and laughed to scorn the hammers of destroying traveller-men. Such was the fact; but then came the question, was that hardness there accidental, or had it been sought out and accomplished for a particular purpose? Close examination showed two joints crossing that hard portion, so that there were three of the hard stones together, and that did not look accidental; but, more noteworthy still, these two joints were both of them sensibly diagonal to the run of the passage: not merely affected with a moderate error from a rectangular position, as many of the other floor-joints were, but so largely deviating therefrom as only to be termed diagonal: and when following up and down in the book of measures the numbers expressive of the position of every floor-joint, these two in the hard limestone formed the one grand anomaly of the whole passage.

The one great anomaly, be it remembered, and yet only when close examination had been employed; for otherwise, the very existence of the joints might have escaped observation, let alone

their unusual position ; and if it should be said by any one, that such nearly invisible markings could not be of much consequence—the reply is, that in a monument like the Great Pyramid, where the greater part of it is, by the confession of all men, intended for secrecy and security, *the most vital features would certainly not be marked in any very ostensible manner, such as could be recognised by every one in passing.* We have therefore rather to look to these two following points : first, are we certain that the fiducial markings supposed to be discovered were made at the building of the Pyramid, and at no other time ? and, second, could they at the building have been made with ease by any single workman for his private caprice, or do they imply a consentaneous action in public of many of the workmen and the architect also ?

Now fine, and next to invisible, as these two diagonal joints alluded to are, yet being joints in the *structure* of the part, they imply the accurate fitting and grinding together of the broad and weighty blocks of stone forming that portion of the passage ; forming, indeed, the whole plane of the basal sheet of the floor, and inserted in their places there, *before* the ponderous blocks for walls, roof, and, in fact, all the upper part of the Pyramid too, were laid upon them ; they could not therefore have been substituted at any subsequent time without a rebuilding of the whole of this part of the Pyramid, and by crowds of masons working together to

carry out the orders of a supreme architect,—which answers both our principles of doubting at once.

Were these unusual joints then, two secret key-marks? and if so, what for? And what purpose can indeed be sufficient to account for all the pains connected with them? for they have no structural necessity practically, architecturally, or æsthetically. I looked up at the place itself, with my head between the two lines, and the whole thing was revealed. ‘Alee,’ I then said, having still a great respect for him, as one acquainted with all the Arab traditions about the Pyramid, whatever they may be worth,—‘Alee, you are a Pyramid guide, do ‘you see these two diagonal floor joints?’ Yes, he did see them; and confessed, now they were pointed out, that they were true joints of the masonry, going *under* the walls of the passage on either side. ‘Now why, Alee, did the kings who built the ‘Pyramid make these two joints run in such very different directions from all the other joints in the ‘passage floor?’

He only looked up and down at the different joints, saw that ‘the two’ were an exception, but said he could form no idea.

‘Then look up, Alee, at the roof, and see why;’ so, turning his head in the narrow passage, he saw he was then *vis-à-vis* to the lower butt-end of the portcullis-block closing the entrance to all the ascending passages of the Pyramid; to everything constituting the interior of the Great Pyramid

essentially different from every other Pyramid in Egypt ; to all of it which is important for the metrological theory ; and to all those features too, of which the Egyptian priests in the days of Herodotus, of the Ptolemya, and the Roman Emperors were entirely ignorant : and which the world might still have been ignorant of, but for that accident, which was more than an accident, of the 'heavy stone' which was heard to fall in a hollow place, when Khaliph Al Mamoon was hewing his way into the substance of the Pyramid with axes and fire.

The heavy stone was the so-called triangular stone of some authors ; really rectangular in plan, viewed from below or above, though triangular in side elevation ; and when fitted into its place (which place we see now precisely by the sharply cut vacant space left) must have formed, with its lower surface, a smooth and ordinary-looking part of the passage roof ; so that no one of the uninitiated could have had the smallest idea that behind one particular pair of joints, of all the pairs of joints in the roof,—lay a concealed entrance to the secret, but most glorious, internal constructions of the Pyramid. In fact, no one did have any idea of it ; and Greeks, Romans, and Egyptians went down and up the entrance passage, penetrating even to the subterranean chamber under the Pyramid, and were blinded into the belief that that was all the Great Pyramid had been constructed for. Greeks and Romans went in merely as spoilers or curious travellers ; but early Egyptians

went in to note and copy any ideas they should think suitable to lasting and noble burial ; and they did copy off and realize in many and many another Pyramid, built after the time of the great one, even in the eight other Pyramids still standing at Jeezeh, all they thought or suspected the great one contained ; viz., the descending entrance passage and subterranean chamber.

In another place we may discuss whether that arrangement was a good idea for their purpose ; history indeed indicates that it has not been ; and the subterranean chamber was, after all, not used for sepulture by the builders of the Great Pyramid,—the room only having been *begun* to be cut out of the rock from the ceiling downwards, and left in that unfinished state ; enough, however, to serve for a blind ; a part, too, which it did act most effectually. But though so scrupulously concealing their chief or real and favourite works from the profane, we may now see that the builders, or planners rather, of the Great Pyramid, did not leave their building without some testimony to its chief secret ; for there, before the eyes of all men for ages, had existed those two diagonal joints in the passage floor, pointing directly and constantly to what was concealed in the roof just opposite them, and no one ever thought of it. Practically, then, we may say with full certainty, that these two floor marks were left there to guide men who, it was expected, would come subsequently, earnestly desir-

ing, on rightly informed principles, to look for the entrance to the upper parts of the Pyramid; and the time when these men were expected to come must have been a very distant time indeed from the date of the building.

This follows from the consideration, that otherwise the diagonal direction by itself, executed in any ordinary soft stone, would have been quite enough; and such economical builders as those of the Pyramid were, would have gone no further than absolutely necessary to secure their purpose; but as we have now found that an exceedingly hard and more expensive material had been picked out for all three stones forming, and yet, by the fineness of the workmanship, concealing the sign in the pavement,—the conclusion is forced upon us that the clue was not prepared for any immediate successors of the builders, but was intended, on the contrary, to endure to a most remote period. And it has so endured, and served such a purpose even down to these our own days, although all the neighbouring stones have been hacked or have perished to the exceeding degree already mentioned at page 73; and have assisted thereby in proving that nothing less hard than what the builders selected, would have answered the end they proposed,—if they really looked for the solution of the Pyramid's mysterious mission to take place in the nineteenth century A.D.

Standing then here on the slide, or portion of un-

touched floor with the builder's sign in its substance, just under the prismoidal hole in the roof of the passage, which discloses so easily now to all mankind, the long-concealed lower butt-end of the granite portcullis of the first ascending passage,—we may recall, with ease, all the circumstances of that eventful morning, when the half primitive, but very strenuous followers of Khaliph Al Mamoon, were working in their long cavernous hole, a few feet westward of this passage, and heard the ominous fall of the said prismoidal stone. They were so far westward, because they had begun their operations outside in the middle vertical line of the northern face of the Pyramid, while the plane of the entrance passage is twenty-five feet east therefrom ; and they were now nearly on the same level, because they had pushed on almost horizontally from their commencement near the base,—while the entrance passage, though beginning high up the side, dips downwards rapidly as it proceeds.

The moment, then, that the sound of the fall was heard, the Muslim quarriers turned their course south-east, towards where the noise had proceeded from ; and presently broke into the west side of the entrance passage, precisely in the place where all men now see the shapeless dark hollow, generally known as the Khaliph's hole, and used by all who wish to ascend to the upper passages. At present, travellers in general are only aware of the globular or cavernous termination of the hole, communicating

round the portcullis with both upper and lower passage, and are often ignorant of the long pipe-like communication which exists from thence to the outside of the northern face ; well they may be too, for the space is quite dark, and much choked with rubbish ; yet no so completely, but that a deal of air passes up the chimney of the entrance passage on windy days, derived by indraft at the lower communication of Al Mamoon's hole.

For the clearness with which all these arrangements can now be seen, the world must thank Colonel Howard Vyse ; for it was he, who, by cutting down the centre of the northern bank of the rubbish lying high against the Pyramid, in his search for casing-stones, exposed incidentally the external mouth of Al Mamoon's hole ; and proved it to be just in the very place where the old Arab historians had described it to have been worked. And, as to how singularly important this simple, but real practical discovery has been to understanding first the facts of construction, and then much of the history of the Great Pyramid, let our readers only refer to the Travels of that excellent and most able man, Dr. Clarke, in 1800, the Cambridge Humboldt of his day, and read his theory of the Pyramid.

The worthy Dr. Clarke, then, not having seen *through* the rubbish heap, totally disbelieved any other entrance into the northern face of the Pyramid, than the one entrance passage proper ; and, as that was in so strange a position to modern European

ideas, being so high above the base, and so far east of the central vertical line, it could not have been hit on, he argued, by accident at the very first shot of the excavators. *Therefore* there were no excavators, and never had been any ; and least of all, any ignorant fellows bearing the name of Khaliph Al Mamoon, son of the Khaliph Haroon Al Rasheed,—but the passage must have been left open by the original builders, or their immediate successors, and must have remained open ever since.

But we need not follow any further the Doctor's argument, which, with the instability of an inverted Pyramid, or standing on its apex, rests entirely on the assumption of the non-existence of a certain second entrance, which any one whatever can now, without any learning at all, see does exist ; and, in fact, may feel too, by the draught on a windy day.

It was indeed a very remarkable day on which we first noticed the above fact ; for the barometer, which had in previous weeks ranged between 30·10 inches and 30·30 inches, had gone with a slow, steady sinking through two or three days, down to 30 inches ; 29·9 inches ; and then 29·8 inches, while the horizon gradually became hazy, and a violent wind commenced to blow from the south. For a long while, the living establishment at East Tombs found itself admirably protected with the back of the hill to windward, and we saw from time to time violent gusts of wind sweeping over the plain below.

and raising the sands tumultuously as they flew whirling along. Farther too, in the distance, and apparently along the course of the Nile, many a walking whirlwind of sand would raise up its tall faint column like a ghost, marching slowly along ; and as the day of February 2d grew on apace, all the city of Cairo, and its Mokattam hills, at length vanished from our sight, in the increasing density of the dry haze. Driftings of sand also became more frequent near us ; the wind grew stronger and stronger, turning round now from south to south-west ; we began to perceive too, without knowing how or where, that everything in the dining-room tomb was covered with sand, and were obliged to confess at last that we were in the midst of a sand-storm.

Not, however, until next day, did the *meteor*, as French meteorologists would term it, come upon us in its full proportions. The sun rose weak and pale ; I attempted to get my usual before-breakfast observation for time,—but, though protected by the cliff from all direct blasts of the wind, and seeing, or rather knowing, that the sun was visible,—yet all the air was so strangely full of sand, that every time I put the sextant to my eye,—eye, face, sextant, hands, everything, were full of floating eddying sand ; and to such a degree as compelled me, after many efforts, to give up the point, and trust to the watch-rate that day for timing the meteorological journal. As the hours advanced, too, the wind became a roaring gale from the south-west, and the sand, vexed with the

frequent squalls by which it had been only partially raised and tormented for so long, now became fully excited, and seemed to rise for good and perpetuity into the air. The Pyramids, notwithstanding all their bulk, gradually faded out of view in this sandy atmosphere, the sun also was presently lost sight of, and evening's darkness fell on us at noon-day.

Then came the cry that the Colonel's tent was going, and the day-guard's tent was already gone,—so down the cliff to where those tents, so obligingly lent by the Egyptian Government, had been pitched (in useful reserve, if tombs should not be found pleasant abodes for the living), just below our sepulchral doorways, we rushed with mallets and new tent-pins ; and the medium through which we rushed, was not air, but a sort of mixture of air and sand. The storm indeed had in a way annihilated for the time the distinction where earth ended and air began, and the mixture of the two, under the excitement of the storm, was something for demons to dance in. By the evening, however, of this day, the barometer had begun to rise ; the wind had gone farther round, or to due west ; the strength of it somewhat abated in the course of the night ; and by next morning, the barometric pressure had risen above the touch-stone point of 30 inches, while the country appeared smiling once again under a pleasant fresh breeze from west-north-west.

We had thus gone through a true cyclonic gale ; one of those grander ones too, which announce

themselves long beforehand by the barometer,¹ and which come sweeping over large tracts of the globe with almost the regularity of astronomical courses, bringing rain as well as south-west wind to Western Europe and the Mauritanian coast of North Africa. It was further, by far the most marked storm of the kind that visited the Pyramids during our stay, and presented all the characteristic sinking, and rising again, of the barometer, together with veering of the wind,—though not one drop of water fell from the sky; for that was the startling effect on even all the moisture of a south-west storm fresh from the Atlantic, after it had run the gauntlet of Africa's parched desert of Sahara; viz., it had been deprived of every particle of its watery burden, so as not to have a single drop of rain left, wherewith to relieve the twisted, torn, and dust-begrimed fronds of a single one of all the dried-up date-palms of Egypt.

At the Pyramids, plainly, we were surrounded by a world of sand, and sand must serve many of the purposes of water. So Mohammed taught his disciples with regard to ablution, and so we found in some other matters, both of beauty and æsthetic variety; for in some of our first walks after the storm was over, we were astonished and delighted at the strength and regularity of the ribbing of the sand. 'As is the ribbed *sea-sand*,' we think the

¹ The thermometer in shade had kept to the moderate limits of 68° by day, and 55° by night, with a depression of the wet-bulb never less than 7°, and oftener 10° to 12° Fahrenheit.

poet sings ; but had he enjoyed an opportunity of walking forth either among the tombs at the Pyramid on this occasion, or wherever the sand was deep drifted in clefts of the rock, he would have been in ecstasies with the markings,—for they presented all the ranks and ranges of ripple on a fresh-water lake, from the tiniest commencement to a respectable swell ; but frozen still in a moment, and submitted thereby to man's quiet contemplation in all their crispness and variety of waving, sinuous beauty. At what rate these waves of sand had travelled, when the force of the wind was upon them, would have been an interesting inquiry ; but we had only to remark at the time, that their lines were invariably trending north and south, or at right angles to the brave west wind that had controlled their final destinies at the conclusion of the storm.

As they were left arranged then, however, they were not long to continue ; for by and by a north-east wind began to blow, and on going to the broad sand-plain north of the Pyramid, rather hoping to get a good photograph of expected stationary waves,—behold all the grand lines of ribbing, long and lank as they had been, nearly effaced. They had got mixed up indeed with a new set of lines of ripple, just beginning to form at right angles to the blast of the new wind ; and for several hours there was what the water-colour painters of sea views call a 'jaugle' on the face of the sands, or a dull lumpy-looking sort of swelly heavings, rather than waves ;

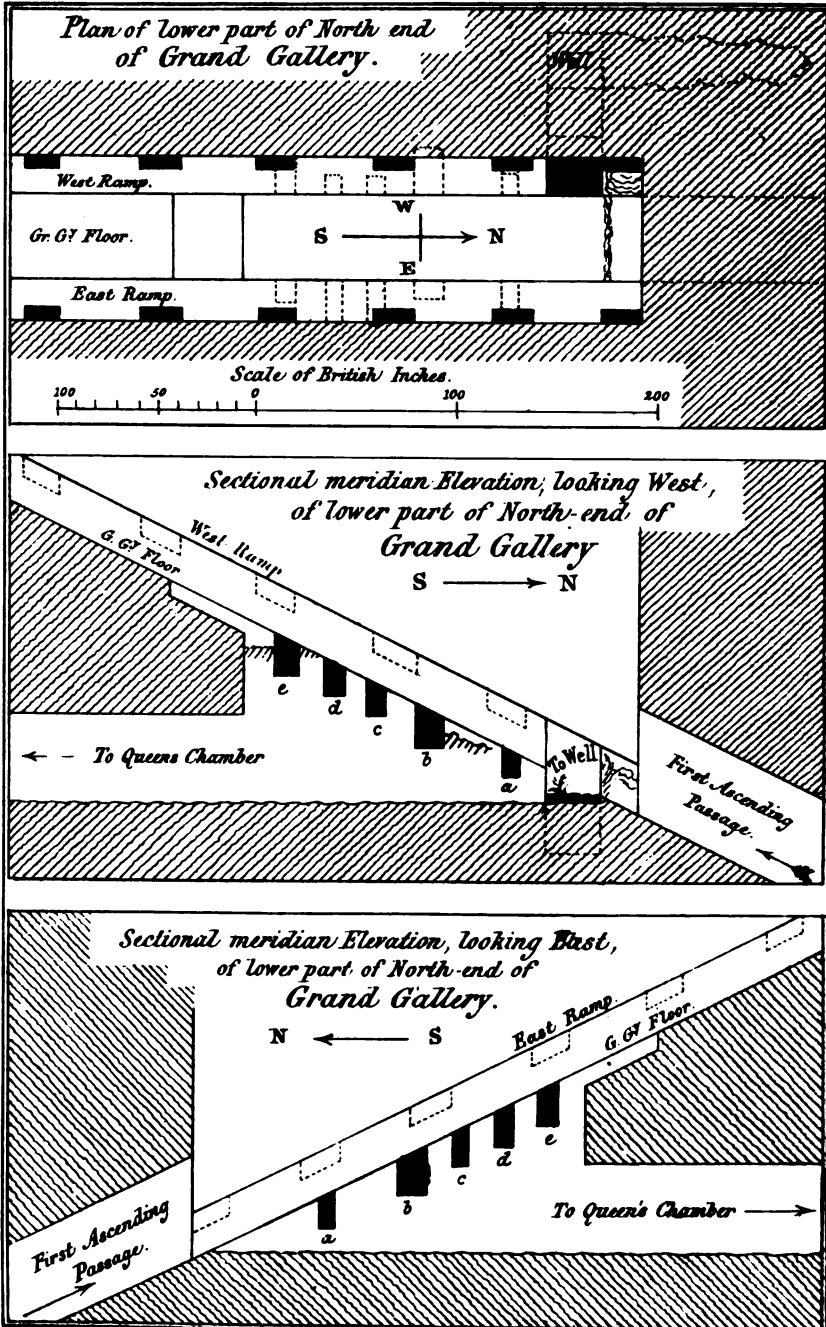
and it needed several more hours of blowing by the north-east wind, before the new set of long wave-like ripples belonging to its direction, were completely established in the ascendant; and then the desert surface seemed rolling along once more, in wavelets as joyous, as those which any swan-adorned, park-like lake in England can show, during the breezes of early spring.

But the moment the weather moderated at all, Alee Dobree and myself were back to our work at the entrance passage; its angle from the horizontal having to be measured. I had indeed been furnished, when in Cairo, by a gentleman there, of great learning and intelligence, with the results of his measures of this element, taken apparently with very powerful apparatus; and they had come within so few seconds of Colonel Howard Vyse and Mr. Perring's of $26^{\circ} 41'$, that there did not seem much improvement possible. But considering it a salutary course at the beginning of my Pyramid experiences, to check everything,—and thereby measure myself sometimes against my elders and betters,—I prepared for the work with a new clinometer, expressly designed for the Great Pyramid, and supplied to me by the kind liberality of Mr. Andrew Coventry, of Moray Place, Edinburgh.

In itself, comprising a gun-metal circle of eight inches in diameter, divided on silver, reading to ten seconds, and by three pairs of opposite verniers,

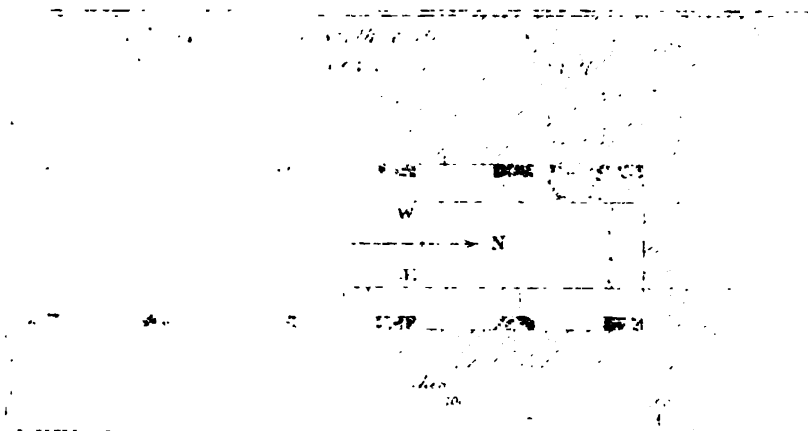
with arrangements also for shifting the angle measured, on the divided circle, and checking the spirit-level to single seconds,—there had never been a clinometer approaching it in exactness employed at the Great Pyramid. This fine instrument was further mounted on a grand beam of mahogany,—resting on two metal feet in the plane of the circle, but fifty inches apart, so as to span over a long length of passage surface at a time,—and with a third foot some six inches removed from the plane of the other two, and opposite the middle space between them, to preserve the cross level.

With this combined instrument, then, viz., the angular measuring apparatus above, and the mahogany beam below, fortified by various extempore handles, holdfasts, etc.,—which actual trial in the passage indicated the machine to require for either comfort or safety, and our tool-chest at the tombs afforded us the means of supplying,—Alee Dobreë and myself stepped all the entrance passage in steps of fifty inches at a time, reading off the angles carefully, first along one side, and then the other of the passage, to eliminate the instrument's index-error. Then shifted the position of the circle, to bring into bearing a new set of its divisions, and went through the passage again; and finally examined the error of division of the circle yet further, by comparing the mean of two with the mean of six opposite readings, and showed that it was probably under two seconds.



but with what result for the purpose? Well, it was the rather provoking result of so wide a difference from the measures previously taken, and the one still for good, as to say, that the angle is neither $26^{\circ}41'$, nor yet $26^{\circ}40'20''$, but $26^{\circ}40'30''$. Now, the latter quantity was, no doubt, not far from the theoretical value than the other, but the entrance passage is looked upon as of a sort of kind to the more sides of the Pyramid, serving as a guide to both departments of the work, and had neither at any time expected such a degree of pure angular accuracy, nor entertained any thoughts even, about the possibility of measuring the passage; but had looked there, only to procure the most determinate of a simple existing passage, which had been already well measured, and believed, by the two previous expeditions, to be so. (See Plate vi. for a nearly square plan of sloping floor.)

A new method was therefore tried, to measure the suspicious-looking ending of the passage, to this end, a signal of copper was placed on the top of the entrance passage, and wedged exactly half way between roof and floor; then a sextant-compass, with artificial horizon attached, which was in daily employ at the east end, — and therefore daily tested, in time and latitude observations, — was mounted at the lower end of the passage; on a stand, too, expressly constructed



Plan looking West
part of North end of
Grand Gallery

S — N



Plan looking East,
part of North end of
Grand Gallery

N — S



But with what result for the passage? Why, with the rather provoking result of so wide a difference from the measures previously recognised in the world for good, as to say, that the angle was neither $26^{\circ} 41'$, nor yet $26^{\circ} 40' 20''$, but $26^{\circ} 27'$ about. Now the latter quantity was, no doubt, much closer to the theoretical value than the others; but then, as the entrance passage is looked on there, as in part a sort of blind to the more important divisions of the Pyramid, serving as it does for mere entrance to both departments of the building at once,—I had neither at any time expected a high degree of pure angular accuracy about it; nor entertained any thoughts even, about the theory, in making the measure; but had looked then, only to procuring a correct determination of a simple existing fact, and one which had been already well measured, as I did really believe, by the two previous observers above quoted. (See Plate VI. for a nearly similar practical angle of sloping floor.)

A new method was therefore tried before long, after the suspicious-looking ending of the clinometer measure. To this end, a signal of carpentry was fixed in the top of the entrance passage, and wedged fast exactly half-way between roof and floor: then the same sextant-apparatus, with artificial horizon attached, which was in daily employ at the east tombs,—and therefore daily tested, in time and latitude observations,—was mounted at the lower end of the passage; on a stand, too, expressly constructed

in our tomb-workshop, so as to rest firmly on the stone slide under the portcullis, and at the same time carry the central axis of the sextant's motion exactly half-way between floor and ceiling.

The mutual linear positions of angular instrument at lower south end of passage, and observing-signal at upper north end, were then tested again and again, both by vertical measures and rectangular set-offs from floor and ceiling ; and then came the angular observation of the signal, as though it had been the sun or a star for latitude,—but again came out a result, not exactly that of the clinometer, but sensibly the same, or $26^{\circ} 28'$.

In one way I could believe this result, because all the preliminaries of the observation had been well settled, and I was familiar with the instrument ; but in another it was quite incredible. What could be the meaning of this huge difference between my observations and those handed me in Cairo, under circumstances that testified their author to be a philosopher indeed ;—one who, in mathematical reading as well as practical experience, was a perfect storehouse of information ; and, with eminent public spirit, had commenced Great Pyramid measures years before, with the express object of introducing into them, for the credit of modern science, more accurate methods than of old ; and also, perhaps, for the sake of enjoying a little of the spicy pleasure to a resident Cairene, of picking some possible holes in the jacket of Colonel Howard Vyse ? For was not

the Colonel a stranger, who had come to and gone again from the Siriadic land, like a meteor? while Egypt has never liked strangers, from the visit of King Menelaus downwards, and is inhospitable to them still.

Yet even to that righteous-minded attempt at mischief, nothing beyond a modicum of seconds could be found to correct in the Howard-Vyse angle; and now my observations, made without any such views at all, were many minutes different from both corrector and corrected. I could only at the time venture the conclusion that the Pyramid was bewitched; and mentally determined, that before leaving the neighbourhood altogether, I would try even a third instrument, and one of most amazing proportions, but whose proper time for appearing on the scene had not yet arrived.

CHAPTER VIII.

ROCKS AND ANCIENT RUBBISH.

COINCIDENTLY with the progress of measures inside the Pyramid, did we try to make ourselves acquainted with the nature of the rock outside ; and generally, of the geological structure of the region around. Our own tombs were of course an excellent beginning, cut as they were into the eastern escarpment of the Pyramid hill ; and showing its formation in a comparatively recent limestone, in vast and tough sheets, having a slight dip south-south-east : whence, in going either towards the summit of the hill, or southwards, we were always approaching the later formations.

In front of our cliff lay a sand-plain, more than half a mile broad, before the cultivated land began beyond ; but that sand was an affair brought by winds from the western desert within history : for the bridge or rectangular opening under the hill-end of the southern causeway, indicates a canal to have run along at the foot of the hills and the then edge of the cultivated land, from south to north,—just as the Bahr Youssef now does, some three-

quarters of a mile eastward, and a little within the present western boundary of the still watered and waterable plain. There is even an Arab village towards the south-west, which is now encompassed by sands, and separated by them from its own fields; and yet has no greater appearance of antiquity about it than any of the ordinary mud-villages of modern Egypt,—at such rate must the sands in this particular locality be advancing still.

Underneath the sand-plain thus superficially skirting the eastern slope of the Pyramid hill, and forming a large plain north of it, with a depth of some ten to fifteen feet,—lies the dark-coloured mud of ancient Nile-inundations; and at a further depth of about ten feet therein, is the usual *wet* stratum supplying all the agricultural wells of the region. Hence in Colonel Howard Vyse's time, there was a well dug without any great difficulty in the plain just opposite his, and now our, tombs,—whence his large party derived their daily supplies of water: but, after his departure, it was filled up by the Arabs, who dislike any feature that may attract squatters into their neighbourhood.

To return however to the genuine geological rock of the region, viz., the limestone in which the tombs are excavated,—its strata may be from ten to twenty feet thick; the separations being formed by interstitial softer portions with colouring of iron, and tendency to decay in a columnar manner, which mixes itself up at times strangely with the door-

posts of rudimentary pillars cut by architects of the fourth dynasty. Yet how nature manifests her power to last and hold her own distinguishing types ; for, and equally with the tombs excavated *in situ* on the eastern escarpment, as with other tombs on the higher slope, or even summit of the hill, built of prepared, worked blocks of the stone,—as fast as they are decaying, and their hieroglyphics, once deeply sculptured, are by slow degrees evaporating completely away—so do the fossil shells become more and more clearly revealed ; some univalves, a few bivalves, but, above all and all, the peculiar form of the nummulites.

Of various sizes, these nummulites affect two mostly, one the size of a flattened pea, and the other of a penny piece ; smooth outside, but when split open,—as often occurs from the spontaneous separation of the two sides or shell plates,—displaying internally a microscopically fine helix-work of cells, perfectly marvellous to behold ; and ever as the rock still more progresses to decay, these medals of nature, deprived of the matrix or cohering matter between them, drop off one after the other, pure and simple to the ground ; whence they are picked up by Arab boys as Strabo's beans, and offered at a great price to an approaching traveller, who does not know that in a few minutes more he will see them by thousands.¹

¹ 'Nummulite (from *nummus*, money, and *λίθος*, a stone).—The ' nummulites compose a fossil extinct genus of multilocular cephalopods,

Near the eastern face of the hill, the small nummulites make up three times the mass of the large ; but near the Great Pyramid, more especially about its south-western and north-eastern corners, the large variety amounts to seven-tenths the bulk both of the small and every other constituent of the rock ; so that when a massive block is met with, cut perchance across the general plane in which the disk-like shells lie, it appears almost entirely composed of something in shape like short chopped straw ; or when a weathered fragment is found, exposing the complete forms of the creatures clinging close to each other, they look like masses of hard beans agglomerated by boiling and compressed. In fact, as the worthy Custom-house officer at Liverpool remarked incredulously a few months after, when I showed him a fragment, and told him the old story of Strabo's beans and the lentils of King Cheops'

' presenting, externally, a lenticular figure, without any apparent opening, and, internally, a spiral cavity, divided by septa into numerous chambers ; they do not possess a siphuncle, but their chambers communicate by means of small foramina with each other.

' Nummulites vary in size from less than an eighth of an inch, or even microscopic minuteness, to an inch and a half in diameter. The number of spiral turns seems to depend on the age and size of the animal ; in those of a quarter of an inch in diameter, being three or four, while in those of the largest size the number of whorls is frequently upwards of twenty. Lamarck divides the genus into four species.

' Nummulites occupy an important place in the history of fossil shells, on account of the prodigious extent to which they are accumulated in the later members of the secondary, and in many of the tertiary strata. They are often piled on each other, nearly in as close contact as the grains in a heap of corn. Entire calcareous hills are composed of fossil nummulites.'—Humble's *Dictionary of Geology and Mineralogy*.

workmen,—‘But you surely do not mean to say ‘that these are *not* beans?’¹

In so far, then, a mass of the Pyramid hill material can be instantly identified, when found in the masonry of the Pyramid itself, or anywhere else; but the whole hill is by no means so rich as that just described, or so peculiar either; for, as the rock stretches away to the second Pyramid, there are fewer nummulites and a partial appearing of echinus-spines, bivalves, and lobster-looking shells; while near the third Pyramid, the smaller nummulites seem to pass into a delicate form of ammonite, or at least have helixes of larger angle. All this on the surface stratum; but if we take a lower depth, as may be most satisfactorily seen at the base of the cliff on the north-east part of the hill, and west

¹ The following generalizing notice of nummulites is extracted from Sir Charles Lyell's *Manual of Elementary Geology*, fourth edition, page 206 :—

‘The nummulitic formation, with its characteristic fossils, plays a far more conspicuous part than any other tertiary group in the solid framework of the earth's crust, whether in Europe, Asia, or Africa. It often attains a thickness of many thousand feet, and extends from the Alps to the Apennines. It is found in the Carpathians, and in full force in the north of Africa, as, for example, in Algeria and Morocco. It has also been traced from Egypt into Asia Minor, and across Persia by Bagdad to the mouths of the Indus. It occurs not only in Cutch, but in the mountain ranges which separate Scinde from Persia, and which form the passes leading to Caboul; and it has been followed still farther eastward into India.

‘Some members of this lower tertiary formation in the central Alps, including even the superior strata called *flysch*, have been converted into crystalline rocks, and changed into asocharoid marble, quartz rock, and mica schist.’¹

¹ Murchison, *Quarterly Journal of Geology*—see vol. v., and Lyell, vol. vi., 1850. Anniversary Address.

of the causeway, the constituent fossils are chiefly echini,—forming by their sections oval and semi-oval figures, very much like those employed in hieroglyphics to express the sounds *tu* and *nb*.

This lower stratum of rock is likewise harder, whiter, and much rarer in its fossils of any kind than the upper portion,¹ as may be seen again towards the base of the Sphinx ; a matter also to be borne in mind in judging of the origin of many of the whiter and better blocks of the Great Pyramid building. For though Mr. Perring and Colonel Howard Vyse, excellent authorities, both attribute most of that variety to the Mokattam Hills, on the east of the Nile,—whence too Herodotus, in a general way, derives the whole of the Pyramid material,—yet they both consider that all the ordinary, yellowish, and indifferent stone was derived from quarries in the Pyramid's own hill, 'which quarries were afterwards utilized as tombs.' But if we may agree therein, that the majority of the tombs were once quarries, it is worthy to note,—that all over the eastern and southern surface of the hill, the tombs there are generally in the form of square wells, descending twenty, fifty, seventy, or even more feet, and then opening out, doubtless in a denser and whiter stratum, into a variety of sepulchral chambers.

¹ Excepting always, for hardness, certain small tracts of the upper rock, where its usual granular texture and yellow colour pass insensibly into a close, smooth, compact, and dove-coloured variety of limestone, affecting rather square and blocky forms, and flying into splinters like flint when struck with a hammer.

This soft and recent, though doubtless sea-formed limestone of the eocene or earliest of the tertiary group,—is however the only substance which the Pyramid hill can contribute towards the bulk of the mighty monuments upon it. For, in spite of mediæval and more modern assertions also, that the Pyramids are volcanic cones, or basaltic masses merely cased about by man with limestone masonry just wherever nature had been pleased to exude those products of internal fire,—there is not over the whole region the smallest trace of igneous agency ; either in hardening the limestone, forming dykes, or bringing in any extraneous mineral ; such fragments of basalt, diorite, greenstone, porphyry, and granite as may be met with, having, together with the alabaster, or arragonite, been brought there by man.

Nor is there on this side of the river any other good or prominent locality for a quarry, except the very hill of the Pyramid ; certainly nothing comparable in extent to the Mokattam and Maasara of the Arabian side, and they are Neptunian also. Far to the north-west, in the neighbourhood of the Aboo-Roash ruins, the white slopes only of chalk-hills, the latest of the secondary formation, can be observed ; while between them and the Pyramid hill, and round about by the west, only a rolling or undulating sort of country can be perceived, where no rock stratum crops boldly out, and the very rounded forms of the hill-tops are dotted over with brown pebbles. These at first sight look like water-worn stones,—but in

which case they would have been distributed more probably towards the bottom, than the summit, of the eminences : and they prove ultimately to be flint or Egyptian jasper, and must have acquired their rounded oval shape from having been formed in the similar-shaped cavities of some superficial rock-matrix, which has since decayed slowly *in situ*. For that reason, it would seem to be, that the round stones were left crowning every eminence ; just as melting icebergs and glaciers in northern latitudes have poised many a large block on the very summit or ridge of various mountain-elevations, to the astonishment of travellers in a warmer age, when the ice-porter is no longer to be seen.

The conclusion, however, with regard to the Egyptian pebble, is due to Dr. Clarke ; who, long before the day of ice-action being much inquired into, specially called attention to the often accompanying fragments of fossil wood, evidently dropped by the dissolution of the same matrix as the rounded stones, and yet showing no symptoms of rubbing, rounding, or attrition in running water. These fragments of fossil, or rather silicified, wood, sharply angular, and with pores best filled towards the original lower end of a tree mass, we frequently found ; together with some small portions of the general matrix, still holding in its grasp chiefly small quartz pebbles of various colours.

Round about, farther west and south-west, there

were rock-roughened tracts, extensive sandy hollows, and broad streams of sand advancing from the desert in that quarter ; but no good cliffs, until we came due south to the northern termination of the long line of hills, forming the edge of the desert along by Sakkara or Abooseer ; and terminating finally just over against the valley south of the Sphinx, and its three or four trees so conspicuously notable in all that long, broad, landscape of white and whitish-yellow, far and near.

These vegetable phenomena consist now of one plane-tree in great density of dark-green foliage,—making a perfect blot of blackness in most of the photographs,—two lean and miserable specimens of the same tree showing the anatomy of their branches picturesquely as well as photographing more harmoniously, and a knot of date-palms ; these rather tall and shapely, but with trunks so fearfully contracted every here and there, as though by dry seasons,—that one wonders how the broad leafy top can be held up against the wind. Date-palms are, however, always pleasing to behold, and in the midst of sands and tombs are positively ravishing ; wherefore it may be satisfactory to men of the present day to learn, that the scene has more amenity now than in a former century, and even during the glorious era of the great Napoleon Bonaparte ; for though in the immortal French work of 1799, there are some *five* plane-trees represented in this spot, the date-palms were then only beginning to run

their botanical race, and are pictured as not much higher than somewhat overgrown cabbages.

But the hill south of these trees, is more worthy than themselves to contemplate; for, with its northern cliffs, it gives perhaps a good idea of what the similar escarpment of the Pyramid hill must have been, in an age before any royal masons had begun to plan improvements or alterations thereupon. The south hill, for instance, shows midway, and to a third from its summit, level strata of dense limestone, so strangely regular as to give one the idea of more than cyclopean courses of masonry; but the very summit, is craggy and ragged with a rubbishy sort of rock, formed chiefly of congeries of shell-fish, and glistening with crystals of gypsum.

Well, if such good engineers, fully understanding rock, as did the late James Jardine and the present James Leslie,—when, in the service of the Astronomical Institution of Edinburgh, they levelled and cut away the whole of the somewhat acuminated summit of the rocky Calton Hill,—until they reached good, solid, and nearly fissureless material, and were able to lay bare a plateau of it so firm and so extensive, as to serve at once for founding both walls of building and piers of instruments upon, without any built foundations, usually so called,—if such engineers, we say, had had to erect on that southern hill at Jeezeh, either an astronomical observatory or a pyramid, they would certainly have cleared away those more recent and less consoli-

dated matters at the top, and have lowered the general surface in a masterly manner, until they touched, with an artificial plane, the compact strata.

Now something very much like that, has undoubtedly been carried out on the site of the Great Pyramid. The escarpments east and north-east are indeed mostly natural, but the top surface north-east and north is an artificially excavated or levelled area; and that is mostly the reason why, in the trenches already alluded to as forming remarkable signals there,—such fine, clean, and solid rock is found instantly underneath the apparent surface of the ground. In fact, not only all the primitive and rotten, though geologically recent, surface-matter (whence, perhaps, the stray shark's tooth, and various interesting casual fossils which we picked up occasionally), but also much solid nummulite rock, must have been cut away and removed; both outside the Pyramid, to flatten the area, and inside its borders also, to make the naturally inclined strata accommodate themselves to the level courses of the building; for wherever the existing rock could be used *in situ*, those thoroughly economical and most able of practical builders, the masons of the Great Pyramid, appear to have so employed it.

Hence, at the north-east corner, the lowest course, and part of another, are visibly formed of rock, trimmed off square *in situ*; and the undisturbed rock may be again met with in the entrance passage a few feet below Khaliph Al Mamoon's hole, and

again in the course of the *well*, at a point between twenty and thirty feet above the base of the Pyramid. That, however, is probably the full extent to which, in any part of this wondrous building, the natural hill is taken advantage of ; for, wherever else excavations have been made, and verily they are legion,—witness the cruel holes at and about the *well-mouth* ; in the Queen's chamber, and passage leading thereto ; in floor of the King's chamber ; at both ends of the grand gallery ; near root of both air-channels, and in and about all the five chambers of construction,—in all these places, and some others also that were tedious to enumerate, nothing but well-built limestone masonry has been found. Wherefore, M. Vansleb's statement, 'that the greatest Pyramid is nothing but ' a rock cut out as a Pyramid, and covered over with ' a wall of stone ;' and another traveller's, 'that the ' Great Pyramid is built on two hills, and that is ' why the entrance goes downward first, and then ' up,—viz., down one hillside, and then up the other ' and greater one, right as far as the King's chamber,'—may just be returned to those gentlemen, as being entirely without proof in themselves, and with serious facts standing in their way besides.

The Great Pyramid is in truth, on the whole, a raised mass of built masonry, stupendous to contemplate by reason of its total amount (more than eighty millions of cubic feet), much more than on account of the large size of the individual stones. These may

be generally, though sometimes more than, about four or five feet thick, seven or eight long, and as many broad ; but what is that compared to the stones in the old Temple wall, at the Jews' place of wailing in Jerusalem, nineteen and twenty feet long ; or to those of Balbec, sixty-three feet long, and proportionally thick and broad ; or to many of the Colossi of the later periods of Egyptian Empire at Thebes ? We were never therefore very much taken up, as to how or wherewith the stones of the Pyramid were raised up to their places ; for with plenty both of men and time, there were many methods in vogue in early days, and are still, by which even greater stones could be handled.

In so far too, as each stone by itself was concerned, there could be no more serious or real difficulty at the first and greatest, than at the second, or any of the other smaller Pyramids of Jeezeh ; the work in the former case being only longer, because it contained a greater number of landing stages to be overcome. These stages are supposed by Mr. Perring, and other Egyptian explorers and residents, to have included five, six, or more, of the present courses of stones, which would then have offered a breadth sufficient for the requisite hoisting apparatus, whether by machinery direct, or through agency of inclined planes, temporarily constructed ; the hollows having afterwards been filled up by the single courses, as now seen.

. This general idea was afterwards put into a more

methodical shape, and claimed by Dr. Lepsius as his theory of *Pyramid building*; but we found a more satisfactory employment at the place, in noting the progress of *Pyramid decaying*; admirably illustrated too in all its phases, either at, or within sight of, the Jeezeh hill. As thus (see Plate x., end of volume):—

1st, There is the complete and perfect Pyramid, with its oblique coating of casing stones planed down to such a uniform surface outside, that the whole monument resembles in the distance a neatly prepared mathematical model.

2d, There is the Pyramid with the casing stones removed, probably backing stones too, and showing in their place the rectangular edges of the several courses of masonry of which the whole bulk is composed; and appearing like a set of steps or ladders, primarily intended for visitors to be ever clambering up and down.

3d, When time has acted longer, and more severely still on the structure, the portions of courses which were merely put in,—to fill up the larger rectangular gaps of the building-stages and partition-walls,—gradually drop out, and the Pyramid becomes one, by name of ‘degrees;’ or with several large terraces running round and round it, distinguishable at a distance of many miles. And then, 4th and last, even the partition walls give way, and the whole structure falls together as a mere shapeless earthen or rubbish mound.

This last stage has supervened with most of the brick Pyramids, and with some of those of stone, where the spaces between the partition walls had been filled with mere rubble, or other imperfect work. But at the Great Pyramid, the building has been conscientious throughout, and ages may therefore yet elapse before it gets much worse than it is at present, or beyond the second stage of Pyramid degradation. Still, this very conscientiousness in building everywhere throughout the mighty mass in a solid and square manner, is precisely what must elevate all men's conceptions at the pure quantity of work which was performed; and when we consider further, that every block of stone was more or less trimmed somewhat square; and with the prevailing ideas on economy and the use of mortar, *must* have been brought pretty nearly true to prevent a waste of much valuable cement,—we may well imagine, what an amount of chippings there must have been produced: and consider, with Diodorus Siculus, that the chief wonder about the practical building of the Great Pyramid, consists in, 'what became of the pieces?' 'There is no 'vestige,' says he in astonishment, 'not the smallest 'trace, of the chippings of the stone; so that the 'whole building seems as if placed on the surrounding sand by the aid of some deity, rather 'than by the sole and gradual operations of man!'

All the stranger, too, would he have thought such absence, if the Egyptians of his day had begun

to indulge in the same easy tastes as those at present occupying the hereditary land ; for *they* seem to have a strange disinclination to removing rubbish ; and, side by side with most of the new palaces in Cairo, you may see still lumbering up the ground, large heaps of crumbled mud-bricks, that had formed the original tenements of the site ; while every public building is disfigured by painted boards for carrying illumination-lamps ; and because these hideous guys, having once been erected for a temporary festive occasion, it is too much trouble for the true Egyptian genius of modern times, to remove them again.

Yet that which so exceedingly puzzled the Agyrian of old, is abundantly unravelled now by nature herself ; for the occasional winter storms, which have washed with sudden torrents the northern face of the Great Pyramid, have disclosed,—that one half in horizontal thickness of the apparent hill-substance all along its northern front, is, from top to bottom, nothing but the chippings of the stones of the Pyramid, banked up artificially against the true hill thereof. From the Pyramid base, northward, to the edge of this true hill with its terminal edge of limestone, hereabouts too much harder than ordinary,—the waters, as they run, produce little effect ; but the moment they pass beyond that well-marked line, they cut steep ravines sixty and seventy feet deep ; and through the whole of that depth, the sides are nothing but chips of yellow building stones.

Nicely flattened at top must these exterior mounds have been 4000 years ago, and making a most effective addition to the table-land surface northward, and north-eastward of the Great Pyramid; where otherwise, the natural edge of the hill would have come far too close for safety or effect; and not improbably, Diodorus Siculus, Strabo, and Pliny too, must all have walked over that very surface of artificial exterior banking up of the Pyramid hill, exclaiming all the time, 'What can the ancient builders have done with the pieces? for they are not here; perhaps they never had any existence; nor is the Great Pyramid the work of man.' (See Map and Section in Plate II.)

Yet to close observation, traces of human diligence are manifest everywhere; and Colonel Howard Vyse calls attention to the several series of circular holes in the rock north-east of the Pyramid,—or close to the place where stones brought by the northern causeway (an excellent example, too, of long inclined planes being used by the Pyramid builders to overcome any very serious vertical lift), would first be discharged on the summit of the hill; and Mr. Perring, as a practical engineer, having himself had to work stones both on the 'Arabian hills' and at the Pyramid, considers that there were several rows of those rough-and-ready engines, called 'poly-spaston' by Vitruvius,¹ placed there,—the butts of their masts entering the said holes, and offer-

¹ Vitruvius, chapter 5, book 10.

ing facilities for the masons lifting and turning the stones while chiselling them into regularity. Many similar round holes, too, did Mr. Perring find in various parts of the Pyramid masonry itself, indicating that similar engines must have been employed there in raising and setting the blocks; strangely confirmative, therefore, of some of the earlier traditions related by Herodotus.

‘Now for secrets,’ thought we, as we paced about amongst the deep cuts effected by recent rains in these ancient rubbish heaps; ‘for what stray or forgotten or anomalous things may not be discoverable here?’ But we became wearied with seeing nothing but chippings of limestone, forming hills and hills; and who indeed will ever pass them all through a mighty sieve, and detect a lost pick, or signet-ring, or anything unusual; or who, again, can wait until rains shall have at last washed away all this heaped-up rubbish from the northern cliff of the hill, and then laid bare perhaps some troglodyte caves of men, who possessed these lands long before Egypt became the heritage of her historical races! At last, however, and without going to any extraordinary lengths, we did hit on something rare and strange; it was towards the top of the heap, and just in front of, though at a great distance from, the Pyramid’s entrance portal: for there, appeared frequent splinters and fragments of green and white, or black and white *diorite*, exceedingly

2. d. m. p.

similar to, if not exactly the same as, the material of the celebrated statue of the Pyramid King at the Boolak Museum.

But the tomb where that marvel of early sculpture was found, lies a long way south-east of the Great Pyramid: and when we asked Alee if the pieces now before us could have come from there,—he answered, ‘But who would take the trouble to bring them all that distance, and so high up the hill, and mix them up with the earth here?’ and then, shaking his head, he said, ‘It was not possible; and besides that, there are too many of them;’ and therewith, as he sat on the ground, he looked at all his toes and all his fingers, and at the greater number of the diorite fragments scattered immediately about him, and repeated ‘it was impossible.’

‘Then where do they come from?’

Of that he could form no idea, but testified again and again that never had he alighted across a single portion of such diorite forming any part of the structure of the Great Pyramid, or of a single tomb round about it; nor had he ever heard of any vase, figure, or anything made of it being found in them, either below or above ground. That statement he thought settled the case so completely, that after its enunciation he went on quietly passing, as before, his toes in review under his fingers, and looking seriously at a rub which one of them had sustained; but I was compelled to gaze up at the Pyramid, with its vast bulk, and believe that there is another

chamber still to be discovered there, and one which will prove, when found, to be the very muniment-room of the whole monument. But how to find it?

There is nothing new, or difficult either, in imagining how there *may* be more hollow spaces within the walls of that vast structure; for every traveller and every antiquary during ages have so indulged, and have hacked, hewed, and excavated at their own sweet wills, or untutored fancies,—yet never found anything thereby; or have succeeded only in proving this, that their ideas were not the ideas of the original builders. Colonel Howard Vyse discourses eloquently in divers portions of his sterling volumes, upon how mere thought never yet discovered anything in the Pyramid; that what has been laid open there has resulted either from pure accident, or the following up of a clue furnished by the building itself; and that many of his own thousands should never have been expended at all, in the manner in which they were. He has indeed made a lamentable disfigurement in the southern face of the Pyramid, and yet that and other negative results were evidently required to convince him, and others too, that the building was *not* stuck full of rooms; for we see in his journal the change of opinion stealing over him day by day; and as his purse lightens but his practical experience increases, he perceives mechanical proofs of a general focussing of the excellences of the whole building towards the King's chamber, in a manner which

almost absolutely precludes the idea of any other hollow part of importance remaining to be found.

May the Colonel's experience serve for all men, and no more random quarryings be allowed in the ancient edifice! Wherefore we will say no more of our one additional expected room, until our linear measures give illustration, approaching to proof, of the idea being founded on fact. Such were my thoughts at the time, and therewith we went back to daily measurings of the passages and their details.

The portcullis proved rather a tough piece of work to render a full account of; and there was no standing on the 'slide' under it, until I had made a plank ladder to lay over the steep slippery surface. But then how the 'travellers,' as they passed, always coveted the use of this simple contrivance; particularly the elderly ladies, who had extreme objection to sitting on their heels and sliding down the smooth stone slope, as the Arabs always wanted them to do. To a temporary use of my carpentry I of course had no objection; but then the poor creatures, once upon it, were generally too frightened to go any further, and would remain there immovable, gazing speechless, and with awe-struck countenances, into the gloom of Al Mamoon's hole,—until their husbands or brothers or sons returned with their guides from the further bowels of the monument, which they made sure must be regions of eternal blackness and darkness indeed.

Amongst the many parties, however, helping not at all, and apologizing less,—there was one of better order, from a boat returning down the Nile, where the patriarch chief had ideas far beyond the common run ; and having come to me for some explanation about the ‘triangular stone,’—he likewise spoke out involuntarily and spontaneously his admiration for the gallant Howard Vyse. ‘He held property ‘in our *county*,’ was the first bond of sympathy with the deceased hero ; but then the speaker went on to expatiate on the noble giving up of himself to a great work manifested by the Colonel ; the innumerable vexations and oppositions which he had to encounter, enough to have turned away ten ordinary men,—and they did turn away his faint-heartedly the then Consul-General,—but Howard Vyse’s devotion only rose proportionally to the difficulties ; for he thereupon took the whole work of the intended confederation on his own shoulders, and became day after day for months together the employer, superintendent, and paymaster of more than three hundred Arabs ; working them in directions and on subjects of his own choosing, planning, and final discussing. How too, these Arabs did try to overreach him in every particular ; and while they were receiving from him such pay as they never had before, and were saved in his service from being ordered off to work at a deadly canal by the old *régime* of Mohammed Alea,—yet they endeavoured to shirk their work and inveigle him into difficulties and into giving

them all manner of needless gifts and perquisites besides ; nevertheless Howard Vyse always kept to his word rigidly, though they had cheated utterly.

There was that Sheikh of Kafr-el-Batran, who, as the Colonel writes, 'came with a request that my blacksmith might be allowed to make for him an instrument to cut grass or grain. I readily consented, as I understood from his description that it was a trifling affair, which would soon be completed. It proved, however, to be an immense machine, composed of nearly a ton of iron. The metal, in fact, was his chief object. I kept my promise, but carefully avoided such engagements in future ;' and then the same old serpent Sheikh could come sidling up to him very soon after, with such a sanctified air, requesting leave to 'take some stones, that he might build a tomb to his deceased brother,'—but really that he might induce the Colonel to break the terms of his firman, under which he had been allowed to pursue his excavations at the Pyramid.

'Oh ! I can assure you,' said the Lord of the dahabeeah with enthusiasm, '*our county* man was one of whom the whole land might well be proud ; his book was of course all well enough in its way, the best description of the Pyramids from original measurement ever printed in any language ; and the faithfullest digest of all the innumerable works that have ever been published on them, either among eastern or western authors, from the times

‘ of Herodotus, Manetho, and Mohammed, on one side,
‘ down to—oh down to “the author of *Recollections*
‘ *of the Peninsula, etc.*, and the *Encyclopédie Pit-*
‘ *toresque des Sciences et des Arts, Paris, 1835 ;*”
‘ but what we of the *county* admire most, is that
‘ matchless style of the complete gentleman in
‘ which he did the honours of the Pyramid so long
‘ as he lived in front of it. Not a single traveller
‘ ever came there with anything approaching in
‘ the least extent to an introduction, but what he
‘ was entertained at dinner, or accommodated in the
‘ tents, and had attendants told off to wait upon
‘ him and show everything of interest in the neigh-
‘ bourhood, including even the last of the Colonel’s
‘ discoveries. And when the very greatest of the
‘ native dignitaries arrived, with their eastern polite-
‘ ness of the grand old Abraham school, even such
‘ as the Scheriff of Mecca, our *county* man was as
‘ truly lordly as any of them ; feasting them as
‘ lavishly and giving back presents three times as
‘ costly as all he received. But if any overbearing
‘ grandee appeared and presumed to take liberties,
‘ how politely the Colonel foiled him ! so when the
‘ mighty Prince Pückler Muskau came galloping up
‘ with his retinue and equipage, and very coolly
‘ wanted to encamp the whole of them, within the
‘ Colonel’s narrow enclosure, he quietly remarks,—
‘ “To this I did not consent, but directed a person
‘ to conduct his Highness to the great tomb in the
‘ plain generally occupied by travellers.” And what

‘ sort of person was his Mighty and Serene Highness ?
‘ Why, precisely one of those who writes, or pays
‘ others to write, their names on the noblest monu-
‘ ments they can find ; and I myself have now, only
‘ just come down from Nubia, and seen the name of
‘ this potent Pückler Muskau, with all his titles in
‘ big domineering letters, sprawling across the breast
‘ of one of those Remsean giants who, for three
‘ thousand years before the race of Pückler Muskau
‘ was known under the sun, have sat guarding the
‘ entrance to the rock-hewn temple of Abu Symbel.’

Much more would the enthusiastic advocate for English *county* history and its heroes, have willingly related, as we stooped there uneasily under the granite portcullis ; but Alee Dobree had long been calling down to us from the top of the entrance passage, and indicating something or other of a threatening aspect which we could not understand, and therefore did not attend to. Soon, however, it appeared that he had had reason enough on his side,—for in a minute afterwards, there began pouring into the top of the narrow funnel a perfect torrent of travellers, the contents of two mail-steamers at least. One of the sight-seers followed close after another, or with Arabs between, until the whole length of the entrance passage was thick with smoke of candles and crammed full of struggling specimens of humanity, blocking out the daylight from above and driving suffocating clouds of dust before them,—as they loudly vociferated and tumbled

confusedly from one side to the other of 'the low and narrow way that descends as down the steep of a hill.' A Pyramid Sheikh was ready at the appointed spot, to turn them westward into Al Mamoon's hole; but the time they occupied clambering in there seemed interminable, and still fresh torrents poured in at the summit of the passage, without cessation.

We two prisoners on the sand-bank of refuge below, looked up from time to time through the din and dusty turmoil, and saw 'travellers' of every conceivable kind,—some of them half stripped of their clothing, as if going to cricket or a boat-race; or perhaps, like Sandys visiting the Great Pyramid two hundred years earlier, 'forewarned of the heat within, not inferiour to a stove;' while others, again, had wrapped up their heads and fly-away whiskers curiously in cambric handkerchiefs; but each of them had the assistance of at least two brawny Arabs to help him along; occasional candlemen intervened, and active little black boys, with goolahs of water for the thirsty ones, brought up the rear.

CHAPTER IX.

MODERN RUBBISH AND RAMADAN.

AFTER doubling the portcullis with measuring-rods and plumb-lines, our progress up the first ascending passage was comparatively rapid,—for there were not so many features there very worthy of note ; and again, on entering the grand gallery,—as in that part we confined our attention at first, merely to the narrow continuation of the floor of the former passage, which keeps the same breadth and same southward direction, but as to angle of altitude changes to horizontal,—the measuring became so much easier, as both rods and candles did not there for ever require to be held tightly, lest they should slip and shoot off downwards right away from us.

After a few feet too, this horizontal passage passes under the elevated floor proper of the grand gallery ; and continuing on in the same direction, and protected manner,—reaches the so-called Queen's chamber ; a *cul-de-sac* without thoroughfare, and a perfect haven of quiet after the continual disturbances experienced elsewhere. *Especially* calm, moreover, was it ; as this said Queen's chamber was

apparently not considered any part of the 'show' for travellers, and we only heard their noises and shoutings, multiplied by echoes and dimmed by many reflections, making strange streams of noises, like the voices of innumerable waters,—as the various parties prosecuted their triumphant progresses to the King's chamber, far over our heads in the bulk of the Pyramid.

But what was there to notice in the Queen's chamber?

Many unusual if not mysterious things, and features of which no explanation has ever yet been given, and hardly even attempted.

1. *Firstly*, There is no flooring to either passage leading into it or to chamber; *i.e.*, in the sense of the ordinary floor lining of white Mokattam stone; what you actually tread on, being simply the surfaces of the ordinary courses of masonry belonging to the mass of the Pyramid, and occupying two different levels in the run of the passage!

What has become, then, of the finer flooring blocks, if they were ever put in? and what would have been their thickness and the reduction they would thereby have made on our present measures for the height of the walls, if they had been now in their places? Or, were they perhaps never inserted? And if so, why such a contrast, in the finish of its floor, to all other parts of this room, as well as to every other floor throughout the Pyramid?

2. *Secondly*, The *walls* of the Queen's chamber are

lined ; and with the finest and purest white stone yet met with anywhere. It is something which is whiter, closer in texture, and takes a higher polish than any of the other stones, even the ' casing ' stones,' and was originally exquisitely planed ; with the accompaniment too of the joints being the truest and closest ever observed. Some which were specially examined were really to be called microscopic, and yet duly cemented both in vertical and horizontal courses.

' But what did they, the builders, put cement ' in between the joints for ?' asked an American clergyman, who one day found his way into the room. He was a magnificent elderly gentleman, and I had fancied him at first an archbishop, or a bishop at least, with two or three small attendant chaplains, and yet not exactly that either. The Arabs, his guides, were very disinclined to let him stop and talk ; but they soon found what a commanding example of human nature they had to deal with, and being summarily ordered to wait outside,—they sat down there in patience and blank despair, blowing out their candles, however, to save the consumption of wax while the talk went on.

Then again demanded our questioner, who proved to be the first minister of Buffalo City (and one who had been offered again and again the bishopric of New York, but had refused on conscientious principles), again demanded he, ' What did the ' builders put lime between those joints, even the

‘vertical joints, for?’ To make their work good, and enable it to last long, was the *first* evident answer; and the metrological theory suggested also a *second*,—or, that *lasting* power was of extraordinary importance; seeing that the builders had worked, not for their own or the succeeding age, but for one separated from theirs by many thousand years. This was only theory; yet further research about the building produced instances showing, that whatever the chief intention, one further result had been,—both to put, and keep, on record some most unexpected testimonies to important features that once existed; and in parts where destroying men had in the interval been visiting, breaking, and perhaps thought they had carried everything of importance away,—and would have done so, but for the faithful grasp of the almost invisible sheet of cement.

- 3 *Thirdly*, Roof and walls of passage, and walls, perhaps roof also (but I had not a ladder tall enough to examine that) of Queen’s chamber,—are covered to the thickness often of a quarter or even half an inch, with a coating of a hard saline incrustation, almost stony sometimes in external appearance; sparry excrescences Colonel Howard Vyse calls the substance, filling accidental fissures in the stone, and still exuding or growing,—for certain letters scratched on the wall in 1823, have now *raised* outlines in this species of salt. Whence comes this salt then, and why is it so peculiarly confined to this chamber and passage?

Fourthly, What is the meaning of the great niche, some fifteen feet high, several broad, and more than three deep in the eastern wall of this room ; elaborately wrought with all perfection of mechanical accuracy, and yet more than two whole feet out of the centre of the side of the apartment ; and that a most pointed side, literally as well as figuratively, from the ceiling being formed in two halves leaning against each other at a sharply cut angle ? There is nothing else whatever either in the Great Pyramid or any other Pyramid like this niche, or capable of leading to its explanation ; and yet its size, together with the finish of its work, shows that it must have had some special and important object.

‘To conceal treasure,’ said the Arabs of old, and burst out the back of the niche,—and found nothing. ‘To show a passage under ground leading ‘to the great Sphinx,’ said mediæval Europeans, attaching, though Christians, greater value to an idol than ever did barbarous Mohammedan natives ; but after forcing their way for fifty feet eastward, and finding only solid masonry, they gave up their quest in despair. Then came the modern sepulchral theorists, and said, ‘There must be a mummy-pit under the floor just in front of that niche,’—so therewith they excavated, and excavated, but found nothing ; while they heaped up all round about their hideous chasm, that enormous mound of rubbish which the two Reis, Alee Shafei and Atfee, with all their little men, had to put back at our

desire last month, so as to enable the room to be seen once again in something like its original proportions.

As for myself, I could only look on and wonder, recording the measures, and keeping them for future discussion ; employing alternate days in examining other much older rubbish-heaps outside the Pyramid, and of not inferior, though a perfectly different sort of, interest.

These new rubbish-heaps were not, however, the grand remains of ancient chippings before alluded to,—and which are outside the Pyramid hill itself, as well as the Pyramid, and vie in extent with Nature's own erections,—but are comparatively very small and modern accumulations, banked close up against the sloping walls or sides of the builded monument.—(See Plan in Plate iv.) Yet small though they be, these modern rubbish-heaps led the Rev. Mr. Gabb, in his fine, cheerfully expressed, and rhetorically written work, entitled, *Finis Pyramidis*, to conclude that 'this interesting monument, this 'paragon so replete with principles of science, the 'great Pyramid of Jeeza, was erected by the ante-'diluvians' !

The argument, which is conducted by the reverend gentleman with the greatest fairness as well as most inspiring brilliancy of expression, is wholly based on the belief 'that the heaps of matter which 'environ the Pyramid, and hide a great part of its

‘reclining sides, next to the foundation, are *entirely*,
‘or *all but, composed of sand*, and *sand adventi-*
‘*tious to the locality*. On that,’ he says, ‘all authors
‘are agreed, but by what agency is the question.’
Wherefore he proceeds to show that the general
opinion is, that the sands have been brought there
by the winds; but such an action, he says, ‘is
‘directly contrary to common experience, since the
‘*removal* of a deposit of sand is rather the natural
‘and invariable effect of that agitated element, the
‘wind, especially on the summit of a hill.’ Such,
too, he argues, *has* been the slow effect of ages of
wind upon a great mass of adventitious sand, once
on a time heaped about the Pyramid, subsequent to
its completion, and brought there by no less a
carrier than ‘the universal deluge, called Noah’s
‘flood.’ ‘These sands, on the subsiding of the
‘waters, were probably very near the summit of
‘the Pyramid. Nor do I’ (Rev. T. Gabb) ‘doubt
‘but the apex of the Great Pyramid was severed
‘from it by the impetuosity of the waters while in
‘their unabated rapidity, and thus left flat, which
‘has furnished various conjectures.’ All which
ideas are prosecuted by the ingenious author, until
he at last culminates in showing ‘the *absurdity* of
‘the opinion of the Great Pyramid being built
‘*since the Deluge*.’

The other Pyramids in its vicinity, he then con-
siders, ‘as doubtless antediluvian also; and, from
‘their more entire state of preservation, to have

‘ been erected much nearer the time of the Deluge.’ But he does not consider them, for various reasons given, to have been erected for the same virtuous, scientific, and religious, ends as the Great Pyramid ; on the contrary, Mr. Gabb pronounces the founders of these other Pyramids ‘ to have been some of those who, after their intermarriages with the daughters of men, became not only degenerate despisers of useful knowledge, but altogether abandoned to luxury ; intent constantly, not on profiting society in ages to come, but on evil, in all kind of extravagance, pomp, and vanity ; and apparently built the Pyramids now in question merely for ostentation, instigated, perhaps, by the urgent entreaties of the vain females, who swayed and overruled the faint efforts of expiring virtue in the breasts of the husbands of their new alliance.’

Yet the theory, so successful on paper, rests on nothing but *reputed sand* ; and, unhappily for it, even that sand has no real existence ; for when these heaps ‘ that hide part of the reclining sides of the Great Pyramid ’ come to be examined, they are not composed of sand at all, but entirely of fragments of building stones !

One of the earliest travellers specially to note that these heaps *did* consist of broken stones, and *did not* consist of sand, was that accurate and eminent observer of nature, as well as men and manners, the late Mr. Lane, as described in his

sister Mrs. Poole's *Englishwoman in Egypt*; though it does not appear whether his remark was pointed at the refutation of Mr. Gabb's theory or not. But at any rate, though opposing, we must speak respectfully of that gentleman, who had not himself made the erroneous observation at the Pyramid, but had taken it on the report of books which he believed to be true; and he encases himself further with this mantle of truth and good feeling, which we trust may be allowed to others also,—that 'if he ' should have deceived himself, and should fail in ' his attempt to establish the right theory, still the ' Great Pyramid will neither fail nor suffer any ' diminution of its beneficent utility in assisting ' towards further discoveries.'

How truthful the sentiment will probably appear from what follows, touching a further examination of the same heaps lying against the Pyramid, and the numerous witnesses they have thereby furnished to a leading question connected with the mechanical theory; viz., Was the Great Pyramid always the same stepped or laddered monument that we see it now; or, was it once smoothly covered in by casing-stones; i.e., a stratum of well-worked masonry,—square-angled at the back to fit into other square-angled backing stones, and these into the rectangular courses of the great core of the Pyramid,—and then bevelled off at the outside surface according to the general figure of the whole

monument, so as to give it a perfect smoothness and oneness of superficies from top to bottom ?

The conception of these casing-stones is surely simple enough in itself, though some authors who visited Egypt at the beginning of the century, would persist in translating the French word expressing that peculiar sheet or covering of stones, *revêtement*, by *rivetings*; which, to a nation of steam-boiler-makers and iron-shipbuilders, conveys quite a different idea. Worthy Signor Belzoni was nearer the mark in speaking of casing-stones, as 'a jacket'; and he knew well enough, no one better, of the remains of such a casing still existing towards the top of the second Pyramid; yet strangely, he was decidedly set against anything of the kind having ever attached to the Great Pyramid. 'It has been 'supposed,' he writes, with all the clearness of an old Roman, 'that the first Pyramid, or that of 'Cheops, was *not* coated. I must agree in this 'opinion, for there is not the slightest mark remain-
'ing of any coating.'

The unfavourable opinion which Belzoni in 1822 refers to as then existing, was not improbably based on the writings of M. Niebuhr the elder;¹ to whom, as the chief of a large and national scientific expedition, almost implicit confidence was paid in his own day, and he has been highly lauded since for his accuracy by Baron Bunsen in the world-

¹ Swiss edition of 1780; M. Niebuhr sailed from Denmark in 1761.

renowned volumes of his *Egypt's Place in Universal History*. This first-class man, then, M. Niebuhr, holds no quarter with any advocates of a once existing coating on the Great Pyramid. 'To augment,' writes he, apparently of *all* the Pyramids, but speaking on the strength of a visit to the Great one only,—'To augment the high opinion which scribes have endeavoured to inspire of the magnificence of these monuments, they have advocated that the Pyramids had been coated all about with marble. But in spite of all my researches, I have never been able to find any trace, nor even any indication, of such a covering.'¹

Now, so far as the word *marble* is understood by some persons in the present day, viz., 'statuary marble,' or limestone altered by plutonic heat under pressure, and become dense, crystalline, and free from visible organic remains,—there is nothing of that sort about the Pyramid at present, nor has there ever been; nor does Niebuhr make his rejection of the hypothesis of 'coated all about with marble,' rest on that mineralogical difficulty; for in his day 'marble' was applied to any stone that would cut in any direction and polish well,—including, therefore, serpentine, porphyry, and granite; or if he had perchance already become of the more rigid of the new school, he would merely have excluded these extraneous minerals, and with many

¹ 'Je n'ai pu découvrir aucune trace, ni même aucune indice, d'un tel revêtement.'

of the geological text-books of even the present day, have used no more discriminating definition for marble, than 'any hard limestone which is capable of receiving a high polish.'

Under such a definition, the Mokattam limestone *may* be received as marble; for I have had a variety of examples of it submitted to a lapidary, with brilliant result, and there is plenty of *it* about the Pyramid. I would not, though, myself indulge in calling it by the luxury-inspiring name, having the same conscientious scruples in using *marble* to any one variety amongst a number of limestones,—that Cicero had in applying the term, a *good man*, to any one whatever amongst all his acquaintances, very respectable citizens though they might be. But the world, from the time of Greaves to that of Niebuhr, would have called the Mokattam rock freely by the name of marble; and so would Niebuhr too, we feel convinced,—while his previous paragraph, declaring the whole Pyramid, so far as he had examined it, to be composed of the rock of the Pyramid's own hill,—simply shows that he had not distinguished, mineralogically, amongst the blocks of nummulite material, the occasional purer masses from Mokattam. With him, therefore, to say that he had not found 'any trace, nor even any indication of there ever having been any coating of marble to the Great Pyramid,' is perfectly equivalent to saying, that he had not found any trace of Mokattam stone which could possibly be

attributed to the once existence of such a coating ; and in that sense spoke Belzoni too.

Such was the understanding, then, of modern antiquity on this subject ; and doubtless Sir Gardner Wilkinson had much difficulty to contend with in improving public opinion upon the point, when he commenced his matchless literary and antiquarian labours in Egypt ; but the hero of the tale is undoubtedly Colonel Howard Vyse, who cut down through obstructing rubbish on the northern face of the Pyramid, right down to its foot, and discovered there two huge casing stones, and part of a third *in situ*, this *part* having been maintained there by the astonishing hold of the cement, as a testimony to *more* than two having once existed. These stones were rectangular at the back, level and horizontal on the upper and lower surfaces, but sloping on the outside, and at just the angle, when produced, to finish off the Pyramid in a point a little way above the present flat top ; they were likewise composed of a beautifully hard and white variety of the Mokattam stone.—(See Plate iv.)

Now, inasmuch as Herodotus describes the Pyramid to have been cased in his day, and that such casing was begun to be put on and finished off from the top downwards,—the finding of these two blocks at the base of the Pyramid, was bringing to light the proof that the casing *had* once been completed, and the very last stones of the series inserted ; freeing therefore the great monument from the ani-

madversion of Belzoni on the second one, viz. : ‘Yes, there is some coating about the top of the second Pyramid, for the masons began to put it on at the top as the Egyptian priests described ; but they could not get any further than the little distance which you now see ; and that is all the amount of coating the second Pyramid ever had.’ In fact, Colonel Howard Vyse’s great discovery of the finishing, because the lowest, blocks of the whole sheet at the Great Pyramid, gave a double holding turn to the casing-stone theory.

So at least we had thought : and made sure of the same with every one else in the world whose mind is capable, in a mechanical subject, of admitting mechanical evidence ; but to our extreme surprise on arriving in Egypt, we found the matter perfectly scoffed at by some of the literati of Cairo. ‘Oh, certainly,’ they said, ‘we know as well as you, that the Colonel found two stones at the foot of the Great Pyramid ; but there were never any more than those two ; and they, by themselves, have no more power to explain the whole Pyramid surface, than two pebbles found on the sea-beach to tell you what the bottom of the entire ocean is like. Read,’ added one of the gentlemen, ‘my invented conversation between an Egyptian priest and a Greek philosopher, who had come as an humble student to learn something of the famous mysteries and secret wisdom of the Egyptians, in the cloisters of the temple of Amun-ra at Helio-

‘polis, in the year 700 B.C.,—and you will find, colloquially expressed, what all we Egyptians know so perfectly well,—that the Great Pyramid was always the *laddered one* of the group, and always truncated near the summit as you see it now ; for purposes too, that none but pure Egyptians have ever been able to comprehend.’

‘Then what becomes,’ we asked, ‘of Sir Gardner Wilkinson’s very consistent historical notices of the casing having been removed, by early Arabian Khaliphs, to furnish material for building aqueducts and mosques for their new capital of Cairo ; and the long Arab bridges, by which the heavy stones were conveyed across the alluvial flat to the river bank ?’

‘Why, vanished in smoke,’ returned the Cairene unabashed, ‘gone off into the same nothingness as the casing stones themselves. Casing stones,’ he added with emphasis, ‘pray what use would such queer-angled things as casing stones of a Pyramid be, to masons engaged in any rectangular work ? the idea of casing stones is simply a myth !’

At the time, we were only getting up opinions ; but on going out to the Pyramid, my conscience often suggested the propriety of trying some clearing up of these remaining native difficulties about the casing stones. Sometimes we thought of uncovering again Colonel Vyse’s two ; but then he records, that they were excessively broken by mischievous visitors before he, on leaving the nei-h-

bourhood, could shield them safely with rubbish ; wherefore, though I might have brought from Scotland more accurate means for measuring the angle than he had, there would not be found now so much to measure upon ; and besides that, any degree of accuracy whatever procured on those two particular stones would not satisfy the learned and jealous of Cairo. We turned our attention therefore to the Pyramid as a whole, and soon began to perceive something remarkable.

A friend had told us long before, that he had seen fragments of the casing stones, still existing here and there high up on the sides of the Pyramid, and glistening like snow in the morning sun. He judged from a distance by their whiteness as compared to the general yellow of the whole, and was deceived ; for we found, on examining such instances, that they were merely occasional white examples amongst the other blocks composing the rectangular masonry. But then it was, that we began to note the heaps of rubbish lying against each face of the Pyramid near its foot ; their form is most peculiar and full of suggestion ; for it is a function, so to speak, of the height of the Pyramid-side vertically above them ; coming therefore to a culmination always, and regularly, in the middle of every side. This obtains exactly on the east, south, and west sides ; and if it does not at present do so precisely on the north also, it is because Colonel Howard Vyse gashed the original mound there with one

grand cut in the middle, running north and south, and then with two other parallel ones on either side, in search of pavements,—and then with two or three other cuts running east and west, when he was looking for a *lower* entrance into the Pyramid ; converting thus the original and single large heap into a collection of several smaller ones. But the shape of the original mass may yet be traced by a discoloration on this north side of the Pyramid, and shows it to have been perfectly similar to the others. (See Plate iv.)

Now this shape is, as clearly as may be, a proof that the heaps observing it are formed of matter that has come off the side of the Pyramid ; and the external coating of both, is now the same in colour and consistence ; viz., yellow ochry and friable. In the instance of the poor Pyramid side, oh how friable ! for the miserable nummulite variety of limestone is weathering away to the extent of several feet in some places, threatening to wash down bodily with a few more showers of rain, and bidding one despair of ever arriving at the original state of the Pyramid in these latter days of its dissolution.

Let us take courage, however, at least to look at the ruins and examine their character. On every side the external crust of the heap is, as we have said, the same in matter, as that of the Pyramid ; and so it continues to a depth of about one or two or occasionally three feet ; but underneath that yellow crust, the mass below is made up of nothing but artificial fragments of *white* limestone, dense, com-

pact, free from fossils, and in every respect like Mokattam stone generally, and the material of Colonel Vyse's two casing stones in particular. Now these cannot be the chips made by the workmen at the original building; for, long after that was finished, Diodorus Siculus relates notoriously, that he could see no traces whatever of any heaps of refuse banked up near the Pyramid. The area where we find these heaps now, was consequently entirely unoccupied in his day; and by their form, they must have come down from the side of the Pyramid; what last came down is at the top, and is yellow, like the present side of the monument; but what previously came down is below, and is white,—wherefore we assume, that the Pyramid was once externally covered with such white stone.

'Alee Dobree,' we asked, 'who made all these great holes by which we can see the white stones underneath the yellow crust of these heaps?'

'Oh! it's the Arabs,' confessed he at once; 'when an Arab wants to make an oven, he always comes and digs here in these rubbish heaps lying against the Pyramid sides; for the sort of white stone he finds there, will stand heat better than any other; and though it is in small pieces near the top, he can always find larger by going down deeper.'

This statement seemed to be quite true, from our inspection of a number of the holes; and in one of them my wife's sharp eye detected a mass, one of

whose sides had evidently been worked flat by the hand of man. It was lying inverted and wedged in amongst other similar blocks, but by dint of poking with tent-pegs it was extracted ; the worked surface was some fifteen inches by ten, but irregular in bounding figure, being met on every edge by fractured surfaces, from behind, and having evidently once formed part of a much larger block. Every poke with the tent-pegs loosened and set free clouds of white dust ; but this was merely a product of the dry decay of the limestone, and perfectly different from the Rev. Mr. Gabb's desert sand ; which, *i.e.*, the true desert sand, consists chiefly of sensible sized particles, often to be called miniature pebbles, of quartz and jasper. We went on therefore with our examination, quite confident of being at work on a conglomeration of later date than any visited by Greek and Roman authors ; in whose days too, by their own accounts, fully translated, the Great Pyramid *was* covered over with a smooth casing of Mokattam stone.

Seeing us at something like amateur quarrying, though on a very small scale,—divers Arabs emerged from behind rocks, and brought us 'antiques' for sale, such as legs and heads of green idols, stone scarabæi, doubtful-looking signet-rings, Egyptian colour-boxes, and what not, procured by themselves out of tombs near and far from where we then were ; but we refused to purchase any one of them, and declared the utmost contempt for all 'antiques' of

every kind and degree. Such things we were not desiring at all, we told them ; but cared only for taking measures and photographs of ancient things as they stood ; or, if there was anything more than another we would like to accomplish, it was, to find amongst that multitude of fragments of white stone which they were all treading under foot,—a single specimen where two of its worked surfaces met together. But the sellers of smuggled antiques being quite unable to see the money advantages of that,—dispersed again to their hiding-places, ready to pounce on the first traveller whom they might secretly persuade to purchase from them, things which the new edicts in favour of the Museum at Boolak, forbid all good subjects to traffic in.

Alee Dobree, however, attended to a little lecture which I gave on right angles, and the angles by theory peculiar to casing stones : and soon plumed himself on knowing more than his brother Arabs, or that the angles of 128° and 52° were not angles of 90° , and possessed an important meaning for the structure of the Pyramid. Zealously, therefore, at all the intervals which the putting up of the camera for dry-plate photographing offered, he set himself to look about for fragments with two worked surfaces meeting. Presently he found an example,—but the angle was a right angle, and both sides white, and with traces of cement.

‘That is only one of the back corners of a casing stone,’ we said confidently ; ‘look again, Alee, and

'doubtless you will at last find one with the front angle.'

'Of 128° or, 52°?' said he proudly.

'Precisely so.'

At last he came running from a hole in the heap on the eastern side of the Pyramid, and declared he had found one. It was a huge mass, was the stone containing the reputed angle,—some twenty-seven inches long on one worked surface, but met on every side by fractures, except at one little spot, where there was a portion of nearly three or four square inches of another worked surface, and meeting the first decidedly at *not* an angle of 90°.

It was growing dark that evening when thus much had been ascertained, and the stone far too heavy for carrying to the east tombs; but next morning we went in force to the spot, placed the block with its large surface uppermost, as well as duly level; and then with a pocket clinometer measured the angle of the small attached portion of the other worked side,—and, 52° came out for its depression, or 128° for the angle of the stone itself.

That then must have been part of a casing stone of similar composition, and the same angle (as clearly as could be judged on so small a fragment) as Colonel Howard Vyse's two colossi; but extending the mechanical testimony from the north, to the east, side of the Great Pyramid.

Subsequently, too, we succeeded in finding specimens provable from their angles, on every side of

the Pyramid ; several examples from each side, and without a single anomaly ; that is, the angle was always either 128° or 52° ; and never different therefrom by half a degree ; so that they could not have belonged to anything else in all that region but the casing of the Great Pyramid. The sides, moreover, that had been external on the building, proved themselves by a peculiar brownish, painted-looking surface of a bright walnut-wood brown ;¹ while sides that had been interior, were usually white, and with traces of white cement. Whether, too, it was that these fragments had been preserved by having been buried, or that Mokattam stone is really so very much more lasting than Pyramid Hill nummulite,—these casing-stone fragments would often delight us by the beauty of their surfaces and sharpness of their lines ; some of them being far beyond the work of a chisel even of our own day, and must have been the result of an accurate process of grinding and polishing down after they were fixed on the Pyramid's side.

Nothing was *then* wanting to complete proof of the whole casing-stone theory ; and if most of our specimens were small in size, that might be merely due to their being fragments knocked off by early Arab workmen to suit those grand old stones to the rectangular masonry of the new build-

¹ This species of brown is that called *red* by the late Mr. Agnew and Signor Caviglia in some of their dissertations on the Great Pyramid ; and is very different from the actually red ochre used occasionally by the ancient masons for drawing lines or quarry marks.

ings in Cairo, destined thus to be raised ; but it was also attributable in part, to our not making any deep excavations, and only pushing about with feet and hands among the loose matter near the surface. Had His Highness the Viceroy at the beginning, only listened to our petition, that he would be pleased to open up all four sides of the base of the Pyramid,—according to article A, of the second part of our application to him (page 8),—who knows how many complete specimens, and large ones too, of casing stones might not have been found ; for the east, south, and west rubbish heaps of the Great Pyramid have never yet been cut through by any man.

But it was not our business, nor within the compass of our means, to perform such excavations ; and as the month of Ramadan drew its slow length along, we had often hard work to prevent being deserted altogether, and left without a single native to help us at anything. At first it was a touching, and rather exemplary sight, to see the poor Mohammedans submitting morally to so severe a trial of the flesh ; and there was something of unspeakable grandeur in the idea of one illiterate man, and not born to kingly state, whose influence over millions is still, after a lapse of twelve hundred years, so powerful, that ruler and peasant, in many lands, alike bow down to his dictates ; and, in defiance of all that civilized and learned Europe can write, or print, or do, will persist in commemorating, by a

searching penance on themselves, their false prophet's self-asserted statement of his having received an inspiration from on High during that month. 'But by their fruits ye shall know them,' and the growths of Ramadan became at last far from edifying.

At first, and so long as the effects were to try every man's temper, and show what his weaknesses were, while he struggled all the while manfully against them,—we were all pity mixed with sympathy, and the whole region was one of prayer from morning to night. Our servants seemed to be perpetually either on the hill-top or on the plain below, prostrating themselves towards the east, upon some portion of their garments, previously laid on the ground before them to serve as a carpet. Old Ibraheem had a stern solemnity and rigid completeness about his supplications, that pretermitted nothing of all the innumerable forms that are ordered for the five times a day of his creed. He accordingly began his ablutions long before daylight; three times washing the inside of his throat, and three times the outside; three times his nose, his eyes, his ears; three times passing his fingers through his beard (and that beard of the orthodox length of a handbreadth); three times washing his hands up to his elbows, and three times from his feet up to his knees, and repeating the prescribed prayers after each operation. Alee Dobree, on the other hand, did not apparently know so many prayers to repeat; but what he did know, he


groaned out from his inmost soul, as if giving up the ghost ; while Smyne, I am grieved to say, gabbled over his as fast as he possibly could, and was then off to something else more agreeable to his tastes.

Yet we had the impression of their all being the better for *trying* to keep Ramadan,—for it was an education towards raising the mind above the body, the moral above the physical, the religious above the earthly ; and proof, too, which should not be forgotten, that Mohammedanism does not entirely consist of self-indulgence, nor allure its votaries by promises of nothing but pleasure. Unlimited pleasure must soon cloy any man intended for something higher ; and many are the old Scandinavian legends,—which may, too, have originally had Eastern audiences,—of heroes captivated into fairyland, and surrounded with every indulgence that sense could ask for ; but presently tiring of the uniform bliss, and flung back to the trials and straits of earth again. A diet of sugar-plums will evidently not make either a soldier or a saint ; and in a primitive land and rural life, something stern is required to force peasant souls to look upwards from mere eating, sleeping, and living.

So long, therefore, as Mohammedanism lasts in these Eastern countries,—where enthusiastic travellers tell you that everything is so exquisitely patriarchal, and naked little boys hang about lordly oxen as they step majestically around the threshing floors

treading out corn, exactly as they used to do 4000 years ago ;—i.e., in retrograde countries and debased, where the whole people are convicted, by the testimony of their very admirers, of not having made a single step of advance, or an iota of improvement during all that mighty interval of time and magnificent opportunity, which has accumulated to them since the days of the early patriarchs of the Bible, —we hope, for their own sakes, that the peasants in such lands will always *try* to observe Ramadan, and be good keepers thereof, even to its severest penance. Nor do we wish much success to those Christian missionaries, who, overlooking the laziness of these idle lands, and forgetting their own general argument against the ‘gross sensuality of the Moham-‘medan religion,’—try to ensnare weaker brethren among the Muslims, and make easy converts, who will assuredly fall away when persecution cometh,—by telling them, that under Christ’s benign religion, there is no such cruel and unauthorized tormenting of the flesh as this dreadful Ramadan. And we are of such opinion, because firmly believing that this said tormenting of the flesh, and keeping it under during that one month at least of the year, is not only the best, but even a saving part of Moham-‘medanism ; nay, even further, that there is, though in a higher manner, with a purer spirit, and more willing obedience, under Christianity, infinitely more of such self-discipline and denial as a daily exercise, and continual trial ; and that, when it is blessed

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by Divine grace, it both purifies and elevates the mind of man.

In its earlier days, Christianity promised its disciples in this world only buffetings, afflictions, persecutions, and adversities of every kind and degree ; or Ramadan far surpassed. And if these trials have ceased now to a great extent, because Christianity has grown strong in the world, and has encompassed whole nations,—they have given place to an anxious, care-worn, intellectually-toiling existence, where every educated man is, or should be, for ever struggling to the full extent of his vital powers ; for ever keeping down the body to subserve the higher behests of the mind, and assist the nobler aspirations of the soul : and observing more or less every day of his existence,—not a rigid rule of Ramadan enacted by a false prophet whose life he cannot approve of, and whose faith is a bar to progress,—but a living principle of a Divine religion,—at all times present, yet leaving infinite freedom to every man according to the dictates of his own conscience, aided in its choice by the instructions of revealed wisdom. A system which we now see resulting, after more than eighteen hundred years of its operation among North-western peoples, in national scenes of activity, of benevolence, progress in power, advance of general prosperity, and ceaseless development up to the present moment, of nature, as well as man,—such as the whole world has never witnessed anything approaching to before.

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But, with the poor Mohammedans, the vacuity of their minds becomes the chief evil they have to contend against; and one which, neither their imperfect Ramadan, nor their erroneous Muslimism, by any means suffices to fill. Thus, when the stated prayers were over, the men whom we had before us, know not what to do, or whereof to think. Seven times a day would old Ibraheem, in despair, apply to my wife at the tombs to look at her watch, and tell him 'how long to sunset?' Then, as sunset approached, there was an immense deal of time to be killed in merely sitting and watching, long before it was possible, for the flash of the Citadel gun,—which was to announce when eating might begin. And through great part of the night also, the guards, together with our servants, used to sit out on the rock ledge before our doors, and do nothing but look at the moon,—and wonder again and again in the same words, how much longer that bright luminary would take to go through all its Ramadan phases, and die, and let them eat freely once again.

Another makeshift employment, however, there was, in each man watching the other, to detect either any private indulgence, or any breaking down of the system. Alee Dobree was the first to give way; his digestion had always been very poor, requiring only small quantities of food at a time, but to be repeated at frequent intervals; and these long fasts were to him a medical perdition, which not all the three sentences of the Koran that he pos-

essed on scraps of parchment safely sewed into the tassel of his tarboosh, could avail to modify. Unhappily, too, his fellow-servant, Smyne, soon found out the weakness, and danced upon it roughshod. 'Hah ! hah !' he would come to us exclaiming, when Alee was lying in the agonies of indigestion behind a rock,—'hah ! hah ! Alee Dobree, he no like to go any more into the Pyramid with Mr. Smyth ; he sorry he ever engage himself. Mr. Smyth take me with him now, and my brother Mabrook come to help Ibraheem.' But when we argued patience and compassion,—the speaker's smile vanished at once ; and we next saw him cutting the throat of some unfortunate fowl with a blunt knife,—its head duly turned towards Mecca ;—and then, with loud execrations, he would fling the miserable wretch, still alive, and with cries gurgling through its mangled windpipe, to die as best it might on the sand in front of our general abode.

Nor was Alee Dobree by any means faultless ; for he took to absenting himself more and more from me when measuring inside the Pyramid,—although the work there was growing daily more difficult from the larger size of the apparatus, the necessity of many candles, and the difficulty of keeping them all from slipping on the inclined surfaces. The reason of his truantism, moreover, turned out to be,—not that he desired to pray outside where he could see the east, nor needed to go into the open air for breath and relief,—but that, although he was receiving from

me the full wages he had desired, viz., £4 per month, he yet sought all forbidden opportunities for accompanying travellers up to the top of the Pyramid, in hopes of obtaining baksheesh from them. Then, if I attempted, on his return, to show him the impropriety of his breaking his promises and formal engagement,—he was clever enough to know how to stop me at once, by instantly, in any place, and at any time, flinging off his outer garments, and in long robes of white, beginning his groaning prayers towards Mecca.

Next Smyne began to imitate him ; was always ill when at the tombs in our service ; but during his absences, which were continually increasing in length, was frequently detected acting the part of guide to any travellers whatever ; and ranting, roaring, and befiguring in the grand gallery like any half-naked savage of them all. Ibraheem was the most dependable, and was never found absent from his post ; yet, even his ‘countings’ began to be less satisfactory than of old ; and when plagued by Ramadan, he allowed himself larger commissions on his purchases, and made the exchanges of money more and more favourable to himself.

One bright burning day, when the sand-plain in front was glittering and boiling under a combined action of sunlight and heated air,—a single Arab chief, with weapons of war flashing about him, was seen pricking across the plain,—like a knight-errant of old,—on a spirited desert steed, and directing his

course right to our abode of delight,—the East Tombs of Pyramid Hill. The novelty of the thing put all our crustified servants into sudden good-humour; for they had now something to think about, and became quite excited with wonder and conjecture; but as he came closer, who else should the stranger turn out to be, than Sheikh Omar, of the village of Quatremer Omar, our hospitable host on the first night of leaving Cairo! We were of course delighted to see him, tried our best for his entertainment; and, if unable to offer him himself refreshment at the instant, on account of Ramadan, gave him a supply of oranges to carry home to his children. But when he found that we were not excavating at the Pyramid, and would therefore not hire any of his people after Ramadan was over, he became rather distant and stern,—particularly to our servants, and to Reis Atfee, who, having looked in for the opportunity of collecting news, and saying that something or other was not possible, and quite beyond his comprehension,—got completely cowed with awe up into a corner.

We could ourselves hardly but wonder at the Sheikh's grandeur; 'his turbant,' as Sandys would have said, 'was like unto a pompion, but thrice as large;' and he took out of his sash one of his silver-mounted flint-and-steel pistols, and asked us, 'What would people in England say to that?' and then he went on to describe,—that the real reason of his coming this way on such a broiling morning, was;

that one of his slave women, a Nubian, had escaped the night before ; so, with the first light of morning, he had tracked her to the desert, and then through the sands to some caves on the other side of the Pyramid ; and there he had bound her hand and foot, and given her to his people to convey back again ; whereupon we wondered to ourselves what indeed people in England would say to that.

After him, there came to us Sheikh Abdul Samed, with complaints that he could no longer manage the people of his village, for they were becoming restive under Ramadan, and refusing to serve any longer as our night-guards ; wherefore, he being rather troubled by the oath he had voluntarily sworn before M. Vassalis, wished to free himself decently of its obligations by resigning it into our hands then and there. This, however, we could by no means permit : but it cost us a long time in argument ; and we had to allude dimly to certain baksheesh which we had all along intended to give, on leaving the neighbourhood for good, to all who should have helped us well, whether Government servants or our own,—before the chieftain consented to gather up all the folds of his toga, and stride across the plain once again, with his responsibility still hanging unwillingly about him.

Sad scenes, too, enacted themselves on the plain in front of the villages. It was indeed and always had been, the occupation of every afternoon, Sundays and week-days alike, for the guides of the two villages, after the mass of the Cairo travellers for

the day had left, to hold friendly meetings in the sand for the due division of spoil ; and many a group, so 'Job and his friends like,' had we often admired for the picture they presented ; but during Ramadan, they grew noisier, quarrelled in various degrees, and at length on one occasion, the men of both sides suddenly plucked off all their garments, and had a battle-royal. Yet their bickerings next day were none the less ; and their shoutings and abuse of each other resounded.

'Why, there's an Arab fallen down as he was walking along,' exclaimed my wife one day in pity ; but our ancient Ibraheem, who was also looking on at the time, shook his head mournfully, intimating it was a bad case. 'It's old Hassan,' said he. Now this 'old Hassan' had been appointed when we first arrived, as our day-guard, by the united villagers ; for anybody they considered was good enough for a day-guard ; and as he, Hassan, was unable from age to act any longer as a Pyramid guide, they thought that the post of protecting East Tombs by daylight might suit him very well, and bring him in some little profits also.

This pleasant effect, too, did realize itself ; but then he was so often breaking away from us, to join one or other of these financial parties, in order to claim his share of their earnings, due to him legally as a *retired* guide,—that he had to be replaced at the tombs by another man,—'Alee the day-guard,' by name ; and one who could

not walk very far on account of epileptic fits,—into a train of which he had recently fallen, to the utter impoverishment of himself, wife, and young family,—the whole of whom it was expected would reap benefit from his fulfilling the merely nominal post of day-guard with us ; and, indeed, we got on very famously with him ever afterwards. But as to old Hassan, he never had after that any other occupation, than to be wandering uneasily over hill and plain, like a bad disembodied spirit, in search of wherever Arabs were dividing their gains ; and ever, as on the present occasion, the moment he caught sight of a group,—he would cry out at them, execrating them every one for not waiting for his arrival ; and would rush fitfully at them, assisting his tottering steps with a long walking-stick, but falling down, as just seen, from his too great vehemence of rush ; yet getting up again, and shrieking at the party like a fiend of darkness, and falling again ; but never stopping, until, in one way or another, he had at last reached the group, and screamingly claimed,—what he frightfully alleged they were going to keep back from him,—with clutching fingers and maniac eyes. Wherefore, as Ibraheem truly intimated, old Hassan's was a very bad case, for the demon of money had gained entire possession of his soul.

Again, whether it was the effect of Ramadan fasting or the season, we know not, but funerals in the villages opposite our tombs seemed to become

rather frequent; morning after morning, and usually when I was away in the Pyramid, the drums began to beat, and the shrill wailing voices of the mourning women sounded wildly over the desert sand,—and then came a long procession of men and women, in their dark-blue robes, looking black in the distance; in the centre of which line was seen the dervish's flag held aloft, and floating over the bier whereon the body of the dead was laid: and so the procession wound itself slowly out of the palm-groves covering the village, and looked like a long dark serpent's track, trailing towards the burial-ground, that lay about a mile to the south.

'Well, Smyne, who's dead now?' would my wife ask of that genius, who was last arrived from the village.

'Oh! it's an old man,' was the answer.

'And what did he die of?'

'What he die of? hah! hah!—why, of old age, of course; and because he could not live any longer, to be sure.'

'How old was he?'

'Why, fourteen months, ten years,—what you like. Who knows how old he is? No Arab does, nor ever cares to know how old; he doesn't know what you mean by it.'

They were not all old men, however, who died,—for in one part of the month the beating of the funeral-drums and the sad sounding wailings of the women, went on more melancholily than ever; and

then they said it was for the son of a Sheikh, and the people loved him so, that they were to mourn and wail for him seven days continuously.

But Ramadan could not last for ever ; and when the nights became practically moonless, and men could count the remainder of the fasting days on the fingers of one hand, they became rather more cheerful. The horrid old Arab with the vertical wrinkles in his forehead, who threw so much difficulty in the way of our getting night-guards before M. Vaasalis arrived,—would now take all opportunities of sidling up to me, as I went in or out of the Pyramid, intimating with the utmost profusion of courtesies and profligacy of smiles, that I was going to present him with a new dress when Ramadan was over. We sent in to Cairo, too, just about then, for our usual ten days' supplies ; but found that nor butter, nor sugar, nor honey, nor flour were to be had ; for they were all bought up, out and out, in every shop, towards the making of the cakes wherewith old and young were presently to regale, at the coming feast which follows the fast.

The versatile Smyne, moreover, now began to talk again of his approaching marriage, and drew a portion of his wages beforehand that he might buy for himself, at a bazaar to be held in a neighbouring village, clothing suitable to his prospects. He was half the day on the business, and then came arrayed in his purchases for our admiration. A marriage-garment it was indeed,—one great shirt of white

calico, reaching from his neck to his heels ; it was fastened somewhat about the shoulders and breast by a black silk cord with tassels ; and, being surmounted by a turban of white muslin, while his yellow slippers shone below, he thought himself the best dressed young dandy Arab of all the region ; though a stranger seeing him stand on the edge of the cliff at set of sun, would have taken him for not a bad example of the angels of the German and French schools of painters ; *i.e.*, if they could have kept his chocolate-coloured face out of view, and should not be too particular in demanding wings.

Each evening now, the look-out for the Cairo Castle gun was kept up with the full earnestness of old, but with more good-humour : and it was strange, the instant that the flash had been seen,—and long before the thirty-eight seconds were expired that brought the report,—how there burst forth, from every village near at hand, where also the flash had evidently been looked for and seen, such a mingled shouting of men and dogs, children and small stock of all kinds, as showed that they every one appreciated it as the signal for eating and enjoyment ; though, of course, only the humans amongst them fully understood, that there were not many more such evenings to come ; that they had in a manner touched soundings ; had land in sight ; and were now very near the end of their trying voyage through Ramadan.

At last, on the evening of February 26th, instead

of a single gun only from the Citadel, and the answering one from the fort above,—there came twenty-one thundering fires from the former, and twenty-one from the latter, stronghold ; while in all the villages of the land, men popped off their muskets and pistols again and again far into the night,—for Ramadan, to their joy, had died, and the feast of el-Eed es-Sug-heiyir, the Beyram of the Turks, was ready to begin.

CHAPTER X.

THE SECOND PYRAMID.

WITH sunrise on the 27th of February, both the whole hill of the Pyramids, and the plain in front of them, were covered with visitors of every kind and degree. Frankish travellers from steamers just arrived either at Suez or Alexandria, were there very much as usual,—but native excursionists infinitely predominated, resplendent in their garments and picturesque in their groupings. Twenty-one great guns sounded from the Citadel, and twenty-one answered from the Fort, early in the morning ; again at noon-day the same friendly cannonading took place, with its accompaniment of fairy-like wreaths of white smoke, eight miles distant, through the bright pure African air ; and again at sunset, when the sky behind Mehemet Ali's mosque was flaming pink with reflected light, and blue-grey shades began to fall on the ramparts below,—the firing once more took place, and the flashes from the embrasured guns were then brilliantly visible.

All day long it was a genuine holiday-making ; Sheikhs and Fellahs and Pyramid-guides were call-

ing on us at East Tombs hour after hour, mostly bringing presents of *fateerehs*—sweet cakes in ring-form,—and who knows what besides, which some of their wives, Zobeydeh this or Fatmeh that, had been labouring upon for days past, and contrived at last to turn them out very hard and indigestible ; for none of those talented ladies, though adorned with ten necklaces, twenty bracelets, and rings perfectly innumerable, could approach our ancient Ibraheem in the triumphs of culinary art. But then the said ladies would despatch across the plain their youngest daughter, or their smallest son, in charge of older brethren, to present their gift ; and such messengers were sure to go back loaded with presents of Edinburgh confectionaries in exchange, and specimens of the silver coins of many nations.

But as for the gaily-dressed native crowds from the metropolis, they cared naught for the Pyramids, or the ancient tombs, or the Arabs thereof ; they had come out into that region merely as being a professed one, and now long hereditary to Cairo, for holiday-keeping ; and all the day through, they seemed to do nothing but wander about as if to form picturesque groups on the top of every sand-hill, with their brilliancy of garment and flowing folds of attire,—a horse or two, a soldier, or a big spear raised up against the blue sky, usually rendering the composition pyramidal according to a painter's idea of the name ; while in every hollow were social little circles of men with scarlet robes,

or blue, or mauve, or magenta, with yellow sashes and large turbans, friendly feasting amongst themselves. No women, indeed, were to be seen ; and as one consequence of the want of their inspiring presence and ever fresh little fountains of talk,—the sage-bearded men, who, the moment before, might have served as examples of Sultans, Viziers, and law-givers of the people,—were compelled, for lack of anything better to amuse themselves with,—to tuck up their long-flowing garments, and begin playing at leap-frog over each other on the sandy plain.

But again, at sunrise on February 28th, all the cannons of the Citadel called forth the people to play ; and encouraged them at it by noonday ; and saluted them while still so engaged in the evening. And once again, on the morning of March 1, the thundering signals reverberated in the valley, resounded at mid-day, and boomed in the gloaming light.

The happiness of the people ought to have been most intense, and nine times multiplied, and may have been ; I was obliged, however, to be attending to work ; and, being so inexpressibly favoured as to have the *inside* of the Great Pyramid all to myself on the first and second day of 'this feast after the fast,' was able to accomplish a variety of measuring detail on special features in the grand gallery. While on the 1st of March, with the assistance both of Alee Dobree (who had been indulging his peculiar digestion up to the very top of its bent, or with a little pick of eating about every hour during the last

two days), and of a young friend, indeed a brother-in-law, of his, Abduwahad by name,—a series of vertical heights of the said gallery were measured with a grand slide-rod, expressly prepared for the purpose, and capable of measuring everything up to four hundred inches in height.

It was rather a heavy affair that four hundred-inch measurer, consisting mainly of square mahogany tubes firmly fastened together, standing on a strong steel spike below, and having a pointed slider above,—which slider, by means of a string worked from below, could be pulled up to touch the roof, and clamped at that precise place the instant when certain spirit-levels told that the whole rod was being held for the moment truly vertical. To hold it so was a grand struggle for us all three, for the steep incline made it difficult for any one simply to stand still, without doing anything else ; but Alec Dobree straddled manfully across the floor from ramp to ramp, and Abduwahad presented his right foot, between the big and second toes of which he held the steel peg, from slipping on the floor ; and thus, by dint of keeping a good look-out that the great rod did not at any time oscillate from the vertical so far as to exceed our powers of holding it up, and tip us all over with it down the north descent,—and being favoured also by no loose pieces of ceiling-stone coming tumbling down when touched by the rod (as had occurred again and again the day before with the measurement of lower side ‘overlappings’

of the walls), we were enabled to obtain a series of readings on the side of the great rod for the heights required. This was accomplished, too, as we hoped, with fully sufficient accuracy to clear up many uncertainties in published accounts ; while, so satisfactory a result would by no means have followed, had we endeavoured to make shift with any much smaller, or less troublesome, apparatus. (Plates III. and VI.)

We returned, therefore, to the East Tombs rather well pleased with our day's work ; and found on arriving there, that happiness reigned likewise among its more stationary tenants ; for not only was this the third and most glorious day of Eed-el-Fitr (the festival of the breaking of the fast), and when Ibraheem had been entertaining all comers with seven cups of coffee at a time,—but Smyne had announced to my wife, that he would that afternoon introduce his intended to her.

In his long flowing dress of white, he had sat watching for half the day on the top of the cliff like a luminous beacon, and now he rushed down to say that the object of his regards was approaching. She came modestly tripping across the plain, attended on by some of her brothers, who were in white skull-caps and whitey-brown gowns,—though she was chiefly enveloped in dark-blue, except where the many necklaces, whose number Smyne had again and again enumerated, shone glittering in the sun. As the damsel drew near, Smyne and the brethren

rather retired, and she was left, according to etiquette, to make the British lady's acquaintance by herself; but so dreadfully modest was the village fair one, as hardly to be able to spare a hand from keeping her long veil over her face, even when bak-sheesh was being presented to her.

But all *that* was considered only the more to show the propriety of her manners and perfection of her education; wherefore Smyne was intoxicated with joy,—while Ibraheem said smilingly, that he, Smyne, was really a very fortunate young fellow; and we congratulated him likewise. Meanwhile the damsel had retired, and her two big brothers came rushing down the hill again, to escort her home; Smyne following her with his entranced eyes until the whole party was safely across the sand-plain, and had entered the green fields beyond. Then we all sat out on the edge of the cliff, and watched the pointed shadows of the Pyramids, under the quickly setting sun, gliding silently across the Eastern plain,—and throwing their protecting mantle of ancient days over the innocent country villages and modern habitations of the children of men: and we kept on sitting there, until the last ruddy tint of light had departed from the sky, and the ever-living stars began their turn of patient watching over the scene.

It was long after our tea, by candle-light, was over,—long after all the villages had twinkled with lights, and the sounds of their evening festivities had spread over the plain,—that an unusual moving

to and fro of the guards began,—accompanied with a fearful, anxious talking under breath, and a clambering up and down the steps in front of the dining-room tomb. Then a crowd of men came pressing and pushing up the difficult way, bringing, as it was thought, a corpse, stiff and stark, along with them; but every now and then the apparently inanimate object uttered a deep groan, or gave forth an exhaustive exclamation of ‘Allah illah Allah!’ Of course we rushed out to see what had occurred; and then, behold, it was poor Smyne, late so joyous, and long since gone back to his village,—but now here again, and only able to lie on his back and call out ‘Allah illah Allah!’

‘He had *not* been shot, he was *not* dying, nor in want of any of our medical help,’ Ibraheem said; but he could explain no more than, than what could be conveyed by mere repetition of ‘Meskeen, ‘meskeen,—poor fellow, poor fellow!’ And still through the live-long night the prostrate Smyne could only groan forth ‘Allah illah Allah,’ and seemed to recognise no one,—not even Sheikh Abdul Samed, or Reis Atfee, or Alee Dobree, who all came over from the village to try to comfort him.

But next morning my wife extracted the whole affair out of them. Smyne, though he had been so confident about his marriage from the first moment of joining our establishment, and had considered himself so secure in the damsel’s affections,—or rather because of it,—was not thinking much that

the girl's father had demanded to receive a dowry of ten purses, while he, Smyne, was able only to pay five. Smyne was thoughtless, but the parent was stern; and another man having recently come forward with the full sum, was accepted by him at once; so the father and his favoured bridegroom waylaid the damsel as she returned last evening from her unsuspecting visit at East Tombs,—and, carrying her off forcibly to the house, where they had dervishes ready for reading the appointed portion of the Koran, and everything necessary for the complete performance of the 'betrothal' ceremony (a something as binding as marriage itself),—they then and there made her go through such betrothal accordingly; and the posse of muskets which we had heard fired off soon after dark, was the announcement that the whole was accomplished. It formed, too, the first intimation to poor Smyne, that anything was threatening his prospects of perfect happiness.

'But what did the girl do; did she not resist?' asked the British lady.

'And what would have been the use of that?' replied Alee; 'for if she, a daughter, had refused to be married according to her parent's command, the men of the village would just have taken her the next morning and drowned her at Jeezeh; there would be no escape to her, for has not Sidi Mohammed ordained it so? Besides, her now betrothed husband is an experienced hand; he has three wives already, and knows how to manage in such cases.'

‘Three wives! the dreadful man! and he to come down and take away the one from poor Smyne, who has none.’

‘Well, but this country is not like your country,’ urged Alee Dobree; ‘it’s all in the ordinary course here, and we don’t think anything of it at all.’ With which and similar arguments he endeavoured to pacify Mrs. Piazzi’s indignation; but she insisted in one way or another that it was cruel, and unjust, and oppressive, and a variety of other things; and concluded with an urgent appeal that, after witnessing all this misery, sprung from the rich man oppressing the poor in the unhallowed race after appropriating many wives,—that he, Alee Dobree, would never think of taking another in addition to his one present wife.

Whereupon Alee Dobree pulled a mighty long face; and, looking on the sand rather uneasily, he muttered out ‘that wives were so dear now, their price was enough to ruin an honest man; his present wife cost him twenty purses, and he, in his position, could not get one now under forty purses.’ In short, he would give no promise of always being content with one wife, though woefully afraid that he would never be rich enough to buy a second, if prices went on increasing as they were doing.

However, in his secret mind, Alee Dobree, together with Ibraheem, did think there was something peculiarly hard in Smyne’s case; and they spoke or acted to him most feelingly, through all

that sad day which followed the shipwreck of his fondest hopes. He seemed also to need the sympathy, so utterly had his usual elasticity departed from him ; and at last my wife and self tried to get up a little diversion to the current of his ideas, by proposing an exploration to the second Pyramid.

Accordingly off we started in the quiet afternoon, the unfortunate one taking to the notion kindly ; and as we defiled up the narrow staircase in face of the cliff, passing close to the little hole that formed both window and chimney to Ibraheem's kitchen-tomb,—that ancient worthy looked out quite affectionately after the disconsolate young man,—with all a father's regard and half a mother's care for him pictured in the many lines and wrinkles of his weatherbeaten, but philanthropic, old countenance.

From East Tombs to the second Pyramid the way lies directly west, and is quite straight, if you can only manage to keep it so,—for there is a constant going up and going down, or winding in and winding out of rubbish heaps, ejected at the spoiling of innumerable tombs. In some of them, portions of the ancient wall, well built, of large stone blocks, and leaning back at a memorable angle of 75° of altitude,—crop out for small distances ; in others the interior of white stone builded apartments, or occasionally of black sun-dried brick enclosures,—are laid open to the face of day ; but in the greater number, a central hollow, much like a little

crater, terminates in a deep and square-shaped well, —whose sides are duly oriented, and out of which have been extracted the human bones and vases of coarse red earthenware, now smashed to bits, which lie strewed over hill and valley, with fragments of rose-red granite far beyond counting.

Passing south of both the Great Pyramid and its southern row of methodically-arranged, though now ruined tombs, and still trending westward,—we enter rather a broad sheet of open ground swept by west wind, and showing a covering chiefly of bright quartz pebbles, like a portion of the desert itself. Of course all this time the second Pyramid is looming large almost in front of us, with black-bodied, bare-necked vultures perched on its most inaccessible heights ; but, directing our course rather towards the north foot, and leaving the cyclopean blocks forming the so-called temple on its east front to our left,—we enter the sort of excavated alley which continues along both north and west sides of the monument.

This alley, some two hundred feet broad on the north, and one hundred on the west, with a depth of about thirty feet in its central portion,—results purely from an area having been accurately levelled in the substance of the hill, for the base of the huge edifice of the second Pyramid. For the hill extends itself west-north-west, in an inclined table-form fashion, and with rather increasing height as it goes ; so that its actual culmination is a long way westward,

and far too distant to enable a monument, if placed there,—to overlook in any immediate manner the very low and *inhabited* land of Egypt to the east. Something of a compromise was therefore effected,—a site neither exactly overhanging the valley-cliff, nor again on the more inland and absolute summit of the hill ; and of the two methods that must then be chosen between, for building on a slope,—the Pyramid kings had preferred cutting down the higher corner of the area, to building up a platform on the lower ; though there is really a something of each plan, besides some ten or twelve feet in height of living rock, left under the western half of the Pyramid to save masonry.

But to see how truthfully they cut the rock down outside, and how economical those masons were of good building stone—or of that material whereof earth is so prodigal to the sons of men, but which they need not waste for all that ;—because, not only are the escarpments of the excavation perfectly smooth (barring modern injuries and growing decay), as if severed through at once by an enormous saw,—but the remains of a quarry-floor in the north-western corner testify, that all the removed substance was carefully, as well as regularly, cut down in squares and removed for use, like so many rectangular cheeses. Certainly very unlike the modern plan of quarrying, whenever men are allowed unlimited use of gunpowder, or more particularly of nitro-glycerine ; for then they delight in fracturing the rock with

explosions, and sending it flying ; rushing up after the ' shot ' has been effected, to see if perchance some of the fragments are of such a size or shape as may be useful ; if not, to try another blast,—accomplishing speedily such a scene of ruin, and such heaps of splinters, that it is not easy to clamber over the ground. Yet, at the Pyramid quarry, the stone had been cut so neatly that there appeared no useless fragments at all ; only the bases were visible of closely adjoining artificial square pillars of rock,—each of which had been sliced off transversely until close to the ground ; and every stone thus procured, when we laid a one-hundred inch measuring-rod on the space it had quitted, appeared to have been exactly of that size, both in length and breadth.

Along this remarkable enclosure's western side, various tombs (small rooms, with an occasional sepulchral pit in the floor) have been worked into the substance of its artificial cliff, and there is the beginning of another on the north side. But they are all probably of a date long subsequent to that of the Pyramid ; as are more eminently still, two hieroglyphic inscriptions of large size and admirable preservation on the faces of the cliffs, which speak clearly to the age of Remesses the Great,—or the nineteenth dynasty, in place of the fourth, of Pyramid-building notoriety, and to the year 1300 B.C., when Thebes was all-powerful in both Upper and Lower Egypt.

What precisely the man was wanting who wrote up in this place his name, titles, and the king he

served, has not been made out by any of the Egyptologists ; and we are rather inclined to suspect that it was nothing but vainglory, with the idea of showing to inhabitants of the old Empire districts, how 'we of the new Empire do these things now in 'Thebes.' With those Diospolitans, indeed, the art of mural engraving most assuredly culminated in force, size, and superabundance. In the tombs, on the other hand, of the fourth dynasty, round about the Great Pyramid,—though sculptured picture-signs in plenty are to be seen, oftener inside than out,—they are always modest in size, and shallow, though sweet, in the cutting ; so that Alee Dobree, who on many occasions had taken us into one tomb or another, especially to 'show King Cheops' name,'—had to kneel down upon the drifted sand on the floor, and look up slantingly at the wall-surface for some time, before at last he recognised the two little ducklings, the horned viper, and solar sieve within the royal oval. But in a Theban, and of course more modern, temple, the selfsame types are magnified like a strong photograph in the oxyhydrogen lantern ; and the mere *cerastes* becomes a deep-cut muscular monster, from which a man need to fly, while gigantic *asps* or cobras raise their hissing heads on every side ; and colossi of all kinds demand attention to their existence in a manner that no one can deny.

Mixed up, too, with this increase in size of the representations of the second empire, is their thorough transfusion, by symbolical imagery representing the

dread future in store for disobedient souls ; and their devotion to setting forth the mighty powers of a mysterious system of hierology, or detailing the various powers of an innumerable crowd of animal-headed gods ; a priest-invented system which entangled and enveloped every layman born into the world, as hopelessly and irresistibly as did the serpents of Pallas hold the unfortunate Laocoon with his sons ; of all which characteristic hieroglyphicism hardly a vestige can be found in the more placid scenes of rural life, described in the sepulchral records of the fourth dynasty.

Wherefore it is really well that ‘Mari, superintendent of (clerks?) under Remesses, beloved of Amun, in the abode of Haroeri, son of the superintendent of the carriers Bokenamun, justified in Egypt, the pure land of truth,’¹ did come to these, at the time, decaying northern districts of his country,—and give us then and there an example of the peculiar developments produced on the sons of ancient Mizraim, by their having been permitted to follow their own devices during a thousand years of superabundant national prosperity in the south. He selected, too, we must confess, the site for his inscriptions to admiration ; for while above and below them the rock has since decayed deeply in its columnar, interstratified manner,—the region of the incised figures holds its chiselled surface still.

Yet looking now at all this range of excavations in

¹ Birch's translation for Colonel Howard Vyse.

the light of descriptions of Greaves' day, what ruin, what decay since then! One part of the cliff westward, has fallen out towards the Pyramid; another farther north, has fallen vertically downwards doubling up a doorway; and many others are undermined to an extent that seems to threaten they cannot last much longer,—or that the very material of the Pyramid hill is losing its consistence, and failing in its powers of holding together. The last chance therefore which men may ever have of unravelling the long-kept mysteries of the Pyramid will soon slip through their fingers altogether,—if they be not instant with earnest endeavours to chronicle faithfully whatever may still be observed and observable.

And now to turn from its surroundings merely, to the central monument itself. Seated farther in, and farther up, the hill than the *Great* one, the *second* Pyramid has not only an advantage of a few feet in height for its base,—but it looks in no small degree as if it had had, at its origin, the first choice of the hill for building upon. This superiority, too, of site, combined with its very nearly equal height from its base upwards, and with the happy preservation of nearly a fourth of its external sheet of casing stones from the summit downwards,—causes it from some quarters in the distance, often to make the greater show of the two. Yet for all that, its smaller breadth of base, by close upon fifty feet, has entirely

ruined its fame in the eyes of tourists ; so that, from the days of Herodotus to our own, the crowd invariably rush to look at the Great Pyramid, and having seen it,—simply hasten away again, without caring to visit anything else that there may be, even close round about.

Mere difference of size is not, however, the only argument which can be urged in favour of the Great Pyramid ; for a close scientific observer there, is delighted by the thoroughness of the work, its mechanical excellence, rigid economy, and the combination of every feature towards obtaining and preserving the greatest amount of geometric truth ; hence the squareness of all the stones, the perfect break joint system throughout, the universal cementing, and the picked mineral capable of most exact working introduced into the passages, the casing, and wherever external figure is to be demonstrated. But with the second Pyramid, the mass of its structure is simply execrable ; or, as Sir Gardner Wilkinson has very gently put it, ‘ the style of building in ‘ the *second Pyramid* is inferior to that of the first, ‘ and the stones used in its construction were less ‘ carefully selected ;’ while Howard Vyse more boldly describes much of it, as ‘ being only a kind ‘ of gigantic rubble-work,’ or something ‘ so irregularly built, that since the removal of the casing, ‘ the desert sand and rain have penetrated in several ‘ places to a considerable distance ; and it is owing ‘ to this looseness of construction, that Signor Bel-

‘ zoni was unable to work his way through the
‘ stones, which had collapsed in the forced entrance,
‘ supposed to have been made by the Khaliphs ; and
‘ that, in 1837, the Arabs could not be employed in
‘ another part of it.’

Yet neither these, nor any other observers I am acquainted with,—have noticed, that all the above animadversions apply only to the lower half, or rather more, in vertical height of the structure ; whose *upper* half, so far as it can be seen underneath the termination of the casing, suddenly takes on a perfectly new and improved style of building ; a style indeed which is even more square, regular, and solidly put together than that of the Great Pyramid itself. This noteworthy fact took our attention again and again, and was examined under varying illumination during months.

So nice too did our discrimination of such matters become at last by frequent trial, that to scan the surface of the lower part of the second Pyramid courses of building, was, from their irregularity, quite vexation to the eye ; but to turn one’s gaze therefrom towards any part of the Great Pyramid gave relief unspeakable. The courses there, might no doubt be often far from equal in height, the one to the other ; and often, after having decreased in thickness for several successive layers, they began anew with thick ones ; but that did not touch the solidity of the whole mass so formed, for each layer or course preserved its own thickness, whatever that

was at any one point, round and round the Pyramid ; and was composed everywhere of well squared, well fixed, well cemented stones.

There was a unity too in the style of the building that prevailed without a break or flaw from top to bottom of the Great Pyramid ; a unity indeed of architect rather than mason, which permitted small deviations in unimportant detail, but kept principles and objects not only always in view but absolutely paramount ; allowing, for instance, the mason for economy's sake to utilize without needless cutting down the varied sizes of blocks furnished by the quarries,—but still in such a manner only, as should *not* let that difference of size in the smallest components, interfere in any way with the final end proposed for the whole building ; the angle of the sides with the base, for instance, being exactly the same over the region of small, as of thick, courses. Looking up therefore at the flanks of the Great Pyramid,—you saw plainly how, vast as they may be, exposing at one view no less than ten acres of masonry, yet that they must have been reared under one architect, upon one well considered and fully sufficient mechanical plan ; for a single purpose well kept to, and in a comparatively small number of years.

But on turning again to the second Pyramid, you saw just as clearly that there, there had been two architects, two times of building long removed from each other, and two entirely different styles of work-

manship, which do not blend into each other in the smallest degree,—but begin and end in abruptest of manner ; showing, in fact, a new top on an old Pyramid. The new top, built by those whose prentice hands had been taught the virtue of exactness on the Great Pyramid ; and the old substructure, by their early predecessors, on whom the light of the improved style of building introduced by the Great Pyramid architect, had never dawned.

These mechanical features, on which many historical points may be found to rest, were brought out admirably in not a few of our photographs ; so clearly, indeed, that we wonder they have not earlier excited attention ; and the reason *may* be, that the very superlative style of building near the top of the second Pyramid has only recently been made fully plain,—by the falling off from it of an insterstitial coating of stone-work, which formed the backing, or adjustment, as it were, of the casing stones. It is only in this manner that the very curious, yet most positive, testimony furnished by Dr. Pococke in 1743 can be explained.

‘ According to my observations,’ says he, ‘ the casing of this (second) Pyramid *did not project beyond the angle of the steps*, as it did in those beyond Saccara, but was executed as represented in the sixteenth plate. I observed on the north and east sides, the upper part of the Pyramid was entire for forty or fifty feet down from the top, as I conjectured, and *the stone seemed to set further out*

'for near a hundred feet from the top than it does below, which I could not account for.'

Now we need not be too hard in judging of the Doctor's lengths by feet, because they were only 'conjectures,' and are yet quite enough for distinguishing comparatively the various parts; and the real feature to be noticed is,—that whereas the space which intervenes between the lower end of the fragmentary casing (which forms a sort of Norman helmet to the structure), and the beginning of the bad part of the masonry far below,—is now a region of depression—it was one, in his day, of elevation, measured both by what was above and what was below it; so that the respective appearances in 1743 and 1865 may be thus easily represented:—



1743.

1865.

Evidently then the good masonry courses of the upper part held their packing for the casing stones, long after the casing stones themselves had been violently stripped away, and after the similar but slighter packing had left the ruder portions below; and if we are still so fortunate as to see in this one example of the second, and only one, of all the Pyramids of Jeezeh, something of what their origi-

nal appearance must have been with their armour of casing entire,—it is from the tenacity with which the stones of the topmost and best built part, yet hold everything together. The introduction therefore of better workmanship over the upper part of the second Pyramid has been of extraordinary and varied importance, for enabling men in these latter days to uphold the true theory against the ‘laddered’ hypothesis, so much insisted on in several quarters ; and also to approximate to some personal matters of its history. The very recent falling off, moreover, of the casing, which had so long concealed an amount of unexpected excellence of workmanship, has disclosed a fact of signal purport ; and as effective for the cause of truth, as was for untruth, the falling away of the plaster in subsequent days to its building, from the Ptolemeian Pharos of Alexandria ; when the name of King Ptolemy Philadelphus, cut only in that plaster, fell with it : but on the stones behind, deeply carved in secret long before, appeared in its place the name of the plebeian architect,—who *then* headed the rest of the inscription and made it appear to all men that he, and not the king, had built the lighthouse out of his gracious regard ‘for those who travel by sea.’

When the casing was put on the second Pyramid, of course good and bad work underneath were covered alike, and for two or three thousand years acted equally well ; but not for more, as the bulging of the loose rubble-work in the lower part

must have been one of the first means of loosening the outside coat. This in itself, judging from the portion left, as well as by hand specimens picked up on the rubbish heap below, is almost faultless ; being composed of good Mokattam stone, and worked, though to a different angle, with the full mechanical skill acquired by masons during, or subsequent to, the building of the Great Pyramid. Yet one feature of weakness crops out, *i.e.*, of human weakness,—for as time went on and wealth increased, the desire to realize truth gave way before the craving for ornament ; a vice manifesting itself in the two lowest, and therefore last applied, courses of the casing of the second Pyramid,—having been constructed in red granite. A more splendid-looking stone before the world, but by no means so well adapted for being worked into, and then keeping, under inclemency of weather, a perfect figure, as the limestone rock of Mokattam ; and infinitely more expensive, though that is another attraction, and almost principle of adoration, to some idolatrous minds.

The great blocks which composed these two ranges are lying, some nearly *in situ*, and others scattered about the base here and there ; but sufficiently conspicuous, if interpreted aright, to have assured Belzoni practically,—seeing he would persist ‘ in not reading any old books about the Pyramids,’—that the casing of the second had been completed by its builders, though subsequently despoiled and reduced

to its present small proportions by decay, combined with the demands during the last thousand years of a new rising city in its neighbourhood. The Muslim spoilers of the years 800 and 900 A.D., took the limestone and left the granite ; just, in fact, as their Muslim successors do now,—for they advance not, neither do they change : and day after day did we see camels from neighbouring villages loading up limestone blocks, at the tombs around the Pyramid, and carrying them off, for building such things as outside stairs to mud-brick houses, whenever their owners indulge in a second storey,—but studiously avoiding the intractable granite.

Hard this granite mineral is, doubtless ; and when employed in inside work, perhaps splendidly capable of keeping the shape once given to it by art,—but in outside situations, and under pressure, it has a lamentable tendency to break away at the angles, and approach a boulder figure. When we went therefore on another occasion to the third Pyramid, and found several ranges of its casing stones, one over the other, perfectly *in situ*, and of granite,—and hoped, therefore, to measure an angle accurately to seconds,—what was not our horror to find them more like round pebbles, than the thin-edged, precise-lined, Mokattam limestone blocks of either the Great, or second, Pyramid. Of the ancient casing stones of the third Pyramid, besides those already alluded to, you may find almost as many as you

like, lying about in heaps on every side, and still whole ; but as they are of *granite*, they are of no use in recovering the exact angle ; this is the reward of those who could not be satisfied with the beauty of truth in a cheap and plain-looking material, but must get something dazzling, ornamental, coloured, and, forsooth, costly.

The third Pyramid was built certainly after, some aver very long after, the second ; and the diseased craving for show had grown meanwhile on the nation to such an extent, that peculiar size, with its symbolical meaning, and almost everything else having reference to astronomical or geometrical perfections, were sacrificed to gorgeous expensiveness : whence came the excessive amount of granite, employed in its casing, even half-way up the sides ! Of course, in its, the third Pyramid's, day, this gew-gaw was admired, and known pre-excellently as 'the coloured Pyramid ;' strangely enough, too, it holds a fascination still over modern Egyptologists of the hieroglyphic and hierological schools, who admire it for precisely the very points where it has deviated most from the purer example and nobler objects of the Great Pyramid. Thus one of notable literary fame in this country writes : 'The third Pyramid is indeed the smallest of the three, but was the last and most perfect of those erections, and more expensive by far than any of them ;' while another similar-minded author, but of wider-spread fame, and blowing the trumpet with a firmer breath and

stronger lungs, holds forth : 'This, the third Pyramid, is styled by the classics the most sumptuous and magnificent of all the Pyramids ; and so it appears even in its dilapidation. It was cased in *granite* up to a considerable height.'¹ Then being at a loss how to prove all the praise by any known details of the building itself, especially seeing that it is less than half the linear size of the Great Pyramid,—the author tries to eke out the case by saying something about the foundation. 'The third Pyramid surpassed,' says he, 'the greater ones, in the boldness and grandeur of its substruction as much as in beauty. In order to obtain a level for it, instead of lowering the rock to the westward, a substruction more than *ten feet* in depth was laid in the opposite direction, and particularly towards the north-eastward, where the rock falls considerably.' Yet all this is merely a lavish waste of money to obtain a less secure standing ground than what excavation in the opposite direction would have given.

Granite, however, in plenty, and enormous blocks, by the testimony of authors of all creeds, is lying about on every side at the third Pyramid ; ship-loads and whole fleets of dahabeeah-loads are there, such as must have occupied the stream of old father Nile for years to bring down from Syene. What, then, can M. Niebuhr mean when saying, 'By the side of the third Pyramid you may find, it is true,

¹ Bunsen's *Egypt*, vol. ii. p. 165.

‘ some morsels of granite among the ruins, but these
 ‘ pieces are neither sufficiently large nor sufficiently
 ‘ numerous to make one believe that even a part of
 ‘ the Pyramid could have been covered with them.
 ‘ These blocks have served perhaps for ornaments,
 ‘ and have contained inscriptions, of which the
 ‘ Pyramids themselves do not show now any ves-
 ‘ tige’?¹ What, too, can the learned Baron Bunsen
 mean by putting prominently forward, near the
 head of his chapter on the ‘Pyramids of Jeezeh and
 ‘ field of the Pyramids,’ and far above many excel-
 lent workers bearing British names, ‘among the
 ‘ earlier describers, Niebuhr’s measurements are the
 ‘ most trustworthy, his views the soundest’?

But let us return to the northern side of the
 second Pyramid; and, passing the lower entrance,
 which is in the flat ground and now blocked up by
 sand and stone,—let us climb the hill of rubbish to
 the upper entrance, which is just about the same
 height above the base, and same distance east of
 the centre, as that of the Great Pyramid is there.
 The passage itself, too, is of the same bore, or 47·3
 inches in transverse height and 41·7 in breadth, and
 at nearly the same angle of dip; but it has none of the

¹ ‘A côté de la troisième pyramide, on trouve, il est vrai, des mor-
 ceaux de granit parmi les décombres; mais ces pièces ne sont ni
 assez grandes ni assez nombreuses, pour faire croire qu’une partie seule-
 ment de la pyramide ait pu en être couverte. Ces blocs ont servi peut-
 être d’ornemens, et ont contenu des inscriptions, dont les pyramides
 elles-mêmes ne montrent aujourd’hui aucun vestige.’—*Voyage de M.*
Niebuhr, Swiss edition, 1780.

symbolization and none of the extraordinary mechanical means for producing stability or realizing exactness, so pre-eminent in the grand example. Here, in the second Pyramid, the entrance passage is simply a square-built tube of granite blocks, inserted in the midst of the ordinary, and that is thereabouts very ordinary, or rather positively bad, masonry. Nor did the builders care much about fineness of joints and closeness of fit, for the broad and irregular seams of white cement, still visible, prove that accuracy was to those men something secondary; they wanted the parts which were immediately beholdable, to look to men's eyes rich and coloured, and they got it in the rosy granite.

Down the steep descent Alee Dobree led the way, my wife and I followed, and Smyne was left outside to guard the photographic apparatus. At rather more than one hundred feet from the entrance, a granite portcullis has to be crawled under, —a good and true portcullis, for it is a slab sliding in vertical grooves in the wall, and in a vertical slit in the roof, only just broad enough to receive the block; so that, if you cannot crawl underneath it, you certainly cannot pass above it, or to either side. Beyond this point are two such awkward little cliffs, connected with the entrance to a lower passage, as induced me on a second visit to come armed with a handy nine-foot ladder; but that point and its heap of stones once passed, the rest was plain sailing,—easy upright walking along a


horizontal passage, nearly six feet high and four broad,—with bats in numbers swiftly flying past us, though happily sparing our candles,—until we entered the grand room, forty-six feet long, sixteen broad, and twenty-two high in the middle of its angular roof, and lying vertically under the centre of the whole Pyramid. (See Finis Plate.)

The floor is in a lamentable state of disarrangement, for after Colonel Howard Vyse had left, but at his expense, Mr. Perring raised the whole of the stonework, packed its chief portion up at the eastern end of the room,—and then began to dig madly under the sarcophagus at the west end, and in various other places, in search of a fancied opening into some equally fancied secret lower rooms,—but which he did *not* succeed in finding. Now we, having come to make, among certain other little measures, some of temperature, placed a thermometer, with its bulb covered with floor-dust, to acquire the heat of the place ; and then sitting down on some of the disjointed blocks at a distance, burnt a few grains of magnesium wire, and looked around and cogitated.

The first thing that came out in the new illumination was Belzoni's name, painted up on the south wall in enormous characters, and within a long bracket,—as having opened, or *scoperta*, this chamber, *on this identical day* on which we were there, *viz.*, on the 2ND OF MARCH, but in the year 1818. The walls of the horizontal passage leading into it, as

well as those of the chamber itself, which are all hewn out of the local rock, were then garnished with large growths of the saline efflorescence; 'six inches long, and like an endive leaf' he describes them, though now they are small enough. In his day, too, there was still visible the Arabic inscription, indicating that Muslims had broken into the place some nine hundred years before; but that was the only decoration, if so it could be called; for even the slight attempt by the builders to get up a coloured entrance passage by means of red granite blocks, ceases when you have passed the portcullis; and after that, all further advance is merely between bare walls of dull earthy colour, without a single line of moulding, or scrap of painting, and not one stroke of engraving.

This astonishing plainness, so at variance with the tombs of the same age round about the Pyramid, must have struck cold on the Italian heart of one like Belzoni,—just returned from æsthetic reveling in the painted splendours of his chief discovery at Biban-el-Malook, in the valley of the tombs of the kings at Thebes. There, every passage, every ceiling, every wall, glows with painted forms; each one of such figures having been first carved neatly into the stone, before the decorative tints were applied; and both the brilliancy of colour and vigour of drawing continually increase in every successive room, until they positively blaze up in their culmination of chromatic glory in the final sepulchral chamber of



the king ; and with so happy an effect, that even a Turkish grandee who visited Belzoni there, soon after its discovery, could for the moment forget the illegality, to him and his creed, of representations of the human form,—and condescended to say, that ‘ really the place would make a capital hareem, because the women would have something to look at.’

But in the second Pyramid, Belzoni and his party rushed along the passage to gain there the sepulchral chamber of *that* king ; and the enterprising Paduan has even given us a picture of his friends storming into the final room, torch in hand, and finding it all the colour of mud, and just as void of human artistry ; *i.e.*, with the single exception of the granite sarcophagus sunk in the floor near the western end ; a well-shaped and admirably wrought sarcophagus truly, but without a sculptured line of any kind or degree on its perfectly bare and unimpassioned sides.

Why was this king's chamber so infinitely plainer than those of any of his subjects, of which there are a profusion round about outside ; nay, why so absolutely plain ? is a question that has been asked again and again, but totally in vain on any Egyptological view of the facts. What the early Muslims may have found in the room when they broke into it, say in 900 A.D., there is no ascertaining now ; it was not even known in European circles that they had done so, or that there was any chamber to break into, until Belzoni's proceedings proved its existence ; and they have since been confirmed by Colonel Vyse's

excavations ; with the addition too, of indications of this Pyramid having been broken open much earlier still, or by Egyptians themselves of the ancient day, when both the existence and structure of the secret chambers were probably still understood.

The whole history, indeed, of the second Pyramid, as of most of the other Pyramids as well,—certain parts of the Great Pyramid alone excepted,—has been a history merely of successive violations of its sepulchral chamber ; so that the mighty mass of its builded bulk, covering eleven acres of ground, has added strangely little, or nothing at all, to the security of the tomb below it. Lord Valentia has preceded Colonel Howard Vyse, in pointedly asking, ‘ object of the Pyramids *could* have been the preservation of a buried body, when they are furnished with entrance passages lined with white marble (stone), as if to prevent the possibility of the spoiler doubting his way for one moment, or deviating one foot to the right or left until he had arrived at the very central chamber of the whole ; when the simple expedient of extracting such lining, or never putting it in, and building up the passage with ordinary masonry after the deposition of the corpse, would have required a moiety, or more, of the building to be removed before its treasured secret could have been touched upon !’

Belzoni, somewhat excusably, tries to make out his discovery of the entrance to the second Pyramid, as being the result of extraordinary acuteness, ex-

perience, observation, and deduction on his part ; but it was simply nothing more than this, that he went to the Great Pyramid close by, measured how high above the base, and how far east of the centre the entrance there was,—and then laying off those same measures on the second Pyramid, found that their intersection fell on a place covered by a cloak of rubbish ; whereupon he very naturally cut into that rubbish, to see if the entrance really was there underneath the heap, and came at once on the granite-lined passage. The praise, therefore, of the discovery, if any, should rather be conferred on the architects who gave the entrance passages of the two Pyramids such a perfectly similar position—that, when one was found, the other might be considered as also known. Belzoni's discovery too, was only such a one as the unlearned Muslims of many hundred years earlier *had* made for themselves ; and they must have had far more serious trouble in clearing the passage when found,—if its *closing* blocks were still inside.

These closing blocks, a peculiar pyramidal institution, were huge things regularly cut and shaped to slide down, and completely fill up the passage all the way from bottom to top ; they offered, therefore, when once in position, great difficulty in the way of any occasional prowler, on the impulse of a sudden thought, breaking into the giant tomb ; and they completely ruin the theories of some astronomical *savants* as to the entrance passages having been open

tubes for Pyramid priests observing the pole-star in, or from,—but they do not materially alter Lord Valentia's argument, as to a clue being given by the *lined* walls to any powerful and determined depre-dators, showing them exactly how to proceed, and where to go. We may speak so confidently now of the entrance passages having been originally thus closed, for it was reserved to Colonel Howard Vyse to clear out, and to be the first since the time of the builders, to clear out the *lower* entrance of the second Pyramid. This lower entrance had its mouth concealed by the pavement,—a flat sheet of masonry about twenty inches thick and thirty feet broad, supposed to run all round the Pyramid, and the pavement had never been broken up over the spot; *therefore*, he was undoubtedly the first man to come on that entrance since the pavement was fixed; and when he did so come, and did lay bare the mouth of the passage, it was full, as described, of these long rectangular blocks; which he had then at great expense to split up as they lay, and afterwards draw out the pieces. No particular result seemed to follow that laborious and expensive operation, for the passage led only to subterranean rooms that were accessible also, and had by others been reached from the upper passage,—beyond finding it very notably different in angle from the upper, or 22° in place of 26° ; and much theoretical as well as historical meaning may be found by and by to result from that change of direction.

In so far, however, as knowledge instructs, directs, or guides the literary world at present, we must (putting aside for the time all small doubtings to the contrary) take the large chamber of the second Pyramid as having been intended for sepulchral purposes. And then, to any one seated as we were, waiting for our thermometers to take the temperature of the room,—some comparisons on that foundation may arise in the mind, touching that in so far admitted sepulchral room on one side, and on the other, the King's chamber, with its much contested coffer in the Great Pyramid : as thus,—are not the two cases essentially similar ; viz.,—in each instance a long room running east and west ; a granite sarcophagus, placed with its length north and south in a position near the western end of the chamber ; and then two holes in the north and south walls for ventilating purposes ?

Appearances did at first look very funereal, by analogy, for the King's chamber of the Great Pyramid ; but relationship with the second, dissipated rapidly on further consideration. Thus, *1st*, the King's chamber of the Great Pyramid is one hundred and forty feet above the ground outside, and in the midst of worked masonry,—or in a position where no Pyramid was ever yet known to have any chamber or to bury a man ; while the large chamber of the second Pyramid is excavated in rock, and has its floor below the level of the ground outside,—or a position suitable to burying. *2d*, The sarcophagus

of the second Pyramid is shaped like a sarcophagus, is sunk in the floor, and has an excellent, tight-fitting, fast-fixing lid ; but the coffer of the Great Pyramid is deeper, as well as more capacious, than was ever known for a sarcophagus ; no man has ever recorded seeing its lid, and the vessel stands free on the open surface of the floor. 3*d*, The holes in the north and south walls of the chamber of the second Pyramid, says Mr. Perring, who abundantly examined them as an architect, *may* be the beginnings of making ventilating tubes, or *may* have been to support a wooden frame-work to facilitate laying on the slabs which form the roof of this excavated room ; but as the utmost length of one hole is seventeen, and of the other thirteen, inches, they do not reach the air outside ; and cannot compete with the real ventilating-tubes of the King's chamber of the Great Pyramid, which are one hundred and eighty feet long, and stop not until they reach the exterior. 4*th*, And we add this merely out of superabundance of arguments, and to make assurance doubly sure, as well as touching also on one of the magistral mysteries of all those Pyramids ! While the chamber of the second Pyramid is directly led *to* by the leading of the entrance passage, and its conspicuously lined walls,—the King's chamber of the Great Pyramid is just as directly led *away from* by the entrance passage there ; which seems rather to have been a blind and shield to it, and a diversion to all who



would come to seek for that remarkable chamber ; positively inducing them to go past the concealed point of junction of the passages ; *i.e.*, all but those very few, or perhaps even that one only man who has been previously instructed to look for a certain almost microscopic mark on the floor. Hence *the* chamber in the Great Pyramid, which is truly the representative of the large one in the second Pyramid,—can be no other than that usually despised, but nevertheless very large, subterranean chamber which is excavated in the rock at the bottom of the long entrance passage ; and, equally with the chambers excavated in other Pyramids, must have been intended to be easily discovered, and looked on as sepulchral ; while the so-called King's chamber of the Great Pyramid stands absolutely unique ; raised up on high, and yet concealed ; unadorned, and yet filled with symbols ; but symbols, whose only ornament consists in perfect workmanship, whose only allusions are to the great things and true of both terrestrial and cosmical science, and whose exact resemblance is to be found nowhere else.

Satisfying ourselves at the place with this interim reasoning upon a matter yet further to be discussed, we now clambered our way out of the second Pyramid, and reached its exterior a little after sunset,—both when the darkened blue light of the sky reflected down to earth, was giving all eastern sloping ground that look of *dampness*, which is there so far from the truth, and even so

impossible to be real in the yellow parched-up desert,—and when the wheeling vultures overhead were returning home for the night to their inaccessible summit of the smooth casing stones, and were barking a bark as gruff as that of the heads of Cerberus himself. The scene therefore both looked sad and sounded sombre, making us fear that poor Smyne had been left alone with his doleful thoughts rather longer than was prudent; but to our intense surprise we found him perfectly joyous, and merry as a cricket.

‘O yes, I all right,’ he exclaimed exultingly; ‘my heart quite dilated again now; I no care about that young lady at the village any more; I know where there is another much better; I go to see her father to-morrow.’

My wife looked at the young man with fear mingled with deep pity,—believing that his reason must have given way under the intensity of his grief, since that great calamity befell him, dashing all his life-prospects in a moment to the ground, only twenty hours previously. But he was never more sane than at that very instant, and the worst of what he had just uttered about himself was,—that it was all perfectly true.

CHAPTER XI.

INSTRUMENTALS.

OF all the advantages which we were enjoying through the Viceroy's authority at the Pyramids, there was hardly one of such continual and self-evident importance to a serious attempt at scientific measures on the part of a private individual, as the license given us to choose and occupy any number of 'tombs.' Not only did these ancient sepulchres, excavated in the eastern cliff, and whited now within as well as without, prove themselves so admirable for modern human dwelling,—that having once tried them, we made no other use of the 'Colonel's tent' than to have it standing on the sand below, as proof to all Arabs whom it might concern that we were there with the approval of his Highness the Viceroy,—but they, the tombs, were also invaluable, under an Egyptian sun, for storing all scientific instruments in, and preserving them not only from the disturbances and sandy agitation of tent life during windy days, but from the more insidious effects of high temperature, and excessive drought on calm ones.

Even as it was, in the deep shady recesses of the cave tombs, where the temperature seldom rose above 67° at any part of the day, or not 20° higher than it would have been in Scotland under similar circumstances,—the packing-cases were day by day opening their seams ; and every two or three days, I was obliged either to take out a chisel and shave off some part of the internal fitting blocks, before an instrument, that had only recently been extracted for use at the Pyramid, would go into its box again,—or to make some modification of sides or lid, before the top would close properly and permit the lock to act. Wherefore, what would not have been the consequences to these boxes, if they had had the sun shining directly upon them, or the choky heat to bear of a sun-exposed tent during the last two months,—and the difference of temperature thereby made three times as high, and of dryness perhaps five times !

With the mere packing-boxes themselves, to be sure, it was only an affair of trouble to recover them to their shapes and uses ; but with the linear measuring-rods, the evil was far deeper and more difficult of elimination. For convenience of handling, carrying, and reading, these rods had all been constructed of wood, as box or lance, mahogany or deal ; some of them painted, others only waxed or oiled ; some being adapted to taking outside measures to an accuracy of 0.1 of an inch, and others to taking inside measures to something smaller still.

A numerous and heterogeneous family truly these rods were, and not one of them could be regarded as capable of keeping its length exactly, for more than a short space of time ; but then it had been arranged that they were all to be tested on a certain reference scale before and after every measure, and their various lengths would then be known in terms of that reference.

The 'reference scale' was therefore devised to be quite an institution in these Pyramid measures, and was contained in a huge box, some ten feet long and eight inches square in cross section ; armed internally at either end with thermometers for giving the temperature ; and provided, on one hand, with neatly prepared contact pieces of gun-metal, for conveying to its own divisions the lengths of the several portable rods to be tested ; and, on the other hand, with a microscopic beam-compass of extraordinary powers, for comparing its (the reference scale's) divisions with those of a true standard measure. This most important part of the whole system having been prepared in a very dense block of solid black stone ; and by its nature calculated, it was hoped, to keep a record of the length of the inches with which the Pyramid was measured on the present occasion, to distant ages.

In this manner the measures taken every day in the Pyramid, with various wooden scales, would be practically equivalent to having been made with the stone standard ; and thus would be avoided one

source of error with previous Pyramid measurers, —whose wooden scales were actually of a different length when they were being used hot and dry at the Pyramid,—from what they were or would be when compared with standards in Europe, immersed in air of European coldness and sensible moisture, both before they set out for, and after they came back from, the sunny south.

This complete reference system was what was intended ; but alas for the man of small means who requires any original instruments of his own, to be made by a great optician ! There may be, and indeed there are, some opticians whose word may be taken, and performance trusted, as well as those of any other class of business men ; but in dealing with your very great opticians, all ordinary ideas are transcended. He was a notable optician of whom the story is told, that when he had on one occasion sent home a telescope ordered by a customer,—he was complimented as being true to the day, but wrong in the year,—though the story does not say how many years he was behind his promised date. And of greater opticians, still more extraordinary stories are told ; so that even Royal Observatories must consent to wait until '*los grandes artistas,*' of a recent Spanish bulletin, may be pleased to redeem their promises.

Something of this characteristic doubtless arises, from the peculiar demands of the optical profession

for almost superhuman mechanical accuracy ; or certainly for greater truth and refinement of work than was ever attained to before, by any man under the sun. Though whether it is to be the greatest also that ever *will* be obtained, is the practical problem to be solved ; and in deference to which, all ordinary attention to common punctuality, appears to sink into nothingness ; and a peculiar state of mind is developed, dissatisfied with a shade ; and either recommencing *de novo*, just when a structure was thought by others to be complete ; or apparently idling over unfinished work, but really thinking how the next step is to be accomplished, and in some manner, perhaps, never before realized by mortal hand, or brain either.

With the splendid living practitioner, however, in fine metals, to whom application had been made for the finishing off of our Pyramid-measuring apparatus, I had believed that where his mind was excited with the scientific importance of a subject, he would struggle to keep his appointments,—and had therefore sent him a copy of *Our Inheritance in the Great Pyramid* in the summer of 1864, before detailing the orders for what was required. He had taken to the project, too, very kindly ; even to twice visiting Edinburgh, where he had discussed by day the instruments to be made, and by night the probable history of the Pyramid. Time however passed away after that, time long enough to have made the whole apparatus again

and again ; and when, with everything else duly prepared and packed up for the voyage to Egypt, I wrote to him to send me his contribution that it might be examined at home,—he replied that he would go across the country with it the following week and give it to me at Liverpool when embarking : concluding his letter, though, by asking a question about the microscope beam-compass, which showed it had not been begun, in fact never thought about during all the interval.

But then this man was a born genius among opticians ; and where genius is concerned, no one else must presume to say what its flights may not attain to ; and I still hoped that in presence of the practical necessity of the case, the gentleman concerned would outdo even himself, and successfully finish everything in a manner that would make his name favourably connected with Pyramid mensuration. And sure enough he did come to Liverpool with three boxes of apparatus, which I was asked in the haste and inconvenience of a railway station to examine, approve of, and there and then accept as a fulfilling of the long previous order.


A number of the articles certainly were remarkably well got up, and moderately charged ; but when we came to the reference scale, some doubtful features began to appear ; and by the time the stone standard and microscope-compass were reached, I was compelled to take formal objection ; for the order had been entirely departed from, and some-

thing produced which would not work. But the good ship 'Thessalia' delayed her sailing for several days, in order that she might load up some hideous big iron boilers on her deck ; both to the consternation of her captain and sailors,—who, in the ensuing voyage, were nearly sent to the bottom thereby,—and to the utter straining of every iron plate in her frame ; to an extent also, which it is devoutly to be hoped the good people at Lloyds' will find out, and charge the wealthy owners with treble insurance rates ever after,—receiving in return the thanks of 'all who travel by sea ;'—during these few days therefore of grace to him, our first of modern opticians promised to rectify the microscope-compass. But again he brought it up imperfect, and saw it was imperfect, and that the stone scale also was not the sort of stone scale I had intended to be guided by during Pyramid measures ; so there was nothing for it, at the last moment of setting sail for Alexandria, but to hand him back that part of the apparatus, with full instructions how to alter it ; appoint him a month to alter it in, and then send it out to Egypt after me,—under penalty of ten shillings per day for every day's delay after the month should be expired. Paid, therefore, for the instruments he *had* finished, and finished well, the full amount charged,—the great optician, after a little wincing, signed the deed, and took home both stone standard and microscope-compass ; promising again and again, to have every

desired alteration performed upon them ; and then to get them sent out so speedily, that they would arrive in Egypt before I could well have reached the Pyramids, or been inconvenienced to any extent by the absence of such important apparatus.

On this faith, therefore, it was that my wife and I had set sail in November 1864, without the veritable keystone of our measuring system ; but in such full trust of immediately receiving it, that we never for one instant paused in our onward progress of occupying the ground at the Pyramids, and beginning whatever measures were locally possible. But we did not know fully, what it was to have to deal with a genius. For into whose mind except that of a genius, and indeed a most magnificent one, of the optical instrument-making class, would it ever have entered,—after those trying scenes in Liverpool, and with a copy of the one-month penalty paper in his pocket,—to return innocently to his Downshire home, and not look at the instruments concerned, for *three* whole months !

Yet such was the case ; and there were we, at East Tombs,—week after week, and month after month, in a rising temperature, and with our wooden measuring-rods altering in length,—writing frantically to our agents at Alexandria to inquire everywhere, and from all the Liverpool ships in particular, if no instrument-box had arrived for us, marked for immediate despatch. But of course there was nothing of the sort ; and from the time we had left the



Mersey and plunged into the stormy seas beyond,—rolling in the troughs of the waves at the mercy of those big boilers on deck,¹ and in the midst of some of the very worst of weather of all that autumn and winter,—we had been cut off from the whole British world by an impervious bank of more than Cimmerian darkness ; and might as well have drifted out on the ocean in an open boat, for any help received from whence it had been expected, or sympathy from those amongst whom it might have been demanded. But fate eventually was kind ; and the Arabs, under the wholesome control of a strong Egyptian Government, were a sufficiently respectable, though not very instructed, set to be amongst for a time.

Linear measures had therefore been commenced at the Great Pyramid without waiting for the arrival of stone standard and microscope-compass. ‘ Of course though with due employment of the good ‘ reference scale instead ? ’ may remark many an intelligent reader.

It should have been so, but there was unhappily wheel within wheel of misfortune. The reference scale *was* originally to have been of metal, and would then, in its great box, have been, for a few weeks, a very fair reference indeed for rectilinear length ; but when I proposed that material to the

¹ A species of cargo unknown in Utopia ; and in any other state where the lives of seamen are valued by Government and the people more highly than a few £ s. d. of freight.

great optician he urged such a variety of objections, and especially the greater expense over wood, as put it quite beyond my private means to ambition possession of. And when he further asked, with considerable cleverness, 'What importance there would be in having the reference scale of an unchanging material, if it could be at any moment compared by means of the microscope-compass with the stone standard?'—of course I was taken captive by my own arrangements. Doubly so in the end, when the stone standard and microscope-compass never arrived; triply so, when the heat and drought of an Egyptian climate began to bring to light, a peculiarity in the action of the *wooden* reference scale, that had eventually been prepared in the learned optician's workshop.

Among those who are fastidious about accurate measuring scales, though not to the very highest requirements of science, there is a great appreciation of wood, when used in the direction of its fibre, and that fibre straight, dry, and well-seasoned; wherefore they find, that good sound deal is about as trusty a substance as can be employed; and the question is only, among different examples of it, to pick out the most shapely in grain and thoroughly seasoned. Now a friend in Manchester, who had taken a special scientific interest in this proposed visit to the Pyramid, had advised me last autumn of certain old organ pipes, recently taken out of an organ, dating from the reign of good Queen Anne;

old enough therefore to have dried most thoroughly ; and composed of such admirably straight-grained wood, that one of his friends was making measuring-rods of it ; and found,—that when they had been covered with copal varnish, they were ‘unchangeable.’ My kind friend, moreover, did not stop here, but procured a slice, one hundred and five inches long, five inches broad, and three-quarters of an inch thick, wherewith to construct the important reference scale for Pyramid measuring in 1865. This precious example, therefore, dating from England’s Augustan age, was duly handed over in the rough to the great optician ; and re-appeared under his auspices with many fine fittings, at Liverpool, when the long bar-box was opened there.

‘It looks very dark?’ said I.

‘Oh, that’s the drying oil,’ replied he, ‘which has been rubbed into it.’

‘Oil!’ I exclaimed, with a pang of anticipated horror ; ‘what made you think of rubbing in oil, when you were asked to coat it with copal varnish?’

‘But what,’ he persisted, ‘could be better than oil ; when, mark you, it is drying oil?’

‘That may be,’ was answered, ‘but it is not dry yet ; and oil has the effect of moisture in revivifying vegetable fibres : nullifying therein, too, all the good effects of age for mensuration purposes. Just as when you take at the Cape of Good Hope, the old, dry, and closed-up head of seed-vessels belonging to a certain plant, dip it into

‘ water, and lo! in ten seconds it softens, swells, twists, and presently expands into what,—though scentless, brown, dead, and no flower,—they prettily call the *rose of Jericho*.’

At the time,—I concealed most of my grief and apprehension ; but on afterwards finding,—even in the shaded recesses of the instrument tomb,—that the oiled scales were still sticky, and the Queen Anne’s organ reference scale was not only curling up like a shaving, but had in a few weeks become twisted in the very plane of its breadth by a whole inch-and-a-quarter,—I could no longer think of using it for its original destination ; and even ventured an idea, for indulging in which I trust to be forgiven, respecting the greatest genius of modern opticians,—and to the effect, that his future portion may be amongst the roses, of that ancient and celebrated city which has just been mentioned.

My first practical proceeding, however, on finding that we had been undoubtedly deserted and left to our own unaided devices in the desert,—was, to make a new reference scale, on the material of the bottom of the box of the original one ; for the wood there had not been oiled, and was of such a degree of solidity as argued a chance of not changing either very much or very quickly. Divisions were therefore put in at every fifth inch by a fine cut with a penknife, not perhaps very regularly, but the errors of each cut on the mean of the whole, were afterwards determined by a fine ivory scale divided to

hundredths of an inch, and capable of being read off by a hand-magnifier to thousandths ; so that there was then very little difficulty in comparing every rod, long or short, used in the Pyramid, and stating its length in terms of this one *impromptu* reference.

But how about that reference, and the standards of British measure in Great Britain ! for of course some more trustworthy and permanent carrier of length must be employed between Africa and Scotland, than the bottom of a deal box, how thick and massive soever. In fact, a stone scale was also to be accomplished.

Now in our visits to the Museum at Boolak in December 1864, we had looked, and with eyes rather covetous towards this particular end, on certain basalt coffins there, of Egypt's Pharaonic day ; for the material was so remarkably fine in grain, besides being hard, and free from either fissure or fracture. Some geologists tell us, that trap rock is trap rock all the world over, and there is no use in bringing a specimen of basalt or greenstone from the other side of the world, because it is precisely the same as what we have at home. But I can positively attest to having searched a notable part of Scotland over, and have never found a piece either of porphyritic trap or fine-grained greenstone or basalt, but what was rent at every few inches by cracks, or preparations for cracks, in a manner to quite unfit it for use as anything approaching to a good

standard scale. The nearest approach to what we desired in mineralogical quality, was a small hand specimen of 'basaltic clinkstone,' from a certain hill in Linlithgow,—for it was capable of taking a high polish, and the grains were so fine as to be almost invisible to the naked eye. But on sending an expert to the place, he looked all over the quarry and could find no fragment a foot long without a crack; and though he was sent again, and brought down by blasting a large part of the brow of the cliff, and thought that some two or three lumps were thereby procured of solid quality,—yet, on throwing water over them in the sunshine, the retention of moisture along certain lines showed, that even those best portions were utterly infused with the principles of fissuring, and were ready to reveal their weakness more decidedly at any moment.

But in the Museum at Boolak, there stood almost dozens of basalt coffins, where the length was between six and seven feet, and the whole material not only finer still in grain than the carefully selected chip of Linlithgow basaltic clinkstone, but without the smallest apparent desire to fissure at any point whatever: even too, though the toughness of the stone had been tried to the high degree for so hard and brittle a material, as first of all to have been worked into a hollow box, of shape resembling a man, and hardly more than three inches thick over any part of its curved sides; and then, to have been tumbling about in the sun and wind amongst

temple ruins for two or three thousand years! With what tools those early Egyptians could have sculptured so perdurable a substance, is almost as extraordinary as the natural circumstances under which the Egyptian basalt was poured forth by nature, so fine in quality, and condensed so evenly, and free from flaws. Yet there were both the wonders patent before us, as to mere fact; with the addition too of the lids of some of these basalt boxes being covered with minute hieroglyphics, carrying nearly a side of the *Times* newspaper amount of information; and in a neat style of artistic engraving, where you saw, most charmingly portrayed in a multifarious microcosm, the manners, characteristics, beauties, and weaknesses of hawks, owls, ibises, pelicans, geese, and almost all the birds of ancient Egypt; while treacherous snakes glided here and there with such natural bends, and clear though minute curves, as gave the impression of the creatures being in motion still.

The basalt then having kept all these small markings thus faithfully, from a time anterior to the formation of either the Roman or Greek nationalities, and having also refused, by its hardness, to be scratched, worn, or otherwise injured by accidental abrading influences,—what a material must it not present for national standard scales of length; and how little doubt would there have been now upon the length of either the Greek or Roman foot, if their copies had come down to us engraved on a

slab of *this* basalt. Wherefore, we inquired of Mariette Bey, as to whereabouts in Egypt this peculiar species of stone could be procured; and he very obligingly answered, that he had cart-loads of it there at Boolak,—in shape of sarcophagi or coffins which had been so far broken as to spoil them for exhibiting in his Museum, but not to prevent their abundantly affording such lengths as would be quite enough for my purpose, and he would let me have as much as I desired.

Some difficulty had occurred at the time, to prevent my obtaining the promised slab then; and I was afterwards induced to place all my hopes upon, when Mariette Bey should come down from the upper country, and pay his expected visit to us at East Tomba. But now we had entered on the third month of our residence there, and Mariette Bey came not; neither did the longer promised stone-standard of black marble arrive from the chief genius of optical instrument-makers of Britain; so we had to look about and see what could be done to help ourselves on Pyramid hill.

Of limestone, we could of course have got a slab anywhere, but cared not for anything that could be scratched so easily. Nothing in fact but one of nature's *hard* stone castings, that was melted long ago by the primeval heat of the earth, would fully suit the occasion. For, as when one said to us, while still in England,—after appreciating that an oxidizable metal, as usually employed, was not exactly the

thing to carry thin cut lines on its surface down to distant ages,—‘Would not a plate of glass suit you?’—we replied, ‘Not unless you can assure the world ‘that its secular, as well as periodical contraction ‘after melting has been overcome, by the practical ‘security of at least six thousand years having ‘intervened since it was last in a state of fusion.’¹

Now, in front of the eastern side of the second Pyramid, are the remains of cyclopean walls of what most travellers call a temple; to whom or wherefore erected, no one knows; and they, the travellers, have shed all the light they are capable of affording on the subject, when they add, ‘It was probably an *hypæthral temple* ;’ that is to say, was open to the sky; and this is likely enough, for there are no remains of any roof (whose span too, if it ever existed,

¹ Standard scales or bars for linear measure are usually, if not universally, made of metal: why then did I not have one constructed in that material, and trouble no one about Utopian fancies?

At pages 303-314 of *Our Inheritance in the Great Pyramid*, I have attempted to show the successive changes, approaching even to revolutions, which have been effected nearly every half generation during the last seventy years, by the authorized makers of the national standard measures for the time being; these changes being indeed all within the circle of the metals, and varying only as to the particular metal or alloy employed, and the mode of manufacturing it. So many suspicions, however, attached to metal, as metal, even in the latest and most improved form and mode of employment, that I hinted that other improvements still, even amounting to *bouversements*, would be heard of; and actually, before the present year of 1866 is concluded, a report has been presented to the British Association for the advancement of Science, by its ‘Mural Standards Committee,’ rejecting every form of metal, and adopting in its place hard glazed porcelain, to carry down to distant ages the respective lengths of the British yard and French metre!

would have required to be enormous), only a few gigantic limestone blocks forming the walls,—rude, weather-worn, gaunt, and world-defying masses, like any natural craig or scaur on northern hill. Precisely thus too, even when Halicarnassian Herodotus visited the locality, did this group of monster blocks lie lonely and deserted under the beating sun,—forming a ruin descended from a time so early, that men had ceased to have any party, or national, feelings about it, and had left off even speculating upon its origin and purposes.

Yet this grim spectre of the early world, must once have been replete with delicate furnishings of architecture, and costly finishings of art, heaped upon it too by loving care, and the liberality of princely hands; for round about its ruined area now, as one treads the heaps of tell-tale rubbish, where every storm of wind that blows another film of dust away, reveals a new page of history,—one finds the soil perfectly filled with smashings of snow-white alabaster, or arragonite, often in shape like great fossil teeth; greenstone of choice varieties; black basalt and granite rosy red; in fragments all comminuted, and yet occasionally showing parts of surfaces once exquisitely smoothed by the hand of man, and sometimes even with traces of sculpture visible still. Wherefore, after having previously lost one's-self in myriads of years, endeavouring to realize the ages of devotion and labour, triumph and respect, with which these costly works were devised

and executed,—then introduced into the massive building, and there inaugurated and honoured,—one has next to imagine an addition of ages of indifference, or change of opinion, and of revolution at home, or conquest by the foreigner, combinedly becoming the parent of as eminent a display of persevering labour in breaking up utterly and destroying, as before in building up. And then, long afterwards, when for ages both builders and destroyers had equally sunk into oblivion, came the earliest of ancient Greek travellers, and the best,—the matchless Herodotus,—but could make out nothing from the scene.

Yet amongst many other fragments which my wife picked up here, was one of black basalt, a perfect gem in the way of working hard stone into geometrical shape ; *i.e.*, so far as it went, for it was merely a corner of something very much bigger, but a corner where three worked surfaces met. Exquisite planes they were, the material harder than flint and much more tough, while the whole lump was undimmed by four thousand years' exposure to the elements, dark, glossy, and close-grained ; admirable therefore for drawing fine lines on, and wanting nothing to fit it at once to become the groundwork of a modern standard of length than that, it was so very small. Nor did all our further examination at this spot, though resulting in a whole bagful of specimens of the fine grained black basalt, succeed in bringing one to light which had

not been smote again and again into mere splinters by the hammers of early iconoclasts.

Foiled at this place, therefore, we turned our attention to the eastern front of the Great Pyramid, where, as every one who has read Sir Gardner Wilkinson's volumes, (and who is there who has not, and confessed how much he has been indebted to that representative of all the excellences of the best Egyptologists of every learned nation!) every such person knows that there are there, large collections of 'black stones and portions of basalt pavement.' Colonel Howard Vyse appeared to think them symptoms of a temple similar to those in front of the second and third Pyramids, having once stood on the spot,—and began excavating accordingly; but gave up the work again some time after, apparently on account of its barrenness of results. Sir Gardner Wilkinson, on the other hand, appears, if I understand him aright, to look on the basalt pavement as the remains of a tramway for the carriage of blocks at the building of the Pyramid; and defends such an hypothesis by similar examples, better preserved, at Sakkara.

To this opinion, too, we were inclined, after much examination, to assent; not indeed imagining that this black terminus before the Great Pyramid's eastern front, communicated slantingly with the line of the acknowledged northern causeway of limestone blocks (and which tends rather east-north-east, or to ancient Heliopolis and the flat country),—but

that it had a black tram-line or causeway of its own, trending off straight eastward, and making therefore a much shorter passage to the Arabian stone hills on the other side of the Nile. This idea is, on one hand, rather negatived by finding much of the supposed line of a direct eastern causeway undermined now by tombs ; but there were such numerous ages for constructing them, long after the Pyramid was completed and the causeway no longer required for its original purposes, that the objection is of no great moment ; while, on the other hand, there are three notable points directly *in* such a line,—if not also clearly marking it out, and extending the proof down even into the flat plain,—where large collections of worked basalt blocks are to be found. The escarpment too of the cliff has been neutralized so completely by enormous heaps of rubbish, in the direct line between two of the basalt groups, as to form the present actual and effective soft causeway, by which all modern travellers ascend the hill for the purpose of visiting the Great Pyramid ; to the entire neglect by them of the so-called northern, and usually considered one and only, ancient causeway erected for such a purpose.

All along this eastern black causeway line, however, I walked again and again, examining the stray and long-kicked-about basalt blocks,—finding very many of them with famous worked surfaces, but all of them, as to material, coarse to a degree.

This was melancholy, after that gem of fine-

grained basalt discovered before the second Pyramid; but the necessity for a certain larger size than that, obliged me finally to adopt a lump of the coarse. A piece was therefore selected with a worked surface on the top, and all the corners were hammered, until everything that would break off by mere ordinary hammering had been removed; and the result was, a hard, tough lump of basalt, smoothed on the top in the ancient days of the world, before history began,—but now rather porous, from the decay of the smaller component superficial crystals. So we thought we must try to cut it down to a fresh surface ourselves; and as this new want occurred soon after the appearance of ‘Alee, the day-guard,’ for our diurnal defender, and he was burning with anxiety to turn an extra penny in any honest manner, and could use his hands well, though not his feet,—Alee Dobree and I furnished him with a nice supply of desert sand, a pipkin of water, a second block of basalt, and full instructions for grinding the two blocks together with water and desert sand between; by a series of circular motions too, accompanied with a continual rotation also of the revolving block.

So at once the poor worthy man began with his tedious grinding, circulating the upper stone as regularly as if his arms had been part of a speculum-grinding machine, while Alee Dobree and myself went off to our work at the Pyramid. But we had miscalculated the astonishing hardness and sharp-

ness of African desert sand; for, on making an inspection towards evening, the embryo standard-measure slab had acquired an odiously concave surface. Next morning, however, forming an idea of the why, we reversed the stones, making the one which had been the stationary bed below, now the revolver above; and again our hard-working, exemplary day-guard ground and ground at the two stones, and with such untiring perseverance, from another sunrise to another sunset, that he had soon changed the curve to convex.

This, however, showed that the means of correction were at hand, and by dint of several reversals, and a final finishing with Nile mud in place of desert sand,—a surface was at length obtained on which fine engraved lines could be creditably placed. A box was next made, suitable for keeping the now-to-be-precious fragment; but a new difficulty presented itself, viz., the hardness of the stone, which resisted all attempts to put in the graduation with either a hard steel cutter or sharp flint edge,—when in despair a happy idea struck us, that my wife's diamond-ring might do the work; and so it proved, for with one angle of the diamond the necessary lines were at last satisfactorily cut into the basalt, and a permanent scale of very nearly five British inches, more or less, was constructed.

At the time, we had no means of ascertaining the real value of the space so defined; but whatever it might eventually prove to be, we at once de-

terminated the lengths, first of the reference scale, and then of all the measuring-rods, in terms of those five basalt *reputed* inches ; and having since succeeded in bringing the basalt to this country, have measured here the lengths of its inches, in terms of the inches of a Government standard originally prepared by Captain Kater, and now in possession of the Magistrates of Edinburgh, who obligingly lent it to me for the purpose.

Thus the Howard Vyse instrument-room was in continual requisition for mechanical work of one kind or another, and was exceedingly appropriate thereto,—being seldom troubled by wind, while the sun never shone into any, except a small, part of the front of it, and that only for a short time each morning. At one period we had feared there was the inconvenient neighbour of a worse than hornet's nest, in a fissure of the roof,—where a dozen big wasps of five times the ordinary size were crowding very busily ; but after killing *them*, no angry companions assailed us, and the few occasional visitors of the same genus who subsequently appeared, were rather interesting,—as being so precisely the same royal fly which figures largely among the ancient Pharaohs' names in hieroglyphics. A noble fellow truly, both in size, form, and brilliancy of colour, is this fly,—really, too, with something gentlemanly in his manner, for he always seemed to have occupations of his own, and though armed with a sting

capable of doing much execution,—yet if given, on any of his calls, the slightest hint of not being wanted, he was off like a shot into the far blue air, never to return. Somehow or other, though, we fancied that the vital principle is not very strong in the family, for none of them ever recovered from the smallest blow given them ; and we often wondered whether they, having figured so largely in the world's history, and having had their portraits so abundantly sculptured, engraved, and painted between three and four thousand years ago,—are now doomed to disappear shortly, and be replaced on the busy scene of the world by smaller and more vulgar, impudent, vivacious, and cantankerous representatives of their kind, more horribly worthy of the name of wasp.

We took a fancy, too, for a pair of little black and white birds, something like water-wagtails, and very closely resembling the hieroglyphic bird connected with King Shafre and the Pyramid. Wherefore every evening, my wife strewed crumbs on the steps of the dining-room tomb, to be ready for them at their early morning visits to those quarters where their ancestors were so well known, in and about the year, 2000 B.C. ; very clever too they were in picking up the smallest of crumbs, their tails wagging up and down most unweariedly the while ; and when the huge flapping hawk came by on his twice-a-day visitation of all the line of the cliff to see what was for him,—they would dive into some

one or other of the hieroglyphic-adorned excavations, as if there perfectly at home.¹

But close acquaintance sadly dimmed the moral beauty and innocence of these delicately-fashioned little birds; for though they were of such a diminutive size and slenderness that a single cock-sparrow would have thrashed three of them, yet one of the pair, because he was a trifle bigger than the other,—his legs thicker, perhaps, by the hundredth of an inch, and his weight greater by the twentieth of an ounce,—must needs go swaggering about and thinking so highly of himself, that he could not let the other *birdie* pick up a scrap in his mighty presence; and this, though at a distance of several feet, and all the ground between them covered with far more crumbs than both of them together could consume. So what used to be, when they first arrived half starved, a very pleasant scene of their peacefully and thankfully feeding together, gradually became, as they waxed fatter,—such an unlovely example of a bigger, bullying a

¹ Large hawks on the wing are a frequent feature of Egyptian landscape; but their prey would seem to be often very different from what is usually imagined; being, according to Dr. Wilde, in his *Narrative*,—‘a large species of grass, or sand, hopper, with remarkably brilliant crimson legs.’ ‘I dissected,’ says Dr. Wilde, ‘several of these kestrels, and found that, instead of the usual membranous stomach, peculiar to rapacious birds, theirs had been altered to meet the exigency of the case, and had become a perfect *gizzard*, having a detached cuticle, stained of a bright red by the colouring matter of the grasshopper, pieces of the hard shells of which, and small pebbles, I invariably found in the digestive apparatus of this insectivorous hawk.’

lesser, but yet necessary, companion,—that we were rather glad when the advancing spring seemed to remove them amongst the migratories, and replace them by active, industrious swallows.

These swallows were truly ever on the wing, and diligently feeding themselves,—though indeed, from their light ashy-grey backs, you might have thought them ordinary swallows, that had rather lazily or by some mistake turned out for once in the shabby dishabille of grey dressing-gown costume. Yet their sun-reflecting tint must have been important to them, for they had evidently come to this sun-burnt tract of desert for the summer, not winter, season ; and we found even now, in the early spring, each day almost becoming sensibly hotter and brighter, and bringing up more and more of the characteristics of African desert-life.

On one occasion, having arrived at something anomalous in the instrumental levelling of the floor of the so-called horizontal passage leading to the Queen's chamber,—I thought to try a rude practical experiment by pouring water overflowingly into the great 'polyspaston hole,' which is found near the centre of that floor,—and then seeing which way the fluid would run. The matter was accordingly mentioned to Ibraheem, who in the hot weather watched like a dragon over his supply of water ; but the experiment took his fancy so amazingly, that he was quite anxious to show he had water enough

and to spare. Both he and all the other Arabs indeed near about, to whom he immediately began talking enthusiastically of the proposed trial, could instantly perceive that there really was some sense in *that*;—while as to all the true scientific instruments they had previously seen produced one after another, they looked on them as of no practical use whatever, and held them rather as signs of weakness in those employing them; proofs, unhappily, in their minds, that a European cannot get on at any occupation without some queer and troublesome contrivance to *peep through*,—when an Arab has only to look straight at a thing with his simple eyes, and perceive its whole bearings at once; or at the utmost, to refer to the running of water.

So Ibraheem cheerily furnished Alee Dobree with one bucketful of water; and then, after a while gave a second to Abduwahad, while I followed them in a short time with lamps and lucifers. Not at all too soon either, for that soft young man Abduwahad, having emerged from all the beaten part of the road, where there is nothing but going up and down over ruined tombs,—having thus just emerged on the open slope that extends thence to the north-eastern corner of the Pyramid,—he stumbled there, at the hottest hour of the afternoon, full upon Reis Atfee, baked through and through with solar heat. The Reis was indeed a good, innocent sort of man enough, but he must ask the news, and being told why the water was being taken to the Pyramid,

gave it as his sapient opinion that the thing was perfectly impossible: and therewith, taking the bucket out of the bearer's pliant hands, he raised it to his lips, and drank with the volume of a horse when he is decidedly thirsty and *wishes* to drink; so that, by the time I came up, the possibility of a successful experiment was very materially reduced. But the poor Reis looked so much the better from his draught of clayey water (for Ibraheem had carefully given out what had *not* gone through the filter),—even in the fashion of a cactus plant, after it has shrivelled during a long scorching summer and then gets the first heavy showers of the rainy season,—that I could not be very violently angry with him. Of course, too, for accurate statements, I did put my trust in scientific instruments still; and with reason,—for invariably the more perfect they were in themselves, and the more completely they could be adapted to the parts of the Pyramid they were intended to test, the more admirably close did the results come out; especially when the parts so examined still showed any of their surfaces at all approaching the state in which they had left the builders' hands four thousand or more years ago, and were also parts to which those remarkable men had attached more than ordinary importance.

Now of all the features peculiar to the Great Pyramid, and capable of exact measure, there is none of equal value with that of the exact tilt, or large vertical angle from the horizontal, of the

several inclined passages ; and of all these passages, again, there is not one which can compare in length, height, architectural splendour or theoretical importance, with that one known under the name of the Grand Gallery. Wherefore if, as we have been led to believe from several other indications, the builders were chary of refined workmanship, because it cost money, and only introduced it where circumstances imperatively called for it, and then in proportion to the importance of the occasion,—why, the angle of the Grand Gallery must be the most crucial test of the true theory of the Pyramid on one side, and the capacity of the builders to work up to it, on the other.

Already I had made some important observations upon this angle, with the little sextant and artificial horizon apparatus ; having this latter mounted at the extreme north end of the Gallery, on a stand duly proportioned and knocked together, so as to stand easily over the protruding step of the floor of the first ascending passage ; besides being furnished myself, with a sort of stage to keep the observer from slipping down the steep passage away from the instrument ; and found it practically, in Pyramid passage-observing, to be an absolute essential : while a luminous signal, well centred, was erected in the southern doorway, or at the upper and farther end of the Gallery. With this, to a certain extent Robinson Crusoe style of apparatus, then, I had got some tolerably respectable measures, which came very

close to Colonel Howard Vyse's numbers,—and they are singularly near what theory requires,—but then there were the French Academy, the Cairo Institute, and other learned Cairenes all standing like lions in the path, and refusing to receive from any mere private man, and a stranger, any angle but what should come very near to theirs. (See Plate VI.)

Now the French angle for the Grand Gallery, as duly given by the worthy M. Jomard, is $25^{\circ} 55' 30''$; but modern Cairo had obligingly handed me a note in December 1864, which gave one result from measurement of a hypotenuse and perpendicular as $25^{\circ} 42' 53''$, and another from a base and perpendicular equal to $25^{\circ} 17' 36''$; poor theory all the time demanding $26^{\circ} 18'$, nearly. So there was no resource left, but to try the fact again with an instrument decidedly superior to any of its kind that had ever been employed in the Pyramid before; and which should discover intermediate, as well as final, errors, in order to throwing some light, if possible, on these strange anomalies.

The instrument appealed to in such a juncture, was of course the admirable circular clinometer kindly furnished me by my friend Mr. Andrew Coventry; for to its angular apparatus, no objection *could* be taken; and if it required rather a longer foot to stand upon, than that originally constructed, why, I set to work to make one; and by dint of cutting up the old fifty-inch mahogany base into three pieces, and fastening them symmetrically with abundance of

powerful screws on to the lid of the reference scale box, as the best slab of seasoned wood then procurable,—a new base for the instrument was obtained, measuring no less than one hundred and twenty-six inches from foot to foot in plane of the divided circle,—with seven inches in radius for cross-level, and eight inches in depth, with 1·3 inch in thickness, for strength and resistance to flexure; care being, however, still further taken to use the apparatus in such a manner, that only the *difference* of flexure between each half of the joist-like bar should be felt on the observation. Four lamp-shelves were also fastened on this ponderous beam, two at angles suitable for holding the lights level when going up the Gallery with the face of the circle west; and other two when coming down with the instrument reversed, and its divided face looking east.—(See Plate I. vol. ii.) A wooden anchor for holding on to a ramp-hole above, was also provided, with a rope and clamping apparatus,—so that the clinometer machine might be held accurately and securely at any desired position; and thus armed, on one fine Thursday morning, the 9th of March, Alee Dobree and I set forth to see what we could make of the chief internal angle of the Great Pyramid.

Happily no travellers had yet appeared; and as we worked our way up to the entrance on the northern side, where there was still a little shade,—though only to last a few days more, when the date comes whereat, even at noonday, the Pyramid, accord-

ing to the mysterious science of the ancients, 'consumes its own shadow,' on every side,—the only creatures to watch us were a couple of little owls, about the size of moderate thrushes, but with intellectual heads half as big as their bodies. Wise no doubt as any of the larger examples of the bird of learning,¹ but without their slowness; for these smart little owls seemed all brain, nerve, and activity together; and instead of merely turning their heads round solemnly to see who was coming, they would jump bodily right round, with more than harlequin activity and columbine ease,—first to one side and then to another; stamping the while with both feet at once, in well-feigned anger, on the Pyramid stone they were standing on,—and then, after a further show of high indignation at their solitude being disturbed, away they flew as keenly as any swift in its full career.

But as to Alee Dobree and myself, we got early to work, with plenty of candles duly placed to correct the darkness of the Grand Gallery, and mounted our noble clinometer apparatus on the eastern ramp; commencing then a long and toilsome series of successive level adjustments and various readings as we stepped up, by base lengths, that remarkable slope: the anchor and clamping apparatus proving invaluable, and everything else working uncommonly

¹ Athenian Minerva's owl, we believe, was a *small* variety, but have no means of ascertaining how small, or if comparable in that way to this miniature variety of the Pyramid.

well too. In fact, so well, that that astonishingly quick-witted genius, Alee Dobree, thought I could go on by myself for a time ; so off *he* went, on the plea of urgent religious business to accomplish, but under abundant promises of returning most speedily. Yet one hour passed, and a second too, and no Alee Dobree.

I contrived, however, to go on with the work by myself, gradually getting higher and higher up the steep inclined floor and rising ramp, in the dead silence and perfect stillness that reigned throughout those dark heart-cavities, the central chambers and passages of the most mysterious monument of the world. Another hour still passed in absolute silence under the seven overlappings of those solemn walls. I had indeed the whole interior of the Great Pyramid to myself, and to observation ; in which service I had just succeeded in getting the apparatus advanced above a very dangerous break of the eastern ramp,—when faint, distant noises were heard, as of many waters ; or as if a certain living Egyptian philosopher's theory was then being realized, and causing the Pyramid slowly to sink beneath the level of the sea, at that moment rising with its tumultuous waves against the mouth of the entrance passage, and closing that narrow exit for ever.

Of course it was nothing of that sort ; but in such manner came the first intimation, of 'travel-
'lers' having arrived ; and my heart, so far as fixed on accurate scientific observing that day, sank

within me. By and bye the sounds waxed louder and louder, growing more human-like—and that meant that the travellers were entering Al Mamoon's hole; then some very distant lights were seen twinkling at the bottom of the narrow, first-ascending passage; next they were evidently approaching, but undergoing numerous eclipses, the noises, however, increasing all the time up to a perfect Babel of confusion,—until the mingled stream of diverse-coloured men and flaring candles at length rushed up overflowing into the northern end of the Grand Gallery,—surging up upon the ramps and floor—and on every side,—amid such shoutings and waving of lights, and momentary glimpses of brown-limbed frantic figures, engaged in bewildering motions, as could hardly be imagined on any earthly scene.

But the travellers were now actually mounting the long incline of the floor of the Grand Gallery; and I had only just time to hook the front foot of the clinometer into a ramp-hole as an additional precaution to its anchor and clamping-rope, and to secure every loose light in other ramp-holes, notebooks in my pockets, etc. etc.,—when the earlier of the visitors began to pass in trios with their Arabs,—roaring out their songs, and waving their big pipes, the Arabs brandishing their candles the while, and assuring their employers that they were at that moment transcending all the great ones of the earth. The numbers who passed were almost interminable; both Australian and Batavian steamers,

it was said, had the previous day disgorged their loads of passengers at Suez ; and with them now, the Arabs of at least three villages must have been here present. Some go-ahead men tried to push past their companions unceremoniously ; and these, almost knocked off their feet, often tried to catch hold of the clinometer to save themselves ; others, again, were at all times so fearful of the long smooth slope of the floor, that they could only be got up by two extra stout Arabs apiece,—these Arabs having candles in their outer hands, but taking the traveller round the waist with their inner hands, while he, the traveller, hugged with both his arms close round the Arabs' necks on either side of him ; in the same fashion, indeed, as that in which lady travellers *usually* ascend the Grand Gallery.

Costumes were very various, many men in thin silks, but one sickly elderly gentleman in a mackintosh cloak, of all things for such a heat, and the Arabs in very little clothing at all ; but every one was vying with another in making multifarious noise ; while the earlier arrivals, having already entered the King's chamber, had got up there a wild dance, to the banging of the poor coffer's sides with big stones, that brought out painfully its deep bell-like sound, as though it were the very death-knell of the ancient Pyramid ; producing, too, from the reflected echoes of polished granite walls, and their strange emission through the low entrance passage,—a sort of continued bass stratum of de-

moniac organ-music, on which all the individual whoops and yells of particular 'travellers,' were set off like streaks of crimson on a lurid neutral tint.

At length the crowd had all passed upwards, and happily without the poor clinometer having been pulled from its fixings, though sometimes very near it; but the comparative calm was of short duration, for hardly had the last component joints of the tail of this long Python-like train of men coiled itself into the King's chamber,—than the earlier-arrived portions, forming head and neck, began to emerge in order to descend; so I had then to take my station near the upper end of the instrument chiefly, warning, praying, and gesticulating to those who *would* come too close as they passed, that that instrument was *not* a handle for 'travellers' to hold on by.

'But what is it then?' shouted one.

'It is a clinometer,' was the explanatory answer.

'Well, what's that for?' the violent man demanded again, betraying thereby a sadly neglected classical education; while his heels at the same moment slipping up, he came down backwards on the sloping pavement. His Arabs, too, let him fall; and then picking him up, seriously bruised, hurried him along, saying it was dangerous to stop still. And so they all passed again downwards in trios, each red-faced, excited traveller between two Satanic-looking, brown-skinned demons, teaching him a few additional methods of uproar and madcapism,—until they all fell into one inextricable mass of

horrid confusion, just at the point where the cut-off at the lower northern end of the Grand Gallery floor, makes a sudden descent of about seven feet vertical. (See Plate vi.)

On perceiving such plain symptoms that they were not coming up again,—I immediately reorganized the clinometer ; reached, by successive steps, during another hour, the summit of the east side of the Gallery, took the clinometer into the King's chamber, turned it round there, so as to get the necessary reversal for index-error, and had actually placed it on the west ramp, and began its descent,—when that faultless repeater of prayers towards Mecca, Alee Dobree, coming up without audible foot-fall of his bare feet on the solid stone, suddenly reappeared : and as if accidentally, and quite ignorant that more than five minutes had elapsed since he had left his duty four hours before, under promise of instant return. ‘ He had no watch, like a European, and how ‘ was he to know how fast the time went ? ’ and much more he added, trying to fend off inquiry into the baksheesh he had been earning, by accompanying the late uproarious travellers, and many others, to the top of the Pyramid, and aiding them also to dispose of the remains of their profuse luncheons. But being at last somewhat convicted by his own conscience of having been rather too bad that morning,—he soon set to work, as he well knew how, by exceeding diligent attention, to make up in some measure for his scapegrace conduct,—and then our

progress down the western ramp, measuring the angle at every one hundred and twenty-six inches of its length, was quick and prosperous.

Two more parties of travellers came past, while we were so engaged ; both, however, small ones, composed, too, of quiet individuals and good subjects ; so that with Alee to watch one end of the clinometer, and me the other, the work was not delayed by their transit ; and at last, after six hours of uninterrupted toil, in the heated and bad air, where twenty minutes are usually enough to tire any European,—the two sides of the Grand Gallery had been measured throughout their whole length, and all data secured for determining the crucial angle.

And what did this turn out after all to be ? On summing up the whole of the numbers that night, they gave $26^{\circ} 17' 3''$; showing, too, in their details, another illustration of the Great Pyramid having been carefully finished and admirably brought up to truth for final ends and purposes ; or on and for the *whole*, rather than for *each* petty and unimportant intervening part ;—because, although the differences in the course of the long run of the Gallery were often large, some one way and some another, yet the ends of the Gallery, and on either side, were extraordinarily close to the mean of the whole length.

And even as to what we have hinted at, as the *large* errors towards the middle of the Gallery, there

was nothing there that ever left 26° , and some few minutes less or more ; so that how the Cairene philosophers could have got away from 26° altogether, and far down into 25° ,—and still fancy they were measuring the angle with a degree of modern march of intellect accuracy, far surpassing any crude notions of angle which primitive Pyramid-builders, —‘ poor, miserable, degraded wretches,’—could have possibly possessed,—we were unable to conjecture. But there was one more string still left to the Edinburgh instrumental bow, applicable to this case ; and the progress of sidereal, gaining day by day on mean, time, was then hastening the epoch, during which we should have to see how *its* arrow also, might succeed in speeding to the mark.

CHAPTER XII.

TOMBS OLD AND NEW.

WHEN our walks from East Tombs were directed northward, they passed in front of the mouths of various sepulchres,—from which, over and above the usual fragments of pottery and granite, the very bones also of their once possessors were turned out in heaps and streams, and with every possible mark of contempt. Skulls were rather generally wanting, because Cairo collectors gave a price for them ; but deeply curved ribs, hip-bones, collar-bones, arm and thigh bones, and all the innumerable others that tell every one instantly the sacred human form is there, under all that insult and destruction,—greeted one hideously on every little rubbish-mound. Skulls, too, might be seen by any one gifted with a taste for exploring, wherever drifted sand might allow, into the inner chambers of some of these mansions of the dead, in both the east and north-east cliffs of Pyramid hill ; and the number of skulls there accumulated on *quasi*-shelves, indicated how vast must be the total number of human beings, represented

by the whole extent of the cemetery about the Great Pyramid. (See Map, in Plate II.)

Seeing, too, that some of the freshest-looking and largest heaps of bones, had come out of tombs, evidently of the fourth dynasty, or almost the earliest of certified Egyptian history,—we could not help often, out of very pity to the poor creatures themselves, lamenting their proficiency in the art of embalming, and their inveterate taste for making strong sepulchres in secret and difficult places. For what has it all resulted in at last, but merely delaying the process of earth returning to earth, some three or four thousand years ; and in having that change, which would have been decorously conducted by nature at the time, within the interior darkness of the ground,—now performed in the light of day, amid the trampling and execrations of Mohammedan Arabs ; who, while they are perhaps the most ignorant and generally incapable of men occupying high places in the earth, have not retained the least spark of respect for, or sympathy with, any of their greater predecessors in the ancient land of Mizraim ?

Again, when our walks trended from East Tombs, southward,—a special feature in several places there, over the mere ordinary signs of violated tombs, was the immense quantity of tubular glass beads, blue and green generally, mixed up with the sand and particles of lime ; the adornments, these beads, of princesses or ladies in former times, but recently

stripped off their too long-preserved bodies ; stripped off, too, by modern peasant hands, and trodden under heel with disdain, because they were not immediately to be converted into gold.

Portions of little, green-glazed, earthenware idols were also frequent ; but a more noticeable phenomenon of the place lay a few hundred paces farther to the west,—where, all of a sudden, amongst the more ordinary heaps of comminuted fragments of something or other that Egyptians once set great store upon,—you almost stumbled on a large white stone coffin, with its lid only just emerged from the soil. There it was, sculptured in shape of a man, lying prostrate on his back, and looking up to the blue sky with a calm, fat, blanched face, a roll of a beard under his chin, and large flat collar over his shoulders,—making him look like the ghostly resemblance of a mediæval bishop in bands and adornments of lawn. This coffin, extracted out of a sarcophagus from a neighbouring pit, was cracked across near the feet, and therefore spoiled as well as unfit, men said, for the Boolak Museum ; where, too, it would certainly have failed in much of the remarkable prestige which it carried with it here.

But by deviating southward from this spot, you came upon an enormous pit cut in the rock, a sort of double pit ; having one large pit in the middle, some thirty feet long by twenty-five wide, with a depth of fifty feet ; and that surrounded by a second pit of an annular form, clean chiselled in the solid

limestone of the hill, and forming a trench running nearly sixty feet square, with a breadth of six feet, and a depth of seventy feet. On crossing this outer trench by a bank of sand, which has recently almost filled the south-west corner, you walk on the flat surface of the smooth-cut rock of the middle space, —and look down into the deep central pit upon a gigantic broken sarcophagus ; from one end of which has exuded a black stone coffin, in shape of a man, with many hieroglyphics on his breast, and looking up likewise at the clear blue sky, most helpless, most melancholy ; while in certain openings in the interior of the western side of the pit, two other sarcophagi of different forms are seen ; and imply the existence of many others.

This spot is no other than the celebrated Campbell's tomb. A name, however, most inappropriately given ; for that Consul-General of the day, did little more than make an *appearance* of beginning to work in partnership with Colonel Howard Vyse ; and then left him unaided to go through the real toil, labour, and expense which thence resulted. Full nine-tenths indeed of the whole excavation were executed by the Colonel, or at his sole and entire expense, together with the careful drawings and measurements which abundantly appear in his book ; while a large sculptured sarcophagus, with many other relics of the place, which now grace the British Museum, are gifts presented by him. Once there, they came under the intelligent notice of the

learned Mr. Samuel Birch, who has described the hieroglyphics contained on the remains so laboriously and extensively,—that, if Howard Vyse's name, for any good theory of occult reason, be not applied to this tomb,—the place should rather be known by the honoured title of Samuel Birch ; he having done so much for its history, besides generally translating hieroglyphics for most explorers of the Egyptological school during the last thirty years.

Looked at in a general way, the defence of the inner, by the outer or surrounding, pit, is an exceedingly clever arrangement to prevent underground robbery ; for on this part of the hill, where the square sepulchral wells abound, whose principle is, that after going down vertically some fifty or sixty feet, they then form horizontal galleries or chambers in various directions,—one of these burrowing architects might easily break into the regions of another, without anything being visible on the surface of the ground : even as occurs at the Australian gold diggings, when *some* active diggers, having sunk their shaft through the surface drift more quickly than their neighbours, begin tunnelling far and wide, and under their neighbours' lot as well as their own, on reaching the auriferous clay. But any tomb-tunneller of old in this neighbourhood, breaking unexpectedly into the trench surrounding, what we must for the time go on calling, with the rest of the world, Campbell's tomb,—would find an unmistakable warning there, to go no farther.

The contents, then, of that so carefully enclosed inner pit, whether according to this rude explanation, or some other,—were held to be of extraordinary importance. And they were even further protected by the interior having been, when Colonel Howard Vyse uncovered it, occupied by a very remarkable building, both having an arch of well-cut stones for its roof,—the earliest stone arch known to have been built by man,—and also a sort of cyclopean quadrangular apology for an arch, in much larger blocks beneath, serving as a separation between two of the internal storeys. But every particle of the material of that most notable building has been carried away within a few years past, by Arab Sheikhs, for stone enlargements to their mud-houses,—leaving only, by an act of unusual grace to European visitors, the broken sarcophagus and basalt coffin already alluded to.

For full particulars, therefore, we cannot now do otherwise than refer to Colonel Howard Vyse's volumes; and there we learn, chiefly through Mr. Birch's translations, that this great Campbell's tomb is a chronological anomaly on the Pyramid hill,—having been formed not under the fourth, but the twenty-sixth, Egyptian dynasty. Or somewhere about 600 B.C., when Memphis, after having for ages been reduced to play a very secondary part, to Thebes, in ruling Egypt,—suddenly revived to a considerable extent, and continued for a time a fitful existence,—straining after connecting itself once more


with the ancient glories of Pyramid hill ; but yet falling into irremediable decay soon after, notwithstanding, too, the favour of Delta-dwelling kings.

During this last gasp, however, of the primeval taper's light,—the large tomb alluded to was constructed to afford honourable burial for public functionaries belonging to Memphis ; this at least is stated in large hieroglyphics cut into the lower part of the walls of the inner pit, and is also confirmed by the smaller writing on several of the sarcophagi. It was thus a notable effort of its time ; and being, too, perhaps the last and latest instance of any grand Egyptian burial on Pyramid hill, is worthy of attention, as an example of what Egypt had come to, in sepulchral matters, towards the close of its long empire.

Thus, if we attend to the progress of the gallant Colonel's excavations, and particularly about the period of his entering the internal sarcophagus-holding house,—we find him speaking much of the numerous little 'idols' deposited in various corners. And then we come on notices in his journal of the day, such as, 'I sent the idols to Consul-General 'Campbell ;' or, as in the final balance-sheet, 'seventy-three green idols delivered to Consul-General Campbell ;' and again, after the finding of them near one sarcophagus, in several tiers, and standing in double rows, 'three hundred and ninety-seven green idols delivered to Consul-General 'Campbell.'

On another occasion, April 8th, when Colonel Howard Vyse had reached the principal sarcophagus, near the base of the inner house of this tomb, and found its lid opened only a few inches,—he hoped exceedingly that the mummy might be inside ; and sent immediately to Consul-General Campbell, Mr. Perring, and Mr. Hill to come out from Cairo, and assist at the expected finding next day ; for the Colonel had instantly determined to delay further investigation until then, and ordered two Janissaries and some of the Reis to watch over the place throughout the night.

This was surely very liberal-minded of Howard Vyse, especially after having for so long endured, without companionship, the noisy working days of many months ; days such as that of the 8th, when he had at work in his pay, ‘ Reis, nine ; men, one hundred and eighty-two ; and children, one hundred and fifty-four,’—but he now kindly prepared for a nice quiet morning of discovery on the 9th with his friends, and retained no more than ‘ seven Reis and sixteen men.’ Mr. Hill, however, seems to have been the only one of the trio written to, who actually arrived ; so with him the Colonel immediately visited the tomb, and then ‘ found the sarcophagus entirely empty, excepting a few trifling ornaments of stone.’ This, too, was the invariable result found also with every other sarcophagus in this remarkably strong tomb of the time of Psammetichus the Second. Not a single corse of all those honourable functionaries of



Memphis, for whom the place had been erected and surrounded with triple enclosures, had been allowed to rest in peace ; though who were the spoilers, and when they spoiled,—whether Persians, Greeks, Romans, or Arabs,—there is nothing left to tell.

So the very next day the untired Colonel was at his general excavations again, with nine Reis, one hundred and eighty men, and one hundred and sixty-nine children ; and had even increased them on April the 12th, to nine Reis, two hundred and five men, and two hundred and nineteen children. But the engravings on the sarcophagus he sent home, are fortunately capable of throwing not a little light on the belief that once animated the bodies which had been filched away. The vessel in question is of red granite ; sculptured on its lid in form of the deceased recumbent ; and engraved round about with hieroglyphics and devices of the solar disk, the heavenly scarabæus, and symbolical cobras rearing on their tails. On each side, too, is a procession of twelve figures representing gods and goddesses, either animal-headed or otherwise symbolized. All these are made to address the deceased under his burial name of Osirian, in the most flattering and comforting manner.

The first deity of the train, according to Mr. Birch, is Re, Ra, or Phre, hawk-headed, whose mode of address is, ' I, Ra, lord of the two worlds, ' the great god, lord of heaven, I illuminate the ' body of Osirian, let him not be troubled for ever

‘and ever.’ Second, the god To or Ture, having on his head the scarabæus, saying, ‘I, Ture, give admira-
 ‘tion to the Osirian, together with the guardian of
 ‘my arms.’ Third, Anubis, jackal-headed, ‘I, Anu-
 ‘bis, director of embalming, have come to thee,
 ‘Osirian; I fill thee with bitumen.’ Fourth, Taut,
 or Thoth, ibis-headed, ‘I, Taut, the Lord of Sum-
 ‘un, the pure god, I accord that thy name, Osirian,
 ‘be established in the divine writings for ever;
 ‘thou shalt be before the Tot gods, abiding with
 ‘and accompanying Osiris.’ Fifth, Nani, ‘I, Nani,
 ‘the greater mother goddess, do so and so for thy
 ‘good,’—but it would be wearisome to go through
 their twenty-four addresses, especially when we see
 now, how completely they have failed in their
 promises and prophecies to poor Osiris,—known
 amongst mortals under his earthly name, as ‘Sesose,
 ‘justified son of Taisemoukhi, superintendent of
 ‘the signet, chief purifier, scribe of the divine books
 ‘of Amoun-ra-sonther, and prefect of the Nile
 ‘Observatory, or abode of the immortals.’

Yet we may do well to remember that all this
 striking variation on the Great Pyramid and its
 coffer, or the second Pyramid and its sarcophagus,
 though it be exceedingly *extraordinary* when
 them,—is yet near two hundred years *before* the
 visit of Herodotus, ‘the father of history.’

Hardly three hundred feet, however, from Camp-
 bell's tomb, and lying straight east of it, within a

farther down the slope of the hill, lies the great Sphinx, exhibiting only the ridge of the very rude and mere rock-like back, head, neck, and shoulders above the *sand*. We infer that it must be sand, and to a depth of fifty or sixty feet, we are treading on,—because we have read accounts of excavations about the Sphinx to that depth ; but otherwise the said sand has got so strangely intermixed with large fragments of limestone, far too large to have been moved by any ordinary wind,—that there is not much difference between these adulterated sand-hills, and the heaps of masonry rubbish on the last portion of the firm hill north and west of this spot. Only where, for some reason, there may be a new hollow, there you see the latest driftings of pure sand ; either with a perfectly smooth surface, or with exquisite ripple-marks, in the distance like watered silk, and here and there the tape-like trail of a scarabæus that has manfully worked his laborious way right across this wearisome yielding sea.¹

Now as to the Sphinx itself, in so far as we can see it, there it is gazing out with its large, but now broken eyeballs, placidly to the east,—a huge head and shoulders, and little besides ; but whatever there is, appears all cruelly cut into by-the weathering of

¹ The acute Mr. Balfour Stewart, of the Kew Observatory, suggested recently that the occurrence of so many blocks of limestone on the older sand-hills might be due to difference of specific gravity, the said blocks rising like corks in water through the heavier sand ; and there seems much in the idea, for the limestone is very light, or has specific gravity equal to 2.1, while the sand, composed of round miniature pebbles of jasper, has a specific gravity more nearly equal to 2.6.

its rock, showing well-marked strata dipping slightly to the south-south-east. About the face and head, though nowhere else, there is much of the original statuary surface still ; occasionally painted dull red ; and the curvature of the cheeks and cheek-bones shows a certain degree of high sculpture, especially when we observe the scale on which it is wrought. Pliny gives the circumference of the head round the forehead, as one hundred and two feet ; but this, even granting the usual difference between Roman and English feet, is slightly in excess ; for having taken two photographs of the Sphinx from different quarters, with measuring-rods placed up against it to give the scale, I find they indicate the following numbers rudely,—

	Feet.
Head, height of from bottom of chin to top of forehead,	= 19
„ horizontal diameter on level of forehead,	= 23
„ circumference, at do.,	= 72
„ horizontal diameter near broadest part of wig,	= 29
„ circumference, at do.,	= 91
Neck, height of,	= 5
„ horizontal diameter,	= 22
„ circumference,	= 69
Breast, height of portion visible above sand,	= 13
Whole height at present above sand,	= 37

How much in depth is beneath the sand, of course our photographs tell not, but it may be nearly as much as what is above ; or, judging from Mr. Salt's drawings, taken at the time of Captain Caviglia's notable excavations down to the fore-paws, it may

be somewhat more. Such therefore must have been the height of the original limestone cliff which was chiselled out, as it stood, into this leonine monster; for it is reported to be all firm rock, except the two horizontal fore-paws, each fifty feet long and constructed in masonry.

Why and wherefore many travellers will go on calling this Sphinx 'she,' when there is nothing feminine about it, and when every large Sphinx yet found in Egypt has been an 'andro-sphinx;' or, according to Sir Gardner Wilkinson, 'an emblematical representation of the king, uniting intellect and physical force,' we cannot conceive. Yet they still persist; and the last Scottish minister who described his gallop through the Holy Land for the benefit of his parishioners, and had of course taken Cairo and the Pyramids in the grand tour, uses the expression roundly; as likewise does the last appointed United States consul to a Syrian station, who equally, or still more of course, must go the prescribed circle,—and then write out the impressions acquired, to enable his not yet travelling countrymen, while improving their lands in the new West, to realize mentally the decayed scenes of the ancient East. Still more remarkably, a French author of genius, whom we recently fell in with, perpetually raves of the beauty and seductive air of the '*fille*,' and '*demoiselle*,' who sits at the foot of the Pyramids in mystery sublime,—proposing to the men, who are enchained by her charms, impossible problems, and

then making them feel, when too late for escape, the sharpness of her cruel claws.

George Sandys also, two centuries earlier, was under much the same error, describing 'the Colossus, 'as wrought into the form of an Ethiopian woman, 'the face something disfigured by time, or indignation of the Moores, detesting images;' wherefore the present sad breakage and flattening of the nose is by no means a very modern mischief. 'Colossus' was the usual name in Sandys' time, though he admits that some men 'do call it a Sphinx,' and Pliny 'gives it a belly; which I know not how to 'reconcile unto the truth, unless the sand do cover 'the remainder;' but of that Sandys must have assured himself afterwards, as he confidently speaks of the upper part of the Sphinx representing a 'maide,' and the lower a lion, in order to 'defigure 'the increase of the River, then rising when the 'Sunne is in Leo and Virgo.'

The fact is, we must dismiss from our minds entirely all classic prejudices, and no more think of explaining this great Egyptian Sphinx, by the long subsequent Greek successor at Bœotian Thebes, than by means of the talking seal at Mr. Barnum's show in New York; for they belong to totally different ages, and diverse-minded peoples. If, too, this colossal andro-sphinx has no kingly beard now, that is because what *was* there originally, has been broken off amongst other modern dilapidations; but the sculptured blocks which formed it, have been

found in the sand ; and the accompaniment is given complete in the hieroglyphic *views* of the Sphinx, discovered by M. Caviglia on the tablets forming the small temple between its paws. But over and above that testimony, the massive build of the jaws bespeaks not only a man, but a very powerful one ; while the lamentable protrusion of the lower part of the face, combined with the low forehead, and large, as well as badly-placed ear, show a decidedly evil and animal-minded disposition, to which the huge wig adds no idea of fine æsthetic perceptions.

Yet Alee Dobree could not see anything wrong in the wig, and he said truly, that it was the custom in the country at the time for all people, women as well as men ; and so it is still, in some parts,—for we saw women with such thick mats of wigs having fuzzy tails of ancient horse-hair hanging down numerously behind their ears, that they looked as if plundered out of an old Egyptian tomb. ‘ Four thousand years their dusky wings expand,’ is a grand expression of a great poet ; and may be elevating as applied to marble ; but when appertaining to a dark, bushy wig worn by some one who comes close to you in a warm climate, it is positively hideous ; and yet, filthy as these ungainly head-dresses appeared to us, the little girls in Egypt were never so proud as when, for a particular reward any day, they were allowed for a short time to wear one of their elder’s wigs, and strut about like popinjays among their wigless companions.

There is little to be learned about the Sphinx from ancient authors, for it is hardly ever noticed by one of them before Pliny ; not, however, because, as with some modern enthusiasts, ' it must have ' been in earlier days still covered up with the mud ' and silt brought by the Noachian deluge, and only ' gradually brought to light in Pliny's epoch by the ' slow action of the winds in removing such cover- ' ing matter,'—but merely because the older travellers were so entirely taken up with the Pyramids, and more especially the Great Pyramid, as to care about nothing else. It was the fashion, indeed, in that day, to overvalue all the former and undervalue the Sphinx,—just as much as this last is now generally exaggerated in importance by the crowd. In the Greek and Roman day, indeed, men had the full Sphinx before them, body, fore-paws, temple, and grand staircase leading thereto from the plain,—and made use of it merely to mark upon its paws, or elsewhere, who had, or who had not, appreciated the Pyramids. For thus runs one of the inscriptions brought to light by Mr. Salt, well illustrating, too, how little some features in the characters of men and facts may be trusted, merely from their being found inscribed on an ancient stone.

'TO GOOD FORTUNE.

' Whereas, the Emperor Nero, *the good genius of the world*,
' in addition to all the benefits he has conferred on Egypt, has
' shown the most especial care of its interests by sending us
' Tiberius Claudius Balbillus as governor, through whose favours

‘ and acts of kindness, Egypt, beholding the gifts of the Nile
 ‘ yearly increasing, is now more than ever enjoying the proper
 ‘ rising of the deity, it has seemed good to the inhabitants of the
 ‘ village Busiris, who live near the Pyramids, to vote and dedicate
 ‘ a stone column, that it may preserve his godlike figure, and his
 ‘ name in sacred character, to be remembered for ever, both for
 ‘ having come to our nome, and for having worshipped the sun,
 ‘ Armachis, and for having been delighted with the magnificence
 ‘ and of the Pyramids.’

This inscription, like some seventeen others, found on various parts of the Sphinx, is in the Greek character; which had become, with the Ptolemys, the language of the upper classes of Egypt; yet there is still a something of the ancient land speaking through the modern dress, and the head of the Nero stone above quoted, is rather creditably got up, as an Egyptian imitation, with a solar disk and wreathing cobras,—which, after half enveloping the sacred orb, descend awhile, and then rear their heads and swelling necks on either side, in defiance to all comers.

In Greek likewise, but with far less of the Egyptian tone, is the plainer cut inscription of Arrian, so admirably Englished by Dr. Young:—

‘ Thy form, stupendous here the gods have placel,
 ‘ Sparing each spot of harvest-bearing land;
 ‘ And with this mighty work of art have graced,
 ‘ A rocky isle, encumbered once with sand;
 ‘ And near the Pyramids have bade thee stand;
 ‘ Not that fierce Sphinx which Thebes erewhile laid waste,
 ‘ But great Latona’s servant, mild and bland;
 ‘ Watching that prince beloved who fills the throne
 ‘ Of Egypt’s plains, and calls the Nile his own.

‘ That heavenly monarch (who his foes defies),
‘ Like Vulcan powerful (and like Pallas wise).’

But in truth, neither Greeks nor Romans knew, or had the opportunity, or went the right way to work to improve any opportunity, of approximating to the real history of the great Sphinx ; and the earlier of modern Europeans erred more widely still, in imagining out of the recesses of their minds all sorts of underground passages, from the Sphinx to either the Great or second Pyramid,—they could not exactly settle which. No real progress indeed was made until Caviglia’s excavation in 1818 ; for then, with the assistance of the earlier of the new-school Egyptologists, were immediately seen, on a granite slab, forming the western side of the little temple between the two paws,—the figure and Titles of King Thothmes the Fourth of the eighteenth dynasty ; and, on two side tablets, Ramses, or Remeses the Great, of the nineteenth dynasty, offering worship and oblation to the figure of the Sphinx, in a manner, and with accompaniments, which none but a pure Egyptian could have invented.

Of Thothmes the Fourth, who lived about 1410 B.C., the Sphinx is made to declare¹ in hieroglyphics, —‘ We decree that the Sun, the establisher of the
‘ world, shall be crowned on the throne of Seb ;
‘ that Thothmes, the crown of crowns, shall be
‘ adorned with the glory of Athom ;’ and again :
‘ We, Hor, in the solar mountain, grant life and

¹ Birch’s Translation in Howard Vyse—third volume.

‘ power to Thothmes, the lord of the world, the
‘ crown of crowns.’ And still again: ‘ In the first
‘ of the year, on the nineteenth day of Athyr, under
‘ the purity of Horus the mighty bull; the esta-
‘ blisher of diadems, the lord of the upper and
‘ lower hemispheres; established with dominion, the
‘ golden hawk, the director of the years, the Sun,
‘ the great God, the preserver of worlds,—we decree
‘ that King Thothmes shall wear the two crowns
‘ which compose the royal pschent; and sit on the
‘ throne of Seb, the youngest of the gods.’

Mr. Birch’s translation gives the commencement of the last quotation, as ‘ in the first year,’ which he understands as the first year of the reign of Thothmes Fourth, and then finds himself in a difficulty as to so vast a monument as the great Sphinx having been completed within a year. I have ventured, however, to insert the words ‘ of the ’ before the ‘ year; ’ because,—without saying anything for, or against, whether the Sphinx was formed in the times of Thothmes, or perhaps much earlier,—the whole paragraph seems to be plainly and certainly descriptive of that primitive year of the Pleiades, which Mr. R. G. Haliburton, of Halifax, Nova Scotia, has so abundantly shown, to have been a prehistorical tradition; and spread amongst almost all races of mankind in both the new and old hemispheres, and alike in the north and south. The leading characteristics of that year being,—that it began on the nineteenth day of Athyr, or November; when the Pleiades,—

or their containing constellation the Bull, the great *Tau* of the Egyptians, *Taurus* of the Latins, *Thor* of the Scandinavians, and *Attyr* and *Arthur* of the ancient Britons,—was on the meridian at midnight.

To continue, however, with the side tablets of Ramses the Great, who lived about 1350 B.C., it is there declared that ‘Ramses, beloved of Amoun, the chastiser of nations, the lord of diadems, offereth a gift of incense and of libations to Har-Hat the Sphinx, the giver of life, of stability, and of power, the director of truth, the ruler of the upper and lower world, the giver of victory and magnanimity, like the sun for ever and ever.’

Now, putting all these inscriptions, and others like them, together,—Sir Gardner Wilkinson concluded that the great Sphinx had been completed in the time of Thothmes the Fourth, and redecorated under Ramses the Great; but had been commenced under Thothmes the Third about 1460 B.C.—that king having been a great architect during his long reign of forty-seven years; and most persevering in carrying out some strange and eccentric flights of his own genius in that lasting art, or game, which, though perfectly peaceable, few but kings can play at. Here and thus then, if we may fully confide in Sir Gardner,—Thothmes the Third struck out the idea of representing himself as ‘the great glory of Egypt, and like the sun for ever and ever;’ allying his serene portrait with a lion’s body, both because the Egyptian king is supposed to resemble a lion among

inferior animals,—treading down and destroying ; and because the sun in the heavens is likewise symbolized by a lion, whose name, 'Moui,' signified also splendour, wisdom, and intellect. But in so doing, Thothmes III. was evidently making the great Sphinx statue by, and for, itself alone, and without any connexion with the Pyramids.

So far, Sir Gardner Wilkinson's conclusions seem to have been accepted by nearly all the world ;¹ especially after Mr. Birch's statement of the oldest known representation of a sphinx on either amulet, scarabæus, or mural inscription—being one 'on the erect obelisk at Karnak, where Thothmes the Fourth, under that form, is 'offering to Ré.'²

But within a short time past these views have met with a total denial by M. Renan, in the *Revue des Deux Mondes* for April 1865 ; not, indeed, that he refuses to admit the hieroglyphic inscriptions on the tablets saying all which has just been attributed to them,—but that he contends they have nothing to do with the formation of the Sphinx, and are as essentially posterior thereto, as are the Greek and Roman inscriptions under the later Emperors. Also that Thothmes the Fourth, and even Ramses the Great, were in fact mere cuckoos, laying their eggs in a nest built ages before their time, and for quite other purposes than their aggrandizement. Either

¹ Exception will be taken for W. Osburn's views, in our third volume, and we have since heard that Sir G. W.'s are somewhat changed.

² Howard Vyse's third volume, p. 116.

‘ a divinity itself, or representing the divinity of ‘ *Horem-hou* or *Armachis*,’ this great *Hou* or Sphinx, M. Renan contends is ‘ the most ancient ‘ idol in the world, and mounts up to a date far ‘ anterior to the Great Pyramid.’

This is surely a bold innovation on the teaching of the best hieroglyphists of the age ; but on what does it depend ? So far as we can ascertain, on these two statements,—*First*, that Mariette Bey has discovered an inscribed stone, now in the Museum of Boolak, stating that King Cheops, the very Cheops of the fourth dynasty and the Great Pyramid, besides constructing and restoring several temples,—caused sundry reparations to be made to the great Sphinx, ‘ whose image is given on the ‘ *stèle* as it was in the time of Cheops.’

Second, That the entrance passage of a neighbouring most ancient building, inclines to the Sphinx, in a manner which shows the Sphinx must have been the prior of the two.

Now, respecting the first of these statements, M. Renan himself adds in a note, ‘ The inscription ‘ is altogether so dazzling, that we may be allowed to ‘ reserve some doubts about it ;’ and in fact we *had* better do so, until both Sir Gardner Wilkinson and Mr. Birch give the world their ideas also upon the original stone. But the second is a plain mechanical matter, which we can look into pretty well ourselves.

Yet let us take breath for a while, before rushing

at a new subject, and of the ancient building order. Even on our chief Sphinx evening, and amid all the excitements of the scene, when Aleo Dobree offered to show us 'another tomb larger than any we had yet seen,'—we put off the project to another day, having our heads and note-books too full at the time to receive anything more with due advantage. So we returned to East Tombs ; and then, of course, the impressible Smyne was again before us with his eternal affairs of the heart.

He had been to the village of his new love, had been this impetuous Smyne,—his internal organ completely cured of all its recent lacerations, and rendered as tough as new, or like a piece of vulcanized india-rubber. He had been accepted, too, by the parents, after showing how much money he was prepared to pay down ; and was to have the betrothal very speedily gone through ; wherefore, every morning, noon, and night, from this time forth, there came some brother or cousin of the damsel to have ' a look at Smyne,' they said ; and also to test the truth of the magnificent reports he had been giving them all, as to the honourable situation he was occupying at East Tombs, of cook's assistant to Ibraheem ;—all which particulars the young men duly did test in their way, by drinking Ibraheem's coffee, and gloat-ing over all the pots and pans and kitchen implements,—some of which they prophetically expected might fall to Smyne's share, when the lady and gentleman should eventually leave the Pyramids.

And then, as for Smyne himself, he took so many opportunities of reciting to us the prodigious wealth, of his new fair one, in trinkets; the number of golden coins on her face-veil; and the rows of them strung upon her hair,—that we conceived her at last to be a very Cleopatra both in presence and personal adornment, and Smyne about to become a perfect Antony from his fatuous love of her.

Again, after a while, we set out on our walks, accompanied by Alee Dobree. My wife had much hoped to have been able to tame and civilize one of the Egyptian village-dogs, as an additional guard; for one of them having followed Reis Atfee to East Tombs on a special occasion, was so well pleased with what he got there, as to come again and again afterwards by himself. So, although the ancient Ibraheem looked rather askance at any favour being shown to, or good expected from, a *dog*,—she continued to feed him, and he to eat at every meal-time. A tall, lean, hungry-looking, half terrier, half greyhound sort of a dog he was, with erect ears and a triangular head, something between a wolf and a fox; in fact, the ordinary style of Egyptian dog, which is little more than a coarse-haired variety of the fox or jackal order, living under tacit permission in and about cities or burial-places of men,—but no more cared for or looked after by human kind, than are the hawks which one sees here perpetually sweeping through the sky and flapping over the fields.

Week after week the dog became fatter ; but somehow, its coarse stand-on-end hair would never lie down smooth ; he became therefore very fat, but never sleek ; he looked in at every meal-time regularly ; but came at a gallop across the sand-plains, and went away at a gallop too ; his only object, as the Arabs remarked, being 'to luncheon well, like the travellers at the Pyramid ;' and he declined all advances towards closer acquaintance or longer visits. The favours showered on him were unwearied ; but the longer they continued, the more it was proved that a few weeks, or even months, of kind treatment were not going to reverse the effects of long ages of Eastern pariah persecution to dogs ; and to produce in their dispositions, that delightful sympathy with man and his affairs so invariable with dogs of Europe, of Scotland more particularly,—any more than to convert the coarse bristles of the Egyptian dog's coat, into the fine silky hair of a well-trained spaniel.

At length the barbarous creature took to disgorging himself occasionally, and of all places just in the little court-yard before our bedroom tomb ; giving proof, too, that he had not been satisfied with the food given to him there, but that he must either have been visiting the graveyard, or feasting on the remains of some torn animal left by the jackals. On a repetition of the offence, therefore, the cry quickly got up—*imshee, imshee*, the Arabic for begone, begone ; and without more ado off he went,

and never came near East Tombs again during all the rest of our stay ; a dog of fortune evidently, and caring for no human being under the sun.

But now we are walking with the faithful Alee Dobree, hound for the great tomb ; the road is almost exactly that for the Sphinx itself ; we pass, indeed, under its very visage ; and, at hardly more than one hundred feet south-south-east of it, over a very moderate sand-heap, beyond which no one could well have expected to see anything but another sand-heap,—behold a scene, of which all our days at the Sphinx had given us no idea whatever. Before us now is an immense excavation, showing, at the depth of some twenty feet or so under the sand, an enormous palace-like building, in cyclopean, almost Stonehengian, architecture, and near one hundred and thirty feet square. In the interior are ranges of square pillars, horizontal beams from pillar to pillar, and massive walls, all of polished red granite ; while rising above, and closing them in on every side, are limestone walls, built of masses so huge, yet so well joined comparatively, and now so much weathered in horizontal streaks, as to appear like portions of an ancient cliff ; or to give one the idea of the whole place having been built in an excavated hole, like the Campbell's tomb affair,—only fifteen times larger. Yet, though now so low beneath the outer ground and on every side, there can be no doubt that this ruin,—which, for reasons presently to be

tendered, we shall call 'King Shafre's tomb,'—once stood up, by the full height of its external limestone walls, above all the ground immediately around it : and we can even see down to a considerable depth of the external side of its west wall, in one spot, where a deep pit has been dug in the sand outside, to expose the entrance-door, and render it somewhat accessible or permeable.

How these palatial remains could have escaped former explorers seems inconceivable, now that they have been actually uncovered ; for they are so excessively close to the Sphinx,—that Sphinx so popular with all excavators hitherto, and round about which they have all ambitioned to discover something : and where all have essayed to dig,—Lepsius, Vyse, Caviglia, Salt, and many others,—and yet they never found anything of the thousandth part the importance of this new discovery.¹ Nay, even the Greeks and Romans who scribbled their mementos on the now buried paws of the Sphinx,—even they knew nothing whatever of King Shafre's tomb close by them ; for the walls of crude brick, whose top may yet be seen, and which had early been built to keep the sand from invading the little temple of Thothmes, and the flights of stairs in front of the Sphinx,—must have

¹ It should be duly recorded that Sir Gardner Wilkinson claims to have been aware that some ruins were concealed at this spot ; but he does not seem to have expected them to prove more than any of the ordinary tombs scattered about all over the hill. An earlier notice will also be given in Chapter xv., from Dr. Clarke's *Travels*, which is the more curious, as the French *savants*, whom he immediately succeeded in 1801, are entirely silent about anything of the kind.

assisted in throwing the sands back, and heaping them higher over Shafre's tomb. Not even, therefore, in the day of Herodotus, nor the much earlier epochs of Ramses the Great or Thothmes IV., did any eye see, or apparently any mind remember, the marvel of ancient art, and the almost miracle of diverse sentiment concealed under the sand within a few feet of them.

Well, therefore, may M. Renan exclaim that this 'inappreciable monument' is the cream of all Mariette Bey's excavations; and that he, M. Renan, 'puts it at the head of all the results with which Egyptian archæology has been enriched within the last half century; a vast temple, absolutely different from all others known anywhere else, a monument absolutely unique and separated by an enormous interval from the temples of the classic epoch of the Amenophs and the Thothmeses; a temple no more like theirs than the ancient temple of Jerusalem was like one of the existing Catholic churches in Spain or Naples; but a striking confirmation of a celebrated ancient treatise of the goddess of Syria, falsely attributed to Lucien, which mentions, that formerly among the Egyptians, there also were temples without sculptured images; or, as Strabo was pleased to say, edifices of a barbarous order, with many ranges of columns, but without ornaments, and without artistic figures.'

Let us enter; the doorway is at the northern end of the west wall,—a portal formed of three red granite

blocks,—which we should think mighty in size, if it were not for the far mightier blocks of limestone mounted above, and causing the former to look quite puny. The modern external hole leading down to the doorway, is rapidly filling again with drifted sand,—which may consequently take something away from the height of the door-posts, and the proportions as to depth of the entrance passage beyond. But the sand-drift cannot give that passage its peculiar *azimuthal* angle, running to something like east-south-east, in place of directly east,—as it should do conformably with the due orientation of the building as a whole, and the consequent due east direction of the neighbouring north wall.

This position, however, of the entrance passage is as notable a fact, as the very existence of the passage itself; which, though open to the sky, is some five feet broad, and lies between red granite walls and low-roofed portions of the building, through the whole of its length. This passage, at its eastern end, emerges into a colonnaded space running north and south; having a similar arcade, but with a double, instead of single, row of columns running off westward, from its centre, between low-roofed masses, all red granite. While on the east, is a tall doorway through a giant wall of the same Syenite, which conducts at once into an awful room running north and south, sixty-one feet long,¹ twelve and a half

¹ More exactly, 731·3 inches long on the east side, 730·6 on the west, 152·4 on the north, and 149·7 on the south.

broad, and twenty high, all of polished granite ; and with a square sepulchral well, pierced through a floor of brilliant crystalline alabaster, near the middle of its eastern side. Yet this is not a final or closed chamber, for there is a low doorway at the northern end, leading into, it may be a porch, or it may be a closet broken down at its eastern side, but there is at present too much drifted sand to allow one to distinguish which.

Sand is indeed now fast drifting into all parts of this temple-tomb, and the floors are everywhere more or less covered therewith ; though wherever Alee Dobree scraped a hole, he showed the virgin purity of alabaster blocks beneath. Amongst other masses, too, of ruin encumbering the interior, were at one place a huge mass of red granite, and reclining against it a smaller one of white alabaster, or rather arragonite ; as tender and refined in its construction, as the other was rough and strong,—an accidental simile of the Sun and Moon, as Milton's ' male and female light, which animate the world.'

The granite of the walls must have been everywhere smoothly polished : but a process is setting in now, of a skin-thickness of it exfoliating, and leaving the remainder masses sadly rough. Strange, too, appear to have been the actions of time, united with pressure, upon the massiest blocks of granite ; as, for example, on the pillars and their upper cross-beams. The pillars, some fifteen feet high or more, and monoliths of course, are all square in transverse

section, some measuring thirty-nine by forty-one inches in breadth and thickness, others thirty-nine by fifty-six inches ; and the beams, which may measure something similar taken joist-wise, must plainly have had to bear immense strain with the covering of twenty feet of earth above them for three or four thousand years. Yet none of them have broken in the middle ; they have always, either the beams or the pillars, been decomposed or fissured at the point of contact : and then, on the bearing surface being no longer level, the supported block has fallen. Horizontal beams have evidently once extended from pillar to pillar along the whole length of the grand north and south galleries ; while the chief of them yet remain in the shorter, but broader, western offset,—connecting the pillars there of each row lengthwise, and the first of each row eastward in the cross direction also.

No pillar, however, has fallen yet, or is to the eye even sensibly inclined. So good must be their foundation, so true must have been their original placing. But for what purpose, and when, could all this magnificent work in the costly material of the quarries of Syene, between five and six hundred miles from here, have been erected ?

We pace the whole building inside and out, but neither on granite nor alabaster, nummulite limestone or Mokattam blocks (some of which appear here and there of small size and accurately cut, as a partial lining to the ruder masses of the former),

on no part of the building can the smallest trace of hieroglyphics, carving, or engraving be found ; and, as M. Renan truly says, 'not one ornament, not 'one sculpture, not one letter.' No Greek or Roman inscriptions either ; nothing but some chalkings of last year's 'travellers,'—whose broken champagne-bottles, half hidden in the deep sand under doorways, threaten to disembowel cruelly any venturesome man, who shall crawl snakelike through the low opening, to gaze on the ancient halls beyond.

This absence of the arts both of painting and sculpture, reminded one instantly of the interior of the Great Pyramid, as well as that of the second Pyramid ; and the eastern room, at first sight, with its granite walls, was thought to resemble the King's chamber in the former. But a very short examination of the 'joints,' proved a signal contrariety of building ; amounting to, either that Shafre's tomb was built out of the mere odds and ends of granite that were to spare after the completion of the Great Pyramid,—whence the strange diversity in thickness of courses, and change of thickness in one and the same course, with one stone curiously cornered into the substance of its neighbour :—or, that the one building had had nothing to do with the other. And this is the more probable conclusion ; for the style of architecture of Shafre's tomb is rather, and even eminently, that of the finishing of the lower part of the *second* Pyramid, with its granite-lined entrance passage, and rude surrounding limestone

masonry ; while, more eminently still, is the exterior of Shafre's tomb in the style of the so-called temple, on the eastern front of the same Pyramid.

The lining of that temple is gone, and no man has alluded to it ; but then we had evidently seen its smashings in the unnumbered fragments of red granite and white alabaster, lying about both inside and outside its cyclopean walls of limestone. We had seen, too, so many fragments of worked basalt, greenstone, and diorite, as to regard its neighbourhood as a quarry for such things. What then were they, or what purpose had they once served ?

Why this, is an indication of what they must have been, judging from King Shafre's tomb ; for in the square well of the eastern chamber, now one hundred and five inches deep to a water surface, and the water some seventy inches or more in farther depth,—there it was, that Mariette Bey discovered his celebrated statue of the ' Pyramid King,' now in the Museum of Boolak (see page 14),—together with a variety of other figures in diorite, basalt, and greenstone ; but all more or less broken up, ' as if precipitated into the well for destruction's sake, by the hands of revolutionists or the enemy.'

They were found, as I understand, under the level of the water ; and on looking into the well presently, a European would have hardly any other idea of such a shaft, than that it had been dug for procuring the needful fluid. Yet the shape is that of the sepulchral wells of old Egypt ; and even if there

be much water in the lower part now, representing the general level of the water in all the wells of the neighbourhood,—it need not have been there four thousand years ago ; for, in that interval, the height of the bed of the Nile, with its yearly thin deposits in this latitude, has risen probably one hundred and seventy inches at least. Hence it is quite probable that there were formerly horizontal sepulchral chambers constructed at the root of this, at the time, dry well in Shafre's tomb ; and that the spoilers ransacked the coffins, and broke all the larger statues there, where they stood, or lay.

But, even if it were so, such subterranean apartments were not the only places of sepulture in the building ; for under Alee Dobree's guidance, we crawled through a series of low chambers close to the north wall, all massively constructed in polished granite ; and then into others between the entrance passage and the western corridor. One of these, two hundred and eight inches long, one hundred and twelve high, and ninety-two broad,—had a granite roof ; but its walls, all excepting a small lower course of granite, were of pure alabaster, one single block of which measured one hundred and ten inches long and sixty high.¹

¹ The following sizes of special granite blocks were observed :—

A block of red granite over doorway of east room,

south end, = 138 in. × 38 × 47

Do., forming south part of west door, . . . = 136 in. × 60 × 43

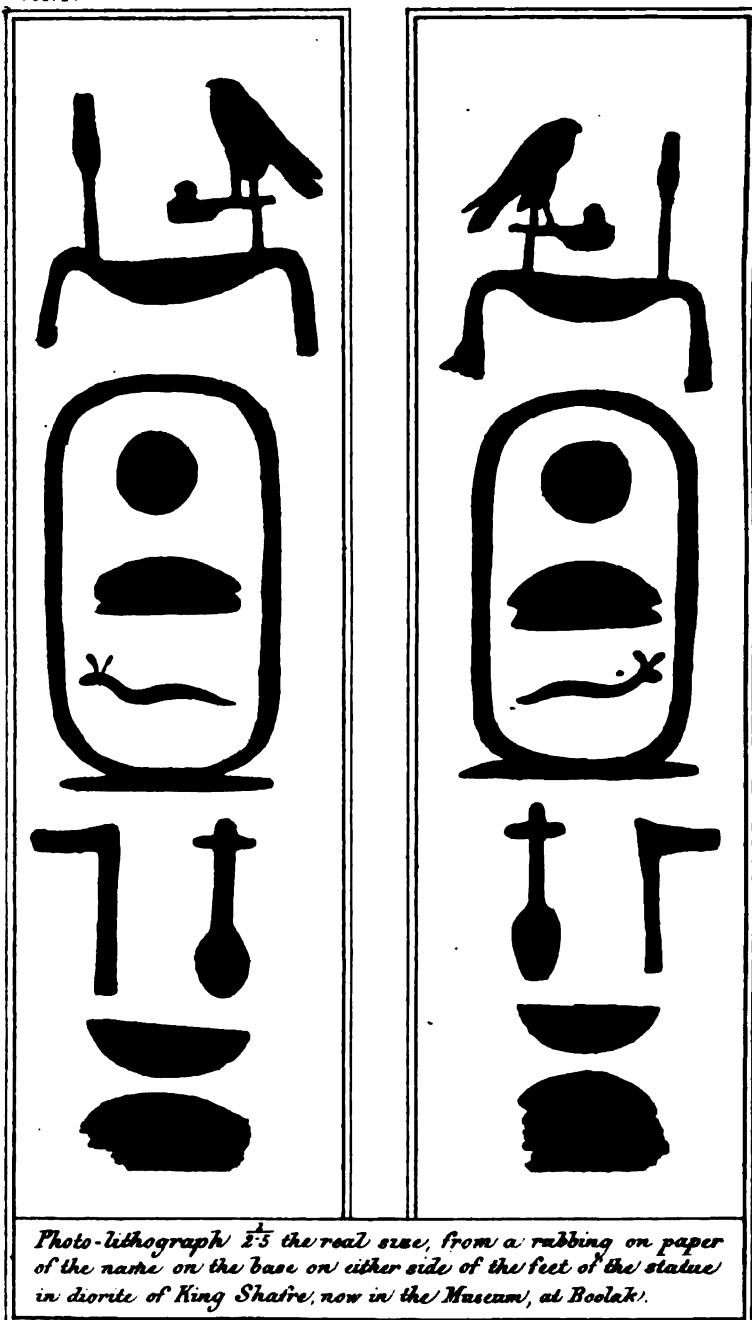
Do., in fifth course of east room, . . . = 120 in. × 59 × x.

The five courses of east room measure in depth, 59, 62, 42, 42, and 42 inches respectively.

We next visited the mass of covered building within the south-west corner of the general enclosure. There was a grand entrance there worked in polished granite, but the interior was quite taken up with masonry dividing its whole space into two storeys, and each of them into three gigantic pigeon-hole spaces,—every one measuring two hundred and thirty inches long, fifty-eight broad, and seventy to one hundred high. The divisions between these were massive in the extreme, and noble too, for the upper set had alabaster walls, while everything else was of polished red granite ; on retreating too, we observed that this whole section of the building, or rather these six grand recesses, were once closed up securely by weighty doors of stone,—whose pivot-holes, several inches in diameter, may be still seen in the upper and lower part of the doorway on either side.

These long air-tight or darkened cells, then, closed by ponderous doors, requiring immense exertions even to move them,—and whose pivot-holes by the way, while bearing full testimony to the weight they had to carry, indicate they were very rarely employed to assist in rotating these masses,—can hardly be looked on as anything but sepulchres of the dead, and more after the Syrian than the Egyptian manner. For the latter, gave each defunct king a house to himself ; while the former, had large chambers where one king went down after another to join the ghastly council of his predecessors ; who, thereupon, were poetically supposed to turn uneasily





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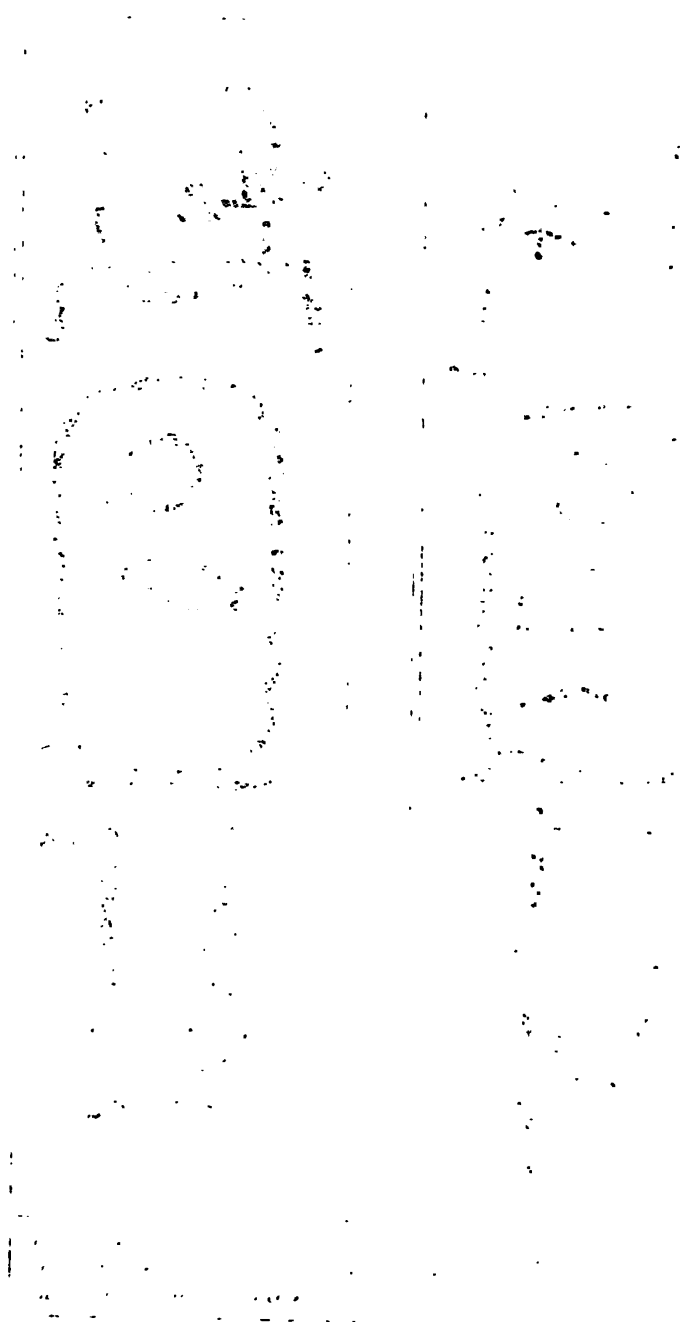
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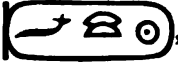





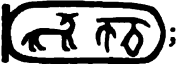

in their resting-places, and address each new-comer accordingly as his career in life had been. But there is nothing in any of these recesses now ; and if Syrian tastes had anything to do in fashioning them, it must have been at an earlier period than any historically known inroad of that race into the valley of the Nile. For, not only does the mechanical style of the building generally connect it with the second Pyramid of Jeezeh,—but the diorite statue found in the well, has engraved on it a cartouche of one of the kings, of the fourth dynasty according to some, or of the fifth according to others, who make that dynasty simultaneous nearly with the fourth, in time, though successive in mere numerical nomenclature.


This cartouche , variously translated by different Egyptologists, Shafre, Sephres, Chephren, and Chabryes, has been the subject of so much misapprehension,—that we applied to some valued English friends in Cairo ; and, by the kindness of the ladies of the family (who went to the Boolak Museum for the purpose), are enabled to present our readers, on Plate VII., with a photolithographic copy of a 'paper pressing,' representing the two repetitions of the royal cartouche, as it exists on either side of the pedestal of the statue. In that Plate, accordingly, the cartouches appear 'nature-copied,' with all their heraldic accompani-

ments, and without either addition, subtraction, or alteration by modern human tastes or fancies.

These two close representations of each other are, moreover, as we understand, the sole traces of any hieroglyphics on the diorite figure ; and will therefore doubtless be insisted on by all hierologists as proofs indicating, not only the king whom the statue represents, but as testifying also to the work having been constructed by his order and during his reign. For, had the statue been prepared subsequently by another king in favour of Shafre, then, according to all Egyptian precedent, the inscription would have taken especial and even religious care to say so.

There are those, however, who tell you, and Baron Bunsen is amongst the number, that King Shafre, or , 'built the Great Pyramid,' 'in part, if not in whole ;' and they found chiefly on confusions in the Greek accounts, which put sometimes the name of the principal king who built the *second Pyramid*, in place of the name of the *second king* employed on the Great Pyramid. But of the following local fact, ascertained in our own times, all men may rest most positively assured ; viz., that the oval of Shafre, or , has never yet been found anywhere in or upon the Great Pyramid. In the quarry-marks, indeed, on concealed surfaces of stones found in Howard

Vyse's excavations there,—some kings' names have been found, as , , and ; but these are by no means translatable, or have been attempted to be translated, into 'Shafre,' as we shall show farther on; and they are evidently very different from .

Wiser, therefore, are they who attempt to connect the name of Shafre , if he must be looked on as a 'Pyramid king' of some kind or other, with the *second Pyramid*; for, as no name whatever has been discovered there, in quarry-marks or otherwise,—the place is in so far still to let; while the extreme difference in the style of building between the upper or more perfect, and the lower or ruder portions of that monument,—indicates that the names of two different ages of kings may be expected some day to turn up there. Architectural resemblances, moreover, as we have already remarked, seem to be in favour of the designer of Shafre's tomb having probably had something to do with the basement of the second Pyramid.

But now there comes before us the most serious and important assertion of M. Renan, with respect to the great Sphinx, to examine; viz., the second of

those detailed on p. 333 ; for it is entirely founded upon mechanical features of King Shafre's tomb. M. Renan calls this edifice a temple, and after asking, 'To whom was it dedicated?' answers confidently, 'Without doubt to the Sphinx, or rather to the divinity represented by the Sphinx, *Horem-hou*, or *Armachis*;' and his reason is this, viz., 'The temple, it is true, does not face directly to the Sphinx ; but the passage of entry inclines with purpose towards the colossal monster. It is probable that a construction already existing had hindered the placing of the temple more directly in relation with the image of the god to whom it had been dedicated.'¹

Now here, M. Renan has seized with his characteristic shrewdness, on a signal feature of importance in all the works of the Pyramid builders, viz., the angle of any entrance passage, whether in vertical or horizontal plane. And as we do not violently disagree with him, in considering the building which he calls Chephren's temple, and we Shafre's tomb, to be probably about as old as the Great Pyramid,—why, such a direction as he ascribes to the entrance passage,—must have the effect of proving the Sphinx to be older than the building containing such en-

¹ 'Qui l'a bâti? A qui était-il dédié? Il est permis de répondre à ces questions; c'est Chephren, le troisième roi de la quatrième dynastie, le successeur de Cheops, qui l'a fait élever.

'A qui le temple était-il dédié? Sans nul doute au Sphinx, ou mieux à la divinité, représentée par le sphinx, *Horem-hou* ou *Armachis*,—l'image du dieu auquel il était dédié.'—Ernest Renan, *Revue des Deux Mondes*, April 1866, pp. 675, 676.

trance passage ; and therefore probably older also than the Great Pyramid. Hence, it only remains to examine whether the passage be really so inclined,—and then Sir Gardner Wilkinson's and Mr. Birch's very much later dates of Thothmes and 1460 B.C., for the invention of the Sphinx, are gone for ever.

Now, it so happens that we took several photographs from the East, looking over the entrance passage of Shafre's tomb, and including the monuments beyond towards the West. And having these glass pictures still in our possession, we can refresh our memory therewith, and say—that said entrance passage does in so far accord with M. Renan's theory, that it is *nearer* a direction of 'towards' the Sphinx, than would have been any passage going rectangularly forth from the western wall.

But in a case of the marvellous precision worked out in the angular directions of Pyramid entrance passages, it is not enough for any modern hypothesis to affirm, that it agrees within such wide limits as 'towards' whatever the ancient builders really pointed to. The test is, does it point to the same thing, and if not, by what amount does it miss the mark ? Is it by something within the error of good modern observation, and therefore of ancient execution also ? or does it deviate therefrom by an amount, which it would be a positive insult to a Pyramid architect, to suppose him incapable of taking account of ?

Here M. Renan's theory evidently requires that

the passage shall point not only *towards* the Sphinx, but *to* it; and not only to it generally, but to it in such a manner as to indicate respect for the deity represented, viz., the great Horem-hou, or any other. The passage, therefore, should point not only to the Sphinx's face, but rather to the staircase of approach leading to the small temple between the two fore-paws, and just under the face. Does, then, the passage point in that manner?

We examine the faithful testimony of nature's own painting; and state that,—the passage does not incline far enough north, to hit that staircase; nor enough to come upon any part of the paws; nor enough to come upon the face; nor enough to come upon the shoulder; no, nor even to come upon any part of the body; but actually gives the entire Sphinx, one hundred and seventy-seven feet in length, the go-by completely,—passing on westward quite clear of the monster's last projection towards that quarter!

Oh M. Renan, M. Renan! why did you not either make a survey, or take photographs before you founded so much of history and comparative chronology, on the belief of a mechanical agreement which does not exist! But some one may imagine the case as yet only half proved; and therefore ask, 'If the inclined passage does not point to the Sphinx, is there anything else nearer to the direction in which it does point?'

We will try to satisfy so reasonable a querist.

One of the photographs is taken from a position admirably suited to settle the question, for one side of the passage forms a vertical line near the middle of the picture; and placing a neat ivory straight-edge on that line, and following its course into the distance,—behold, it enters precisely the central opening of the middle of the eastern side of that wondrous and often discussed temple on the eastern front of the second Pyramid; between which temple and Shafre's tomb, both M. Renan and ourselves have otherwise detected a community both of art and composition!

We returned home to East Tombs very happy from that visit to the gorgeous granite linings of King Shafre's apartments; and then found the ancient Ibraheem standing on a corner of the rock, overlooking some village children bringing the evening supply of water. Among them was a little girl of some nine or ten years old, very cheaply got up as to dress, in only two pieces of blue calico; she carried, moreover, such a mere cupful of water on her head, that her assistance in filling the great water-filters might easily have been dispensed with; but then, she was the daughter of poor parents, into whose hands the charitable ideas of Ibraheem wished some industrious pennies to fall.

There was an expression though on his countenance all the while, which indicated a feeling in his mind, that he was bound to improve the occa-

sion still further, for some one or other's edification, even though he should overthrow certain magnificent castles in the air. So, looking first down on the poor little mite of a child, and then partly turning towards ourselves in the dining-room tomb, where he knew so many Arab tales of wealth and grandeur had been laid off,—he ejaculated like a despairing preacher, but with large pity and much commiseration in his tone, 'There,—that's just the 'size, of Smyne's new bride!'

CHAPTER XIII.

ANTECHAMBER AND KING'S CHAMBER.

GREAT was the physical satisfaction after accomplishing all the measures required in the Grand Gallery, with its sloping floor, and the pit yawning at its bottom, so ready to receive whatever unfortunate thing should go helplessly down the too easy descent,—great indeed the satisfaction, to be walking thenceforward on a level ; (this level beginning with the great step at the top of the Gallery, and then continuing by a horizontal floor to pass southward through a passage, lower indeed in height than any yet measured, but very short),—and so gain the antechamber ; and from that, by another short and also level passage, to reach the King's chamber.

In this course, too, at a little space within the north end of the antechamber, we enter upon the *granite* constructions of the Pyramid, whatever they may mean ; every single stone hitherto seen, whether outside the Pyramid or in, and whether in walls, roof, or floor, with the sole exception of the portcullis blocks at the beginning of the first ascending passage, having been of limestone. Now,

this change in the mineral of construction is a very plain and simple fact, touching which there ought to be no uncertainty whatever; yet such is the literature of the Great Pyramid, that not a few honest readers may be of a directly opposite belief; and even have some one or another book of repute to refer to, for the opinion which is in them. Thus, as to where granite is first to be met with, a thorough read scholar may prefer Baron Bunsen for his deep German learning,¹ against the world of British observers; and will put every such mere mechanical man down at once with the well-turned sentence, from pp. 164 and 165 in volume ii. of the noble *Egypt's Place in Universal History*,—declaring the whole Queen's chamber of the Great Pyramid, whose salt-bearing *limestone* we have already treated of, both from observation, touch, and taste,—‘to be entirely built of granite.’

When the contradictions are so absolutely flat, any ordinary person who has seen with his own eyes,—is really puzzled to know what to do, or how to proceed decorously; especially when he finds the oligarchy ruling high scientific society is set dead against admitting, from any minor quarter, statements which may detract from the prestige due to a great fame, or established foreign name. For the present, then, we will merely suggest, that Baron

¹ ‘Germans, who in all matters of research are immeasurably before the English: exhausting a subject.’—L. A. Brooke's *Life of Rev. F. W. Robertson*, vol. i. p. 321.

Bunsen, never having been in Egypt, cannot be taken for an original authority on the construction of any part of the Pyramid; while, as to the accounts which may be found in the works of some who *have* been there, they should not be held as representing more than very moderate weight, if their authors were at the Pyramid only once in their lives, and for a short part of a single day. But what shall be said, then, when a traveller, who was there for *two* days, is brought up with a positive contradiction of our long-continued observations? Well, such a reporter, let us confess freely, should be a little more trustworthy than him of one day only, but still not to be taken very much notice of in disputed or difficult cases,—unless, like Dr. Richardson, who published his two elegant volumes of *Travels* in 1822, he should acquire considerable popularity in higher quarters; and his visit to the Pyramids be otherwise alluded to as quite an event in their modern history, for the reason partly, that it was made in company with the ‘Earl and Countess of Belmore, Consul-General Salt, etc. etc.’

Now, we do think there is something in this last reason; not only because every Consul-General in Egypt ought always to know something of the greatest monument of the country,—and Mr. Salt was, after that manner, a perfect prince amongst Consuls-General, dividing the attention of the antiquarian world for many years with Signor Belzoni himself,—but because the Doctor had the further

advantage of living much in the classic-minded and literary society of Earl, Countess, and other members of the noble family, whose honoured surname is Lowry-Correy ; and who are not only confessed by him in his Dedication and Preface to have given him some new and important ideas, but are unintentionally indicated in the course of the narrative, as having imparted intelligent thoughts very extensively, and nowhere with more point than in the chapter upon the Pyramids.

Many parts of that chapter, more especially those on the inferences to be drawn from the few fragmentary and most anomalous notices handed down by historians, touching the moral and political characters of the different Pyramid kings,—are excellent indeed (though unfortunately not further enlightened by John Taylor's original and deeper views on the subject), and doubtless came from the same superior soul who taught the Doctor afterwards, on the walls of Jerusalem, how to read the Book of Nehemiah. But when we come to one of the Doctor's pieces of direct observation on physical and scientific matters, where, of course, it is then the medical man, who speaks from his own professional knowledge, it is thus he writes of himself :—' The descriptions which ' it (his book) contains, were written when the ' place or object described was before his (the ' author's) eyes, and though he has consulted many ' authorities since, yet, in cases of difference, he has ' uniformly adhered to his own.' Turn we then to

this seldom fallible author's description of the interior structure of the Great Pyramid,—and we find him beginning to see granite immediately ; for 'the entrance,' says he, 'is a small narrow passage, of about three and a half feet square ; it is lined above and below, and on each side, with broad flat blocks of large-grained red granite, smooth and highly polished.'

In the first part of the passage, indeed, his attention was rather disconcerted by having to direct it medically upon another matter ; viz., the best method, according to the Faculty, of descending one of those steep passages. 'Some,' writes he, 'take off their shoes, that they may apply their feet better to the floor, and be less in danger of sliding ;' but that, he pronounces firmly to be 'a very bad plan ; as it is likely to induce affections in the bowels, or to awaken a latent attack of gout, and other diseases to which there may be a predisposition.'

Again, before leaving the Pyramid, and after having had the experience of all the other passages and chambers, some of them truly granite-lined,—the party descended to the very lower end of the long entrance passage, to see the then recent discovery of M. Caviglia ; viz., the large subterranean chamber of the Great Pyramid. And then, at that lower end of the long passage, which, according to Howard Vyse, Perring, Wilkinson, and others, is, from near to Al Mamoon's hole down to the bottom, simply cut

out of the solid nummulite rock, the too confident Doctor, writing of what was before him at that lower, as well as previously at the upper, end, says, —‘This passage, as has already been mentioned, is
‘ lined on all the four sides by finely polished slabs
‘ of large-grained red granite of Assouan, commonly
‘ called Syenite; this must have been done at a
‘ great expense, the distance being between five and
‘ six hundred miles. The stones are remarkably
‘ well cut, and well fitted to each other.’

Yet, for all this anomalous granite finding, there is an abundance in the chapter well worth reading; and the following sentence has its peculiar value:—
‘ The whole of this memorable spot, the site of the
‘ Pyramids, and Sphinx, is filled with excavations,
‘ structures, and mausoleums, of the most interesting
‘ and instructive nature, so that many ages of men
‘ would not be sufficient to examine and describe
‘ them; *and the traveller who could bound his
‘ curiosity to explore their contents with accuracy,
‘ would perform a more instructive service to his
‘ fellow-creatures, and more gratifying to an in-
‘ quisitive mind, than if he had galloped over
‘ thousands of miles, and only detailed the general
‘ aspect of the country that he passed over.’*

Had indeed, many travellers acted in this manner, the printed stock of knowledge touching the facts of the Great Pyramid, would have been vastly more accurate than it now is. At present, I will only state, that Howard Vyse, and Perring’s large views

of the Pyramid,—views formed on months of long and intimate acquaintance with the interior,—are exactly in confirmation of my own, as to where the granite linings and constructions begin in roof, walls, and floor of antechamber.

Now this antechamber, though very small, say, eleven feet long, five broad, and twelve high, roughly,—is such a puzzle as to the nature and meaning of its contents, that I must have been there for two or three observing days,—mounted chiefly on a short ladder, which is necessary for the higher parts,—measuring, re-measuring, and testing again the notes of former measurements. The engravings of the great French work are here much to be commended, both for giving certain side-hollows in the floor, which I have seen in no other representation, and likewise for showing the southern end of the chamber, not with five vertical lines, as indicated by Greaves, Caviglia, and various other authors,—but as a space symmetrically divided through the chief part of its height, into *five* equal, vertical *spaces*, by *four* vertical lines; lines deep, hard, and clear, which run through the whole of that wall from its top in contact with the ceiling, to its bottom, as terminating in the passage roof, leading to the King's chamber.

Colonel Howard Vyse is also a trusty guide on those four lines, as he further is on the difference of height of the granite wainscot, twelve inches thick

on either side of the room ; for he makes, agreeably with the French authorities, the western one the higher of the two, and garnished at the summit towards the southern end by three semi-cylindrical hollows ; one of them being at the top of each of the broad, flat, or rectangular vertical grooves, in which men have said that three portcullises of stone slid, to defend the approach to the sacred chamber of the King. And this theory is, in so far, very tenable, because the eastern side has three opposite vertical grooves, of equal breadth and depth, though not quite the same height ; and large slabs of granite *might* mechanically slide up and down there, across the room, very well. The southernmost block, too, would be actually in contact with the southern wall of the chamber, completely closing up therefore the mouth of the passage beyond ; and, excepting the grooves, unless the stone had corresponding ridges, not allowing even a fly to pass in.

Hence that block would have made a *good* portcullis, and have been assisted in its duty by the next two, sliding in the adjoining grooves ; each of the grooves being twenty-two inches broad, and separated by ribs of granite five inches thick ; ribs, once left projecting from the wainscot, like pilasters, —but now nearly knocked away, bit by bit, to furnish specimens for ‘travellers.’ What however shall we say to the ‘granite leaf,’ which is still to be seen in yet a *fourth* pair of opposite grooves in the wainscot, measuring from the south, and the *first* pair, mea-

suring from the north? That pair of grooves at least, has still its granite blocks in hold, which the others have not, and are never even reported by any writers to have been seen in possession of; wherefore most travellers insist at once on the 'granite leaf' (that happy name of Professor Greaves for the sheet of stone hanging forty-three inches above the floor, and about the same amount below the roof),—they insist on this granite leaf, having formed a fourth portcullis.

Even Colonel Howard Vyse was of that opinion. And although he saw, as any one else may still most plainly see (the French drawings being, however, here not quite exact), that the suspended stone *never has* formed a portcullis; and for the simple reason that its lower edge has never been down below level of the *top* of the passage, because the stone grooves in the granite (and there partly limestone) wainscoting on either side, have never been cut, beginning from the top downwards, lower than that height;—still the Colonel maintains that it was an Egyptian tomb custom to lower portcullis blocks by cutting out the grooves below them as they stood, and so allowing the heavy blocks of stone, with the advance of the chiselling, to sink slowly down once and for ever. Wherefore, he argues,—the granite leaf was *intended* to have been made into a portcullis.

But then we may ask, not only how it came about that the granite leaf never *was* lowered like

the three other thicker and reputed portcullis blocks, whose grooves *are* cut down to the floor, and to a few inches lower still; but why, even if it was only *intended* to be lowered, why was it so beautifully and firmly *cemented* into its present elevated place, as we now find it to be; and by means of the more precious cement of the pure white order of the Pyramid? Why, too, is it full six inches less in thickness than the other three blocks? and why is there no semi-cylindrical hollow over the groove at its western end? All these are weighty questions; and then comes the more important one still, that even if that stone were to be lowered now, it would not make an effective portcullis; for its northern side, in place of being in contact with the northern wall of the antechamber, is actually twenty inches or more therefrom,—so that a man may with ease enter the room, whether such an attempt at a portcullis as the granite leaf, be down or up; and as its own height is only about a third part that of the room, the same man can always with equal ease either climb over or under it, at whatever possible height or distance between floor and ceiling it may have been left suspended! (See Plate XII. vol. ii.)

Now this was an idea, the possibility of which had occurred to me in Scotland, when considering the published views of the antechamber, and discussing them in the light of respect for the intelligence of the Pyramid architect; it was there-

fore not a little satisfactory to find, on actually visiting the place, that I *could* stand between the granite leaf and the northern wall of the ante-chamber; and could both creep under or climb over it, as it stood there firm as a rock, both cemented into its hollow, resting on firm granite, and in nothing whatever like a portcullis. But what then took me by surprise was, finding that even that granite leaf, though comparatively puny in size to all the principal stones about it, was yet not formed in one piece, but of two, one placed above the other; and the upper, with a very curious, and, for the Pyramid, perfectly unique, adornment of a semi-circular form, raised about one inch above the general surface, and bevelled off on either side and above,—forming thus a relievo object, seven inches broad and seven high at its inner outline, and five broad and five high at its outer surface.¹

On the whole, it looked amazingly like a handle whereby to pull the upper half of the granite leaf upwards in its grooves, away from the lower half, and,—as was suggested to us,—perhaps disclose a small hollow space, containing the key of the whole Pyramid. The grooves, too, for sliding the block upward, are open, smooth, and ready for such a movement,—but the blocks themselves, as already stated, are cemented into their places; and then—I

¹ The duplicity of the granite leaf, as well as the existence of the raised ornament, though signally unrepresented in the beautiful French engravings, are well given in the large Pyramid views of Vyse and Perring, which I only became acquainted with on my return.

was bound to the Egyptian Government, not to 'break the Pyramid.' Had not M. Vassalis, too, told me, long before, 'When Mariette Bey comes down 'from Upper Egypt, he will lift all the great stones, 'and do any heavy work you require'? So, thinking on these things, and trusting all the promises made to us,—we went onwards with our candles and measuring-rods, into the King's chamber.

Now, if there is a place where a visitor should be cautioned as to his head, it is this last passage leading into the grand room of all ; for, after straightening one's back in the antechamber for a time, the extreme stooping again to pass through a doorway only forty-three inches high is irksome ; and, if seen at all by the faint candlelight in the thick air, the aperture does not seem really so low, for the granite just above its northern entrance is grievously fissured, making an angular top to the door of some twenty inches increased height. A huge notch it is, and which, with a modern doorway about a brick and a half thick, would enable any one to pass through with very little stooping ; but, as this last Pyramid doorway is one hundred and twenty inches thick, and the broken-away part at the top only continues for a couple of dozen of inches or so,—the eager traveller, urging himself forward at only a half stoop, runs his head literally against a stone wall ; and the Arabs, as they pick him up severely stunned, merely say, with some annoyance on their own

account, 'What did you do that for!' Hence the golden rule is, to keep on stooping most submissively and humbly, until all of a sudden the altered echoes assure you of your having arrived within the King's chamber,—where you may then arise freely enough as in a harbour of refuge and safety.

A rather difficult room to ~~illuminate~~ is the King's chamber, partly from its size, and partly from the darkness of the ancient red granite of floor, walls, and ceiling. With six candles you begin to see it, and a magnesium wire clears up the difficulty immensely, so long as its light lasts; showing the exquisite proportion of the rectangular chamber; whose polished *flat* ceiling, dazzling with sparkling crystals, bespeaks an imperial power in the methods of the architect to bid defiance to the mountain-like pressure of the Pyramid: and yet produce a room of simple geometrical figure, in place of the vaulted, groined, or other roofs with compound curvatures, usually to be met with, and even thought necessary in all modern buildings which support what is now considered a great weight,—though it may not amount to a tenth part of even one of the courses of the Great Pyramid.

My first task here, was to measure all the joints of stones in the floor; and the first event, very soon after beginning, was of course the arrival of travellers and Arabs. But now it was easy enough just to withdraw all the measuring apparatus into one corner, on hearing the premonitory symptoms,

and look on at what should occur. And this is generally the order of the phenomena which followed on such an occasion, these occasions seldom taking place less frequently than two or three times every day ;—trio after trio of one traveller and two Arabs with short candles in their hands came stooping, waddling, and tumbling through the passage ; and when fairly within the four grand walls of the chamber, began to cheer, shout, and hurrah with all their might, the Arabs shaking hands with the traveller, and assuring him he had done splendidly. Sometimes the earlier-arrived one gazes a little around, and an Arab may call his attention to the coffer,—to which he then gives a kick and asks, 'What's that?' But more generally the trios merely accumulate in the middle of the room, renewing their hurrahs as the successive members of their party arrive ; and then they form a ring, in the midst of which one or another dances a horn-pipe, as they say, on 'old Cheops' gravestone,' while the poor coffer is banged for music,—and in five minutes they are all gone again.

The evanescence of these travellers' visits, when one was placed at their ultimate aim and object, was remarkable enough ; and reminded us much of the sudden manner in which, according to the Danish Captain Norden, they used also to be terminated more than one hundred and twenty years ago,—even in cases too, where they had begun with rich promise of something important in the way of

research and discovery. In that day the countrymen of Niebuhr, the successors of the companions of Tycho Brahe, seemed to be much looked up to all over Europe as scientific explorers *par excellence*; and at least, they *began* nothing without displaying largely the decorum of high purpose and dignity of noble resolve. Thus, indeed, the gallant knight of the Danebrog writes, in 1740,—offering thereby a shining example to all young civil servants and juvenile cadets going out to India now: ‘When you undertake,’ says he, ‘in the winter, to go and visit the Pyramids, you endeavour to form a company, as well to make the tour with agreeableness, as to be in a condition to observe everything in a better manner. Those that have been there, give an emulation to the stranger by their discourses, and assist him to make more exact researches, than he would do if he was alone.’

And the researches in the end, are found to culminate as follows:—‘When you are in this saloon (the King’s chamber), you commonly make some discharges of a pistol, to give yourself the pleasure of hearing a noise that resembles thunder; and as there is then no hope of discovering more than what others have already remarked, you resume the way by which you came, and return in the same manner as well as with the same difficulty.’

This is indeed a sudden bringing up of a rather inglorious consummation; but then the poor travellers of that time, had gone through remarkable

difficulties before they had reached this *ultima thule* of Pyramid exploration. For, on referring to the plain and unvarnished narrative of the honest Norden, he describes the beginning of the attack on the Pyramid's dark and mysterious interior in these portentous words: 'After such necessary preliminaries you must have the precaution to strip yourself entirely, and undress even to your shirt, on account of the excessive heat that there constantly is in the Pyramids.'

'You enter in this condition, into the passage, . . . when you are arrived at the extremity, where the passage is forced, you find an opening, which has barely a foot and a half in height, and two feet in breadth. The traveller commonly lays himself on the ground; and the two Arabs that went before take each one of his legs, and drag him thus through this difficult passage, over sand and dust. Luckily this passage is not more than two ells in length; otherwise the trial would be insupportable to any one that was not accustomed to it.'

'After passing this strait, you find a large place, now known as Khaliph Al Mamoon's hole, where you commonly take breath, and make use of some refreshments. This gives energy for penetrating into the second gallery, which is well worthy of observation; . . . at the end of this passage there is a resting-place;' and again, after surmounting the chief difficulties of ascending the Grand Gallery, 'you repose yourself a little at the end of the

‘ gallery, where you meet with a little platform ;’ while finally, after having ‘ done’ the King’s chamber, and with evident joy on his soul, the Captain writes the more cosmopolitan instruction : ‘ As soon as you are got out out of the Pyramid, you dress yourself ; wrap yourself up well ; and drink a good glass full of strong liquor ; which preserves you from the pleurisy.’

After disposing of the joints of the floor, I commenced with those of the walls, and presently stumbled on a very remarkable feature, and one which, in a geometrical and mechanical examination, demanded extreme attention ; it was, that the horizontal courses of granite forming the walls, whether composed of long or short stones, were always of the same height all round the room ; and every successive course from floor to ceiling was of equal height with every other. Now, any one who knows the various sizes of blocks furnished by a granite quarry, must be aware,—that before a continued length of blocks of equal height, accurately to the tenth of an inch, can be procured for a length of five hundred and fifty feet,—there must have been immense expenditure as to both money and labour in trimming down stones above the size, and throwing away others that were found below it. In fact we may say immense waste, unless some very peculiar reason can be shown *requiring* such equality.

Now the Great Pyramid builders, of all men in

the world, were the most admirably economical, never going to more expense, for either material or workmanship, than the final ends they had in view did absolutely need ; and they have shown again and again, in various parts of the structure, that when their ultimate object was merely a wall-surface, they looked only to securing that wall-surface good as a whole,—caring nothing for difference of size in the adjoining blocks ; so long only, as they broke vertical joint in a satisfactory manner, looking to strength. Similarly, too, Colonel Howard Vyse, while describing the extraordinary perfection of the *pavement* which he discovered in front of the Pyramid, and the microscopic fineness of its joints,—adds, that the stones were not rectangular ; and Mr. Perring's drawings show them very diverse therefrom indeed, though making a general sheet of pavement of unexampled excellence. When therefore those same ancient masons build a wall-surface, not merely with a view to its acting as such on the whole, but with special care to the exact equality in height of every course of stones, and these the most expensive and difficultly procurable of any building stones ; when, too, they make four such walls, all exactly telling the same operose and costly tale, and describe it with all that perfection of needle-proof joints so much lauded by most authors,—we may be sure that there was some remarkable ultimate reason wrapped up in that feature. A feature, too, which we may safely maintain, was

inserted by the original builders of the Pyramid, and no other men whatever ; and which speaks now in the universal language of mechanics,—as clearly and conclusively to all men, of all nations, understanding anything of good mechanical building,—as it did in the days of King Cheops to his own best trusted clerks of the mighty work.

When, moreover, we find that besides the equality of height in every course, their number is *five*,—the symbolical pyramid number ; and that in fact there are between floor and ceiling four horizontal joint lines, but five of the equal granite spaces,—why, we immediately recollect, that that is precisely the principle, turned through 90°, of the remarkable set of *lines* on the southern wall of the antechamber : those mysterious lines, which form the last markings of any kind seen by the traveller before he makes his final low stooping, wherewith to pass through that concluding low passage we have already mentioned,—and after which, he rises an erect man in the midst of the King's chamber ; finding himself there surrounded round and round on the east, west, north, and south, by the system of five equal granite spaces and four lines of separation between them.

Every traveller is environed by these things, but every traveller does not see them,—even though there was that sign over the doorway by which he entered, to call his attention to them. Worthy George Sandys, for instance, in 1610, writes of the King's chamber, which is to his mind 'very goodly ;'

‘ its stones so great that eight floores it, eight roofes
 ‘ it, eight flagge the ends and sixteen the sides,—
 ‘ all of well-wrought Theban marble.’ Our confident
 acquaintance, too, Dr. Richardson, declares¹ that
 the King’s chamber ‘ is lined all round with broad
 ‘ flat stones of large red-grained granite, smooth
 ‘ and highly polished; *each stone ascends from*
 ‘ *floor to ceiling;*’ that is, he would affirm there
 are no horizontal joints at all in these remarkable
 walls; whereas M. Fourmont, in 1755, positively
 states the walls of the King’s chamber ‘ are com-
 ‘ posed of *six tiers of stones.*’ So likewise Dr.
 Pococke, also M. Maillet, Consul-General of France
 from 1692 to 1708; nay, even our own more modern
 and very learned traveller, Dr. Clarke, in the fourth
 edition of his valuable Travels, in 1817, says (vol. v.
 p. 197), ‘ There are only *six ranges of stone from*
 ‘ *the floor to the roof.*’ This, too, is after he has
 excessively admired that ‘ glorious room,’ as Greaves
 styles it, ‘ where, as within some consecrated oratory,
 ‘ art may seem to have contended with nature;’
 and after also that he, Dr. Clarke, with his accus-
 tomed love of accuracy, tested the joints of the
 granite blocks ‘ on the sides of the King’s chamber,’
 and having often before heard they were so close as
 to prevent the blade of a knife being inserted, ‘ actu-
 ‘ ally tried the experiment, and found it to be true.’

There is one joint, however, nay perhaps there are
 two, near the south-west corner, where one might

¹ Vol. i. p. 127.

perform the feat now,—partly owing to dilapidation, partly to the hammering of travellers for specimens all along these edges; but such a small proportional exception, no one need bring up against the able Doctor. What shall we say, however, to his *six* ranges of stones from floor to ceiling, in place of the actual five? His error *may* have been induced, in some degree, by a device of the builders, which prevented me also from at first perceiving a full equality amongst all the five courses; for the first of them, as I should have mentioned earlier, measures forty-two inches only in vertical height from the floor, while each of the others measures forty-seven inches from joint to joint.

But then no joint line of the walls appeared at the floor level; and on visiting the hole at the north-west corner of the floor (a hole by the way which existed just as now when Sandys paid his visit 250 years before),—behold the walls and floor of King's chamber are there shown to be on a totally different plan from each other, than what is observed in the walls and floor of the inclined entrance passage. For there, the floor is a broad sheet of stone extending far under the walls; while in the King's chamber, the floor is a limited platform rising *up between* the walls; and in this manner allowing the granite of the lowest wall course, to descend beneath the floor level; and it does so descend to the depth of five measured inches, and then rests on limestone. (Pl. XIII. vol. ii.)

There may be another meaning still connected with that five inches of concealed depth ; but for the present we may be contented with its rendering the height of the lowest wall course equal to the other four ; and pass on with M. Renan to admire the inimitable *chef-d'œuvre* which this 'interior chamber of the Great Pyramid' does in truth form,—'simple, without an ornament,—for the only beauty demanded, was perfection of execution.' But we cannot go further with him in also saying, 'Notwithstanding the astounding weight which the chamber carries, it has not bent a millimetre, the plumb-line does not accuse it of the smallest deviation ;'¹ for in fact, besides the fissuring of the south-east wall and decayment of the floor blocks already noticed, I made on two several days long series of observations with Mr. Coventry's accurate clinometer, mounted on its extra 126-inch foot, upon each of the walls of the chamber successively ; finding none of them perfectly vertical ; but every one indicating, over and above some smaller anomalies, a slight tilt of the whole room down towards the south and west, by the quantity of six minutes of space.

Some might contend, that so small an angular deviation might be accounted for by geological changes, acting on the level both of the base of the Pyramid and all the crust of the earth forming the Libyan desert,—whose fossils too, show, that it has

¹ *Revue des Deux Mondes*, April 1865, p. 673.

been but recently raised above the sea ; but such persons had better clear all four sides of the base of the Pyramid, and measure the errors of level there, free from any possible influence of flexures about the King's chamber.

From the walls we turned our attention to the royal chamber's sole contents, the mysterious coffer situated at its western end ; and, 'sunk in the floor,' says the unfortunate Robert Richardson, M.D.,—but as completely standing above, that is, upon it, and free to be moved about thereon, as anything placed on a flat and smooth surface may well be.

On the coffer, of course, our measures both outside and inside were numerous ; and a variety of methods were adopted to make up for the chipped-away edges of every surface. The outside of the vessel was then found to be by no means so perfectly accurate, as many would have expected ; for the length was rather greater on one side than the other, and differed also according to the height at which the measure was made ; all the sides too were slightly hollow, excepting the east side, which was closer to a true plane than our measuring apparatus would enable any one securely to find fault with.

The workmanship of the inside, both as to polish of surface and regularity of figure, was decidedly in advance of the outside, but yet not perfect : wherefore we were at some pains in getting measures

in some twenty different places, both for length, breadth, and depth, in order to arrive eventually at a good mean ; and diagonal measures were taken as well, to test the rectangularity of the structure. In the matter of depth, there was some trouble at first, on account of the 'ledge cut out' already referred to ;¹ but after having prepared a means of eliminating that, by filing two small blocks of the exact depth of such cut-out as shown at the north-east corner of the coffer,—the only point where the original top, and the secondary top formed by the cut-out, are seen together,—there was even found to be great ultimate advantage to the measurement from such a cut-out having once been made.

For, had our determinations for depth, for instance, been dependent on having the original top-level of the sides to refer to,—they could only have been made at one small corner of the whole coffer ; seeing that everywhere else, the extremely and necessarily prominent nature of the ultimate top, has marked it out for the blows of 'travellers ;' whose 'strong right hands,' as well as unsparing eyes, are shown by the destruction, almost everywhere, of that highest edge top. As ruthless, have they also shown themselves, of the whole upper south-eastern corner ; for that is the part which presents itself most helplessly to the hammer, as each traveller, age after age, advances up to the coffer from the east, or entrance end of the room ;

¹ Pages 85-90, chapter iv.

and seldom takes the trouble to go round by the narrow space on the west, or over the deep hole on the north. But all this time, the interior angle, or ledge, cut out for a lid, has generally escaped observation, or been naturally protected by its position ; and so completely,—as happily to afford now some precious means of testing the equality of depth, and flatness of the coffer's bottom at many places.

This work was barely concluded, when both Alee Dobree and myself were equally surprised, to see Smyne enter the King's chamber, in a very unusual and excited manner. Alee Dobree first went to him as he leant against the wall near the northern air-channel mouth, and they had an agitated discussion in Arabic ; after which they both came forward, and assured me that I was wanted immediately at East Tombs, though why, or for what purpose, I could by no means make out from them. Time, however, they indicated, was very precious, so we packed up immediately, and, candle in hand, descended as quickly as we might, the long Gallery incline, and first ascending passage.

Here one of the party, for a moment, loosed his hold of the small ladder with which I had been examining the upper courses of the walls of the King's chamber ; and it was rather instructive to see what an angle of 26° can do. For the moment said ladder was no longer retained by human fingers on that slope, away it began to slide, quickening its pace

every moment, until, raising a cloud of white dust on its way, it shot along like a rocket, and presently came, with a cannon's report, against the granite portcullis ; when, though made of hard wood, and of unusual strength, every one of our only recently purchased ladder's rounds, from one end to the other, in an instant became utterly loose and rickety.

Issuing suddenly at noon-day, from a long stay inside the Pyramid, is a gorgeously blinding sight under an Egyptian sun ; for the white stones reflect such a world of living light, that one is literally overpowered. But on this occasion, I stopped neither for that, nor for the usual beating the white dust of the Pyramid's interior out of my clothes,—in a quiet and comfortably arranged sepulchre, well suited for the purpose, near the eighth Pyramid,—but hurried on to East Tombs ; and there was much relieved in at once seeing Mrs. Piazzi perfectly well, and seated in the open-fronted dining-room tomb,—while the whole space between that and Ibraheem's kitchen was filled with Arab men, women, and children, from whom came only the deepest sounds of lamentation, mourning, and woe.

'Now, what is all this about ?' I inquired ; and prepared at once to have my feelings drawn forth alive, and torn to positive shreds by the perpetually occurring, heart-breaking affairs amongst these Arab villagers. But, before being able to explain precisely what it was,—I must beg the reader's leave to go back a few days in our proceedings, and describe

some events, which, though small, and distant at first, inevitably expanded in time, and drew our whole existence and everyday life most uneasily into their train.

The day after that one concluding our last chapter, for instance, my wife was sitting in the dining-room tomb, looking out over the plain of the cultivated valley,—once dark-brown after the inundation, but now so brightly green, that the poor date-palms (clipped too in Egyptian taste of their lower leaves, like a French elm-tree) looked black in comparison,—when, from the Pyramid village nearest in front, began to issue a largely attended funeral, slowly wending its melancholy dark length towards the burial-ground in the south; while its drums were beating in more than usually mournful manner, and the ‘ululations’ of the wailing women were more shrill and prolonged than ever. It was towards the evening hour, the sun sinking behind the hill, and the Pyramid casting its long shadow athwart the sandy plain, almost touching the Mokattam Hills, that glowed again with the rosy tints of the setting sun,—rendering this touching scene of the funeral, especially striking and memorable. Further, too, it was an unusual hour for the burial of the dead, that office being generally performed about nine in the morning.

Mrs. Piazzi therefore turned round to Smyne, who, with his arms behind his back, was watching the procession from a neighbouring prominence of

the East Tomb cliff, evidently looking on with intense excitement,—and asked him, ‘Well, Smyne, who is dead now? is it another old man?’ alluding to his other frequent explanations of Arab funerals.

But he now answered shortly: ‘It’s not a man; it’s a woman.’

‘And was she very old?’

‘No; she was young.’

‘And what made her die?’

‘She was killed.’

‘Killed! And how did that happen?’

‘She was shot with a gun last night!’

Here was a revelation; and, of course, an immense number of questions were immediately to be asked, but Smyne had vanished. Ibraheem, however, was not far off, and Aleç Dobree presently appeared to take his turn as a night-guard, so between the two, the following particulars were procured:—

The irrepressible Smyne had become so elated at the prospect of his second marriage to be, that he must needs give a dancing-party in the village to celebrate his good fortune. It was but on a small scale, for he himself was merely living in his mother’s and stepfather’s house as the eldest son in a large family, and he had apparently asked only his bachelor friends to the entertainment. But these, according to Arab custom, seated themselves in a circle in the yard outside the house; and, while two hired dancing-men performed in their midst, the company continued deftly clapping their hands,

raising and falling their heads in time, and swaying their bodies backwards and forwards,—all so lazily and yet so admirably according to Egyptian ideas of a ball,—that crowds of women and children gathered on the tops of the surrounding mud-walls and gazed down entranced with delight. So the entertainment continued to the wearying of none, not even the dancers, and to the pleasure of all; until,—in one moment, and before any one could be aware of what was going to be done,—a man, one of the invited, fired off his gun,—and the bullet which had been in it struck a damsel seated on the wall, entered under her chin, came out at the top of her head, and she fell down dead into the midst of the circle of guests.

On this unexpected calamity, every one fled, dancers, guests, and spectators; Smyne himself running foremost, and not stopping to look behind him until he had crossed the sand-plain, and reached both East Tombs and the protection of Ibraheem's kitchen. The man of the gun, however, and a friend of his, returned; carried the poor girl's body into the abandoned house of the Smyne family; and laying it, of all places, in Smyne's own room, departed to their homes,—meeting, though, in their way, the family of the deceased, roused by the rumours of death, and telling them where they would find the corpse.

This seemed a dark affair; and the more we inquired into it, the darker it became. What need was there for one man to fire off his gun in the middle of the innocent dance? Had he aimed

deliberately at the luckless girl? and who was she?

No need at all, they answered, to fire the gun, but they thought the man was not quite right in the head; and no one in the village knew whether he had intended what he had done, or not; or whether he had any reason, real or supposed, for acting in such a barbarous manner; and the girl was not known to have been sought or disputed for in marriage by any one present, and was not connected in any way with Smyne's recently successful rival. She was, on the contrary, a relation of Reis Atfee, and the intended wife of Alee Dobree's brother-in-law Abduwahad, who was therefore plunged into grief inconsolable. In fact, the villagers themselves were as much puzzled as we were; and disputed unceasingly over the matter, until they became divided into two great parties; and while these were each urging their own theories,—down came the Governor of Jeezeh upon them,—apprehended twelve men, and sent round patrols of soldiers, who took possession of all the guns both in that village, and in six others round about!

There had not been such a stroke of disarming policy in this part of the country, for an age; and the mystery hanging about the death, much assisted in making the Arabs submissive to the law, when enforced in the name of criminal justice. But still the parties in the village disputed; and mainly, as we learned, upon the probable complicity of Smyne,

who now passed every night at East Tombs ; and if in that way securing his own safety, yet bringing so much danger to the other inhabitants there, that the two attentive Sheikhs, Abdul Samed and Murri, doubled the number of our guards ; and came over themselves more than once in the course of the night, to make sure that the men were at their post.

Each morning brought further news of disputes at the village, and the arrest of more men by the Governor of Jeezeh,—until it was said that half the men of El Kafr were in prison. At last one further morning still, came the news which Smyne had so long been dreading, viz., that he too was wanted at Jeezeh. The soldiers consented to wait in the village, while stepfather, mother, brothers, and sisters went over to East Tombs to break the fact to him gently ; on hearing which, he had started off to me inside the Pyramid in order that I might be induced to write him a ‘ letter ’ to take to Jeezeh. And thus it was that I reached East Tombs as before described ; as fate had determined, too, almost immediately after Smyne’s family party had been still further increased, by the arrival of his unsuspecting mother-in-law elect ; who, poor wrinkled body, had come over from the other village, by a long previous appointment for that particular day, in order that she also might ‘ have a look ’ at her son-in-law to be, and receive ocular demonstration that he was everything a mother could desire, for the future happiness of her favourite child.

To heighten the scene and increase the confusion and dismay of these pitiable folk, three stalwart soldiers were now seen crossing the desert plain, evidently exhibiting impatience to pounce on their prey. Again, therefore, Smyne begged of me to write a letter.

‘But what use can a letter from me be of?’ I asked, ‘what can I say?’

‘Oh!’ gasped forth Smyne, ‘you can say that I slept here in the desert on the night of the murder.’

‘That will be of no use,’ I replied, ‘when half the village saw you in the evening at your own party,—the very place where, and at the very time when, the gun was fired.’

‘But then you can say,’ returned he, ‘that I have not got a gun.’

‘No, indeed, I cannot,’ I persisted, ‘for I do not know anything about your possessions, further than that you have often boasted here that you had a gun, and that every true Arab has a gun.’

In short, poor Smyne, overcome by fright, did not improve his position at all by what he urged; but as his family were weeping and wailing as though he would be going to certain death, and with a bastinadoing to receive before it, if he was allowed to leave East Tombs without something in shape of a letter; and as, moreover, the worthy Reis Atfee, though much afflicted by the death of his relative, had also come over to strengthen the application of

the family, and declare his opinion that Smyne was a good man generally, and innocent in this particular,—and seeing that the soldiers were nearing our position,—there was no time to be lost in further debate. So I wrote at last, merely a character of Smyne, such as we had actually found him to be; read it in hearing of them all, disclaimed that it could have the power of preventing the Governor of Jeezeh putting the law into force to its fullest extent, upon whomsoever should be found guilty; and assured Smyne, that his only prospect of safety, was, to speak the truth openly, bravely, and to conceal nothing.

With which and other encouragements to act like a man, and fear neither the soldiers who were now longing for him, nor the prison he would be deposited in,—the letter was handed to Smyne; and in a more serious frame of mind than we had yet seen him endued with, he took his fated way across the sands direct to the ministers of justice; while his family followed after him in a confused and wailing line;—and we, quietness being once more restored to our dwelling, watched with no little anxiety the several members of the troubled party, until they all vanished from view behind the mud-walls of the northern El Kafr.

CHAPTER XIV.

PROGRESS OF THE SEASON.

FOR many days after poor Smyne had gone off to the inevitable jail at Jeezeh, there came to us each morning at East Tombs most perplexing rumours, following each other something after this fashion.

‘The Governor of Jeezeh has had all the men up before him, but he cannot find out anything.’

Then, next day, ‘The Governor of Jeezeh and the Kaimakan have both questioned every man, but they cannot find out anything more.’ And the following day, ‘The Governor of Jeezeh has gone to the Citadel to speak with the authorities there.’

An interval, and then, ‘The Governor of Jeezeh has come back from the Citadel, and three Bashes with him ; and they have examined all the men, but cannot find out anything.’

Then came a day when all that was reported amounted to this, ‘that the Governor of Jeezeh does not know what to do next.’

But on the following morning came a man running excitedly at the top of his speed, with, ‘It’s all found out now !’

‘How did that come about?’ cried every one, crowding round him.

‘Why,’ explained he, ‘the Governor of Jeezeh flogged all the men, from the first down to the last; and then the wicked one confessed, and the murder was made plain.’

‘Inshallah!’ roared the people, ‘but truly the Governor of Jeezeh is a wise man; and the Basha, a great one; and Mohammed the truest of prophets!’

Then proceeded descriptions of the mode of flogging practised in the jail of Jeezeh; and it appeared to be very severe, raising numerous ejaculations of pity from the bystanders in behalf of the unfortunate subjects, whether innocent or guilty.

The next following morning, however, a more veracious messenger appeared,—asseverating on his own knowledge ‘that no one at all had been flogged; but that the man who had fired off the gun had voluntarily confessed so far; and now the Governor of Jeezeh is only puzzled in the endeavour to make out, whether the act was done with intent to murder or not.’

In fact the matter seemed, after so many days and such multifarious reports, to have reached no further than its original point in the village, and there to hang; while all the men who had been apprehended, being still retained in prison,—Smyne amongst the number,—our small household establishment at East Tombs was rather inconvenienced by this enforced absence of one of its most able-

bodied members. Yet Ibraheem, philanthropically anxious for the good of the impoverished Smyne family, begged my wife would not engage any one else in Smyne's place, but go on giving the wages of the absent one to the family at large ; while he, Ibraheem, undertook to see that one or other member came over to do the work, to the best of his or her ability. Hence Smyne's little brothers were kept trotting backwards and forwards on all ordinary occasions ; but when the washing-day came round, the day which even Smyne, despite all his boasted heroism, used invariably to fear,—declaring his arms were not strong enough for such heavy labour,—then the mother herself came over and washed ; for a short space of time, too, as hard as any British washerwoman, though in a very different attitude indeed, and one not altogether describable.

Meanwhile, however, murmurings began to arise among the night-guards about their guns having been taken away ; and even the Sheikh himself represented their case to us as being rather hard,—
' for the Government obliged them to come out into
' the desert every night to guard us, and what had
' they to guard us with ?—Nothing. In fact, the
' men were saying, that without their guns in their
' hands, they felt weak, and just like women !'

This was grievous indeed to an Arab ; so we were obliged to obey the popular voice, and write a letter to the English Consul, asking him kindly to use his intervention to get the guns of at least the guardsmen

returned to them, in consideration of their Government employment. Mr. Consul Reade, too, quite in accordance with his frank and feeling nature, did take up the subject most promptly, and wrote to the Governor of Jeezeh suitably : when the Governor, on having the letter presented to him in full council, said, 'it was a very good letter,' and ordered the guns of the two Sheikhs and Alee Dobree to be given back to them, but no others. So then there was still much grumbling at East Tombs : and Reis Atfee came again and again to groan out disconsolate sentences as to its being a very bad affair ; that no guns were left in the village ; and how could he go out to shoot wild-ducks for the lady, when his gun was in the Governor of Jeezeh's strong room ?

But to all these remarks, we offered only moral-philosophy forms of consolation ; and were indeed, in our secret minds, extremely glad that an end had been put to that eternal firing of guns, that had gone on every night, and almost all night, in different parts of the plain, ever since the close of Ramadan, and up to the evening of Smyne's ill-starred dancing-party. The men of the night-guard, too, contrived to furnish themselves with some sort of weapons ; and one big, long-armed man brought a huge-knobbed stick, with rusty headless nails driven purposely only about half way in, forming one of the most diabolical-looking weapons that ever a savage wielded ; and the wretch described, gloatingly, what the effect was, when the jagged knob

was brought round with a great swing, which he showed us how he was in the habit of delivering upon a man's head in the dark,—playing havoc and destruction with that realm, wherein nature has enclosed reason and placed her on a throne, but whence a wild Arab is ever ready to let her out.

In fact various little indications were visible from time to time, to the effect, that if we had found the Arabs for the last three months a peaceable and so far innocent set,—the praise was less due to their own innate qualities, than to the strong Turkish government exercised over them ; and which, all thanks to His Highness the Viceroy, through his officers Zeki Bey and the Governor of Jeezeh,—had let these lazzaroni of the Pyramids know so well beforehand the penalties they would incur (penalties only imaginable by a Turk, and which Turks would be sent out to inflict), if anything evil happened to us while at East Tombs,—that these gentry were on their best behaviour to us there.

Though now inhabitants of villages, it is not so very long since these men were roving Arabs of the desert ; and there, they had their character thus painted by the *Sieur du Mont*, when travelling between Alexandria and Cairo in 1702 ;—‘ They are lean and black : their aspect is grim and terrible : they encamp in the Deserts, where they spend their whole lives ; for when they have consumed the grass in one place they remove to another. They are perfect strangers to the knowledge of

‘ religion, and their only trade is to rob passengers ;
‘ nevertheless, it must be acknowledged to their
‘ praise, that they kill none but Turks, and these
‘ only when they are disoblged by the Grand
‘ Signior.’ Since that time, others have described
the Bedouin Arabs, when entirely their own masters,
as having eminently two sides to their characters :
hence, they either receive a stranger hospitably, or
murder him the instant they see him,—just as a straw
may decide,—for it matters not to their conscience in
the slightest degree which. Wherefore, had Egypt
for governors any men less firm and less understand-
ing Bedouin character than her present rulers,—the
ancient valley would be more the prey of brigands
than the worst regions of Southern Italy or modern
Greece ; and every English traveller, if not slaugh-
tered at once for his mere clothes, would have to
redeem himself from captivity at the cost of thou-
sands of pounds, and many times over, during the
course of one voyage from Cairo to Assonan.¹

¹ During the summer of 1865, in those two professing Christian and highly-petted countries of Italy and Greece, English travellers actually were taken by brigands ; and released only on making large payments. The Italian case has been described by Mr. Moens, its principal victim, in his interesting work, ‘ *English Travellers and Italian Brigands* ;’ and we were not a little surprised to find, that the Government of King Victor Emmanuel so far encouraged brigandism, and its unhallowed profits,—eclipsing all that honest husbandmen can make,—among his subjects, and discouraged English travellers, as to let the ransom of £5100, be paid, and entirely at the cost of the travellers themselves. Had they not been able to pay,—and how many are the hard-working professional men amongst us, who could not at a moment’s notice produce £5100,—their lives were to have been taken piecemeal : our own Government declining to help effectually.

But the Turks, though their methods look no methods at all in the eyes of Western Europeans, yet have ways and means of somehow or other producing the effects they require among country Arabs; ways too, which are far-reaching to a degree, and have successfully taught them during late years, for both the life and property of others, a respect that was quite unknown before. Unfortunately, though, forming such strange doctrine to these roving spirits,—that they require to have the lesson ever and anon repeated; or they will persuade themselves that it was only intended for an exceptional occasion, already passed away.

It was therefore rather fortunate for the chronicling of truth and fact, that such a philo-Arab as Mr. Lane should have had to record, on one of his visits to the Great Pyramid,—how he had to defend himself with fire-arms, when alone on the summit, from an Arab advancing on him with gun ready primed and cocked. And on another visit, how several young Arabs had discoursed on the beauty of some American ladies in a party from the United States, and wound up ingenuously with, ‘Oh! the sword! the sword! if it were not for the Basha, we would have killed the men and taken the women captive.’

They even tried that ordinary trick on the great friend and out-and-out admirer of the ‘modern Egyptians,’ of getting him up into the dangerous position of the small passage leading to Davison’s

chamber from the head of the Grand Gallery, and there demanding extra baksheesh. A great deal, too, of that sort of thing, we suspect, must go on still, whenever travellers' parties are *small*; for while we were at East Tomba, we heard, from actual subjects of them, of no less than three independent cases of a traveller being left alone and in the dark in the King's chamber,—because he would not bestow additional money, both to what he had already promised to give, and the Arabs agreed to receive, as proper payment. One of these instances was our own baker in Cairo; an enterprising, though very mild and quiet English tradesman, and a maker of remarkably good bread; but he, having on an occasion during our stay, come out to the Pyramids for a pic-nic, with a large party (as is the frequent custom with all the tradespeople of El Kahireh), and related to us, then in full security at East Tomba, his *first* sorry experience when he had performed the journey alone,—the group of Arabian children of Heth, who of course clustered around to sit in our doorway and listen to all the conversation,—these descendants of Heth smilingly acknowledged, that the story was perfectly true. And in fact, from Smyne's very intelligent manner, we rather suspected that he must have been one of the very company, who had threatened to bury the unfortunate baker alive in the dark interior of the Pyramid; and did leave him there for an hour and a half to his own unaided reflections.

A more peculiar case, however, happened before our eyes one day in March. All the large crowds of forenoon visitors had come and gone in the usual manner,—when, rather late one afternoon, was seen in the distance a very small party of Arabs and travellers moving about hither and thither in the most unaccountable manner, near the end of the northern causeway. Presently they seemed to catch sight of our tents, and made for them as straight as an arrow, the Europeans, of whom there were two only, and on foot, leading. Now it so happened that my wife and self were at the time outside photographing one of the tombs at the base of the cliff, and would much rather not have been interfered with by any stranger visitors; but as soon as the party reached the nearest rubbish mound to us, their leader called out most imploringly—

‘Oh! is there any one here who can speak English?’

‘Certainly there is, and more than one.’

‘Oh! we are so glad to hear it,’ responded the questioner, ‘we’ve been so persecuted by these Arabs; and we were afraid they were going to kill us.’

We laughingly assured them of the needlessness of their fears, and having invited them to come a little nearer, through the heaps of ancient human bones that lay between,—the spokesman of the pair gave us a further account of their case in a perfect cataract of description. We had never heard so much English spoken before, in so small a space of

time, and yet not by an Englishman either. Who could he be? we thought; and his companion too, so silent by his side, and so different from him in every respect? But it all came out from the speaker in due course spontaneously.

'I'm only a poor pianoforte-maker,' said he, 'no-thing beyond that. I am a Russian, and I am married and have a family in St. Petersburg, and was engaged there by a London house to go out to Calcutta, to repair pianofortes in India; and I'm going out now in one of the English steamers; and my friend here is an English navvie; he is being sent out by the English Government to work on railways in Ceylon; I never saw him before going on board the steamer, but we became great friends, and we go everywhere together, and we are living in a hotel in Cairo, until it is time to start for Suez. It's only a "second-class" hotel, but they charge us twelve shillings a day, and it quite ruins us; and I don't know where all the people who are there can come from or how they get their money, for every room is full, with at least half a dozen sleeping in it, and there are others always drinking and fighting in the passages. So my friend and I, we thought we must go and see the Pyramids before leaving Egypt; and we walked out all the way, and got on extremely well until we had just reached the edge of the sand-plain, and then these Arabs came down upon us, and would not let us go any way, where we wanted to go,—without paying them money; and I gave them all the silver I had,

‘ which was eighteenpence ; but they said they must
‘ have ten shillings, or we should never be allowed
‘ to go near the Pyramid ; and I offered to give
‘ them my silk handkerchief, but they said they
‘ must have gold, and they were beginning to
‘ threaten to take our lives for gold,—when all
‘ of a sudden we saw your tents, and made straight
‘ to them.’

Thus rolled on the rapid volume of the Russian’s talk in English ; while the Englishman, looking something like a very stout mate of a collier-brig, but dressed in brown in place of blue cloth, seemed quite content to let all the talking, even in his own mother tongue, be performed by the Russian, who certainly had the natural gift of language to a remarkable degree ; while he, the Britisher, merely gave out an affirmative grunt now and then, twitching up his trousers, and remarking, ‘ Yes, just so ;’ or, ‘ They ’re queer customers,’ meaning the Arabs, but not allowing himself a sufficient number of words to express the whole sentence. But a man of immense bulk of muscle, was this navvie in his holiday attire, as the Arabs would doubtless have experienced, if they had actually got to the length of blows,—while the poor pianoforte-maker was as delicately put together, as the keys and sensitive strings of one of his own vibrating instruments.

So we explained to the Arabs that these were poor men, who could not give anything more than they had already given ; and that they needed no guiding from any one else, for we would send Alee

Dobree to take them up to the Pyramid at our expense. This, accordingly, was done, and the indissoluble pair of friends, with diverse gifts, was further invited to a special tea, to be got up for them in East Tombs against their return. And they did return to it, and disposed of its items very energetically; the Russian talking eloquently and fervently all the time,—describing their pleasure, their thanks, and the gratification of having at last seen the Pyramids, and touched them; wherefore he had given the Arab his silk handkerchief after all; and he concluded with writing us a memorial note in the Russian character. While, as for Mr. Navvie, he might have been deeply impressed by what he had seen, and did look superb content; but cared not to utter his thoughts either in one word or two.

As they had a long walk before them, this faithful pair started off quickly after their refreshment,—but were hardly clear of the sand-hills in front of East Tombs, when all their previous knot of Arab persecutors, with big iron-shod sticks, started out from various places of hiding in pursuit of them. The poor pianoforte-maker fled at once, at a great pace, and in so doing, took a wrong track over the plain; but the navvie would not quicken his pace in the smallest degree for all the threatening cloud of tormentors; and so he followed on slowly and leisurely, a moving tower of strength behind his mentally and nervously gifted friend.¹ Hereupon,

¹ This pair formed quite an example *in petto*, of what we subsequently heard the American people had discovered towards the close of

Alee Dobree was instructed to call out to *those* Arabs 'to come back, for the lady was going to pay the 'usual fees for these two poor travellers, who could 'not pay for themselves.' So then, and not till then, the ruffian crew returned ; and who should be chief among them, but the dreadful old Arab of our first day's acquaintance on Pyramid hill,—the sinister-visaged reprobate of the vertically-wrinkled forehead. My wife, however, produced the money, to be divided amongst the set ; and I, further to insure their not following the two travellers, requested the honour of photographing the group then and there, under the base of Pyramid hill. They entered into the notion, too, rather interestedly ; and it was a sight worth paying for, to see how the old sinner placed himself at the head of the party, and threw back his turbaned head in conceit, until his long pointed grey beard stood projecting outwards in front of him almost in a horizontal direction ; and, but for the Basha, he was monarch of all he surveyed, either in the blue sky above, or the yellow earth beneath.

Some happier characteristics, however, there were about Alee Dobree ; he could not indeed resist the temptation of at any time deserting his engagements in the chance of receiving baksheesh, for helping

their four years' war : 'Why,' said they then, when, after innumerable trials, they had got some most splendid working and soldier-like generals and officers ; 'why ! the war has actually brought to the 'surface, men who cannot talk : men who cannot put three words 'together in public, and could not say anything if set upon a stump !'

all newly arrived travellers up the Pyramid ; but, when he was employed by my wife, during Smyne's long confinement in prison, to go into Cairo on some of the ordinary shopping business, he brought everything at such low prices, and produced such full change in silver, for all the gold he had been intrusted with,—that she was perfectly astonished, after her experience of all her other messengers. The truth was, he had a soul above petty cheating, picking, and stealing after the Egyptian manner, in the small necessaries of life ; and we were inclined to attribute the solitary elevation of his character in this particular, to his descent by two generations from a great Sheikh of the Libyan desert.

This chieftain of a roving tribe, having found the sandy plain less and less capable of affording sustenance to his followers and their flocks, took advantage of the unsettled state of the country, subsequent to Bonaparte's expedition, and settled himself in one of the villages near the Pyramid ; identifying himself with its people, by marrying a daughter of their Sheikh, and contributing his live stock and herdsmen to cultivate their half desolate lands. A joint-stock proceeding which answered so well,—that one grandson, Abdul Samed, is the present Pyramid Sheikh of the northern El Kafr ; and another, Alee Dobree, is alone, of all the village population, allowed by the Government to retain his gun. A very curious machine, too, is that gun ; its barrel, a long thin tube bound about with metal thread ;

and, from the smallness of its bore, quite realizing what a superintendent of the electric telegraph had told us, of a grand fight he had been in near Suez, with a whole tribe of Arabs,—who had come down on the line there, and begun to cut up its stout iron wires to make ramrods, of all things, for their guns.

Meanwhile, the season was advancing with us apace; poor Alee, the sick man, yet trusty day-guard, had, early in March, frequently brought to my wife little presentation bunches of corn, fully grown, and beginning to ripen; while Alee Dobree, with rather more understanding of European tastes, brought nosegays of a small purple, sweet-scented Iris, growing in large quantities, but with most short-lived flowers, over all the grass land under the inundation level: the very originals probably were these Irises, of the ancient flowers after which 'Goshen' was once named in hieroglyphics, 'the land of flowers.' Or occasionally, he would show his appreciation of scientific notions, by bringing from the sand-hills a root of creeping grass, looking like a straw-coloured rope, about twenty feet long, and just ready to send out tufts of prickly leaves at every knot along its whole length.

These seasonable demonstrations were the result of the thermometer having progressively risen to daily maxima considerably above 70° , with minima seldom now below 56° ; but when for two or three days the minimum had not been below 60° , and the maximum rising above 80° , had at last reached 88°

(in the shade of course), the next morning after that,—having gone out to procure dry-plate photographs in the plain north-east of the Pyramid,—behold every here and there a long cork-screw-like track through the sand, and continuing in one uniform wavy line as far as one could see.

‘What is all this, Alee?’ we asked.

‘Oh, the snakes are out,’ said he. ‘They have been sleeping in the sand all the winter through; and now they are awakened by the heat, and are going about to see what they can get to eat.’

We pursued one of the lengthy cork-screw markings, which looked only just executed, hoping to see what sort of snake; but after following the trail several hundred feet, lo! all of a sudden it terminated, and the sand round about there, was pure, and markless of anything whatever corporeal having passed that way. Had the creature at that spot taken wings and become a flying dragon, or had it suddenly exploded into thin air? We dug with the pointed camera legs into the loose soil, but could not find anything more; so we concluded finally, that we must have followed its track backwards to where it had that morning risen to the surface of the sand, and then, obeying its leading instinct, had made straight for the cultivated fields in search either of water or frogs.

But in all directions, within three days, snake-tracks were to be seen; and some of them must have been rather stupidly directed too, for Alee

Dobree came one of these days looking quite mournful, 'There's a snake fallen into the well ' at King Shafre's tomb,' said he, 'and it's swimming about and trying to keep its head above ' the water, but it will not be able to do so much ' longer :' and then next day he reported, 'There's ' a great snake tumbled into Campbell's tomb, and ' it will never be able to get out ; it's certain to ' die.' No long time passed, moreover, without one and another snake being killed at East Tombs ; but they seemed young, ignorant, and we hoped innocent things. At all events, when one night my wife was greatly alarmed at an apparition in the bedroom tomb, and Ibraheem handed in his charcoal tongs to me through the canvas door, I seized the creature therewith by the neck, and it proved merely to be a lizard,—for the lizards were also arisen from their dormant state ; and if it was written nearly three thousand years ago of the lizard, 'It is a weak thing, and yet inhabits kings' ' palaces,' shall it not be found also in an ancient tomb ?

The actual passage, indeed, in King Solomon's Proverbs, as rendered by the English authorized version, is (chap. xxx. 28),—

' The spider taketh hold with her hands,
And is in kings' palaces,'

but Herder translates the original into—

' The lizard,—one may seize it with his hand,
And yet it dwells in royal palaces,'

and a commentator has added, that the whole com-

parison of the 'four things that are little on the earth, but wiser than the wisest,' was perhaps made on account of the last, or the lizard; when an animal of that sort (which in warm climates lives in the walls,—runs up them as easily, and by means of the same sort of sucker-feet, as a fly up a pane of glass,—and is very annoying) made its appearance suddenly on the side of that chamber, wherein 'the sage Agur the son of Jakeh' was discoursing lofty sentiments, and inculcating modesty at the same time to his pupils desirous to be wise.

The poor lizard's portrait, though, depends much on the artist who paints it,—and Dr. Clarke wrote of the tribe: 'A singular species of lizard (in the hot weather in Cairo) made its appearance in every chamber, having circular membranes at the extremity of its feet, which gave it such tenacity, that it walked upon window-panes of glass, or upon the surfaces of pendant mirrors. This revolting sight was common to every apartment, whether in the houses of the rich or of the poor.'

But a Frenchman residing in the same city, when Professor Greaves was there,—seemed to have made pets of the harmless creatures, and even to have studied their amusement; for thus the Oxford astronomer describes what he saw,—'He (the Frenchman) had many four-legged serpents, blackish, with long knotty tails, ending in a point obtuse. These are something like the crocodile, but differ in the head, and tail, and skin. These

‘serpents, when the weather is hot, would, upon musick, come out, and run upon him ; but in the winter they lie as dead. Yet some of them will scramble a little and move. Of all musick they love the bagpipe best.’

With the increase of heat, too, on the Pyramid hill, ants began to abound more and more, but not to any repulsive degree ; for there were no colonies of them working by thousands or millions ; and the chief member of the family was a large, long-legged creature, usually solitary, but dashing about at a perpetual run, now here, now there, sometimes seizing on another ant and carrying him off all alive, sometimes on a bread-crum, or sometimes on a date-husk ; and though many times bigger than itself, yet lugging the burden along gallantly, and pushing or dragging it up the most impossible places ; sometimes trying it one way and sometimes another, but never asking help from any companion, and always the more violently active the more ferociously hot and burning the day.

This was indeed an *ant*, to which the *sluggard* might look with advantage ; and had only its exciting example been better pondered by modern Egyptians, a European traveller would not have had to write, that ‘all of them (*i.e.*, natives of Egypt), excepting only the Arabs, have one grand and ruling idea : viz., to exist without exertion of any kind, and to pass whole days upon beds and cushions, — smoking and counting beads.’ The

same author, too, though he confesses ' he does not ' know how it comes about, whether from climate, ' education, or government,'—yet is certain that ' this ' Egyptian genius for perseveringly doing nothing, ' can be perfectly well acquired by residing amongst ' the native inhabitants of Cairo ; as proved,' he says, ' abundantly, from the appearance he saw ' exhibited day after day by Europeans, who have ' passed some years in the city.'

But in that damp and shaded conglomeration of ill-drained and unhealthy abodes, the inhabitants do not see anything of this paragon of industry and marvel of truly superhuman activity, the long-legged, self-helping, ant of the Pyramid.

Every available afternoon, though, in spite of the heat, we still went out for walks in some direction bearing upon Pyramid objects : and thus, on one occasion, ascended the steep hill, with the masonry-looking northern escarpment, that rises immediately south of the group of palm-trees, and upon which hill the southern causeway trends. Quite interesting enough in its display of fossil shells towards the summit, to repay a climb, was this hill ; yet even more deserving of a visit, and a long-continued one, on account of the magnificent view it gives of the three great Pyramids, and almost all their field of sepulchres, at one glance ; this grandly cumulative effect, arising from the general slope of all the Pyramid ground which takes place towards this

direction, combined with that slope,—richly tomb-covered,—being looked at from a considerable height.

From here, therefore,—and from this point alone of all other ‘airts,’ is it possible,—you scan the whole foreground of the scene, without missing anything, right up to the root of the Pyramid itself; and can thus form good comparative ideas of the sizes of the various tombs about. Then, the Sphinx is seen of its true magnitude; not as when a photographer puts up his camera close to it, and by exaggerating its angular subtense, makes the Great Pyramid appear only a small adjunct in the distance; but as merely one, amongst hosts of tombs and monuments near the base of the hill; and, in so far as there is any human face at all to the creature, looking, with its protruding mouth and sensual chin,—black too, in the shade of the western sun,—of even lower than negro organization. But the main effect to appreciate from this point, is the general ransacking that has been enacted of all the tombs of the Pyramid hill; for its whole slope has been so dug into and turned inside out by generations of resurrectionists, working continually and without shame in the light of day, that they have made the region in form to resemble a volcanic production; such as that remarkable one in Mexico described by Humboldt, where the whole plain is nothing but a collection of little craters or ‘hornitoes,’ with their central holes or pits, and then the rings of ejected heaped-up matter. (See Map, Plate II.)

A more important expedition was to some other hills, several miles farther to the south, and where Alee had reported many large shells were to be found. To this end, he produced, for my wife's riding, his own donkey ; a docile thing, remarkably clean-limbed and neat-footed, but only about half as large again as a Newfoundland dog ; with a sack tied over its back for a saddle, and no attempt whatever at bridle or halter ; but it seemed to understand its duty in life wonderfully ; and it must fill in an Egyptian Arab's domestic circle something of the place forbidden to dogs,—besides being more actually useful. The rest of the party walked,—and either admired the distribution of fine sand, and coarse sand, *i.e.*, little pebbles neatly arranged in different tracts by the winds ; or, if active enough, caught some of the black and white beetles, which, instead of walking or crawling, ran with inconceivable rapidity over the ground,—until we reached a projecting portion of the low sloping desert hills, and commenced to ascend their stony flanks.

Gradually among the stones we began to see fragments of echini, and then casts of univalve spiry shells, and in a few minutes more, having arrived at a part where the crust of the ground had been broken up, partly artificially, partly naturally,—we found ourselves actually trampling on shells in all directions. The chief part of them were of a handsome cardium order, of various sizes up to three and four inches in diameter ; sometimes agglomerated

together loosely in masses of hundreds, at others lying about single, exquisite in form, and retaining much of their ancient gloss and pink colour, but all the ground about them formed of comminuted shells. We had been on many modern sea-beaches, but had never seen the hundredth part of the richness there in sea-shells, possessed by these dry desert hills, which are more than one hundred and twenty miles from the Mediterranean now ; and yet the shells were so recent geologically, that one involuntarily compared them to the present productions of the sea, though knowing all the time that they were essentially fossil, probably of the pliocene age. Here and there were regions, where the delicate pink cardium gave way to large numbers of strong-built blue mussel-looking shells ; and underneath the surface stratum,—which practically consisted of nothing but shells,—there was a depth of greenish sand, in which magnificent hard petrified echini were found, about five inches in diameter ; each perfect, unless a chance blow of the pick alighting on it while still unseen in the sand, it was sent into shivers ; but then displaying the structure of its *interior* with exquisite physiological ramifications.

What a scene of life and antiquity was all this, within sight of, but so much earlier than, the Great Pyramid ! We wondered if its builders had paid any attention in their day, to those beautiful forms of an earlier period of the world's history. The tomb-decorators of that humanly primeval age,

and the general artists of subsequent Egyptian times, were certainly very fond of painting a *five-rayed* star ; and on the upper surface of this echinus, is a grand five-rayed star, which was certainly depicted before those men lived.¹ Nay, more still, each linear ray of the echinus star is decorated on either side by organic markings, which look amazingly like the outlining of the pinion feathers in the decorating wings, which those industrious Mizraite idolaters attached to the arms of Isis, and many others of their lesser divinities.

Next day, there was a notable experiment to try, on the internal temperature of the Pyramid. To take a thermometer into the King's chamber,—is only to record an exceptional effect connected with its present forced and anomalous circumstances ; but we hoped, by pouring water down the air-channels, from the outside, and then catching it as it came inside in the neighbourhood of the King's chamber, after passing along nearly two hundred feet of stone channel,—that something like the mean temperature of the higher part of the body of the Pyramid, would be obtained. Extra hands were therefore engaged to carry water at once from the plain, up to the foot of the Pyramid ; these hands including not only several small Smynes, but Fatmeh, wife of Alee the day-guard, who was anxious to win some

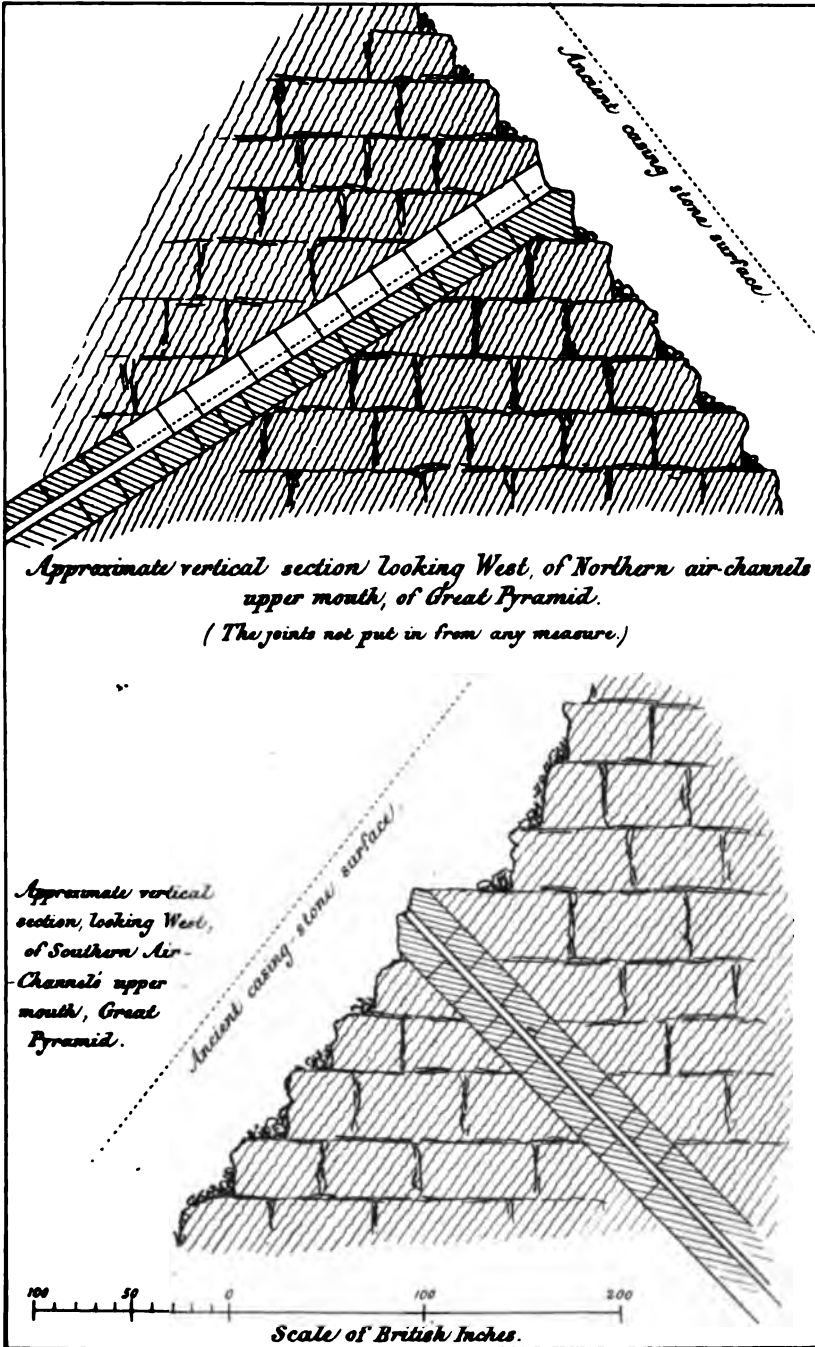
¹ In the Assyrian and Chaldean sculptures, stars of three, four, six, and eight rays are prominent ; but I am not aware of any with five rays.

extra pay for her poor husband, and was kindly regarded by all the party therefor. The water having after that, been further carried from the Pyramid foot, upwards, by able-bodied men,—the arrangement was for them, at a certain time, per watch, to pour down six bucketsful, one after the other, into the mouth of the northern air-channel outside ; while I, having previously taken up my position inside, at the farthest point of Caviglia's forced passage, through the western wall of the antechamber,—was to await there the result, and test it with a variety of thermometers ; doubting all the time, though, whether some of them would not be swept away by the torrent to come, before its temperature could be well ascertained. (See Plates III. and IV.)

My wife, too, became so much interested in the affair, that, not content with remaining near the entrance, to give the signal for pouring down the water, she climbed up to make sure the buckets were emptied down at the exact second by watch ; being perhaps the first lady who has ever seen the air-channel mouth. A place of peculiar Great-Pyramid arrangement and economy,—but having this notable difficulty, that all over the middle of the northern face of the Pyramid, its component stones are so lamentably decayed and weathered away, from regular steps into an ugly slope,—that few travellers of any kind ever venture themselves there. Yet, with the assistance of the expert Alee Dobree, the Arab, on one side ; and on the other, a second

Alee,—or as they called him, Alee the Egyptian, or the Fellah, and laughed at him exceedingly on that account, but a man of Herculean build, understanding the climbing of a Pyramid from his infancy, and supporting or lifting another person's weight so gently, as if it were but a feather to him,—with the aid of these two, the lady now reached the elevated and dangerous situation in safety. And then, giving the time to the men from her watch, she saw each of the bucket-bearers creep down the first forced and enlarged part of that air-channel, a steep 33° slope, and discharge the contents of his bucket direct into the narrow mouth of the untouched portion of the channel lower down,—where it is a neatly cut square trough, carved (as far as one can see), through the substance of large, firm, and well-fitted blocks of good Mokattam stone. (See Plate VIII.)

Meanwhile, I was remaining inside, some two hundred feet lower down, and in the heart of the Pyramid,—at the very place where Colonel Howard Vyse, after his first clearing of the channel, had found that water passed down quickly from above; 'showing,' as he said, 'that there are no intervening rooms or cavities.' But on this occasion, not a drop came; and all that I had to observe, was the gradual increase of temperature in the confined and unventilated hole, recently formed in the course of the very ventilating channel of ancient times; an increase of temperature caused by both myself and three lighted candles, throwing out heat every



*Approximate vertical section looking West, of Northern air-channels upper mouth, of Great Pyramid.
(The joints not put in from any measure.)*

Approximate vertical section, looking West, of Southern Air-Channels upper mouth, Great Pyramid.

Ancient casing - stone surface

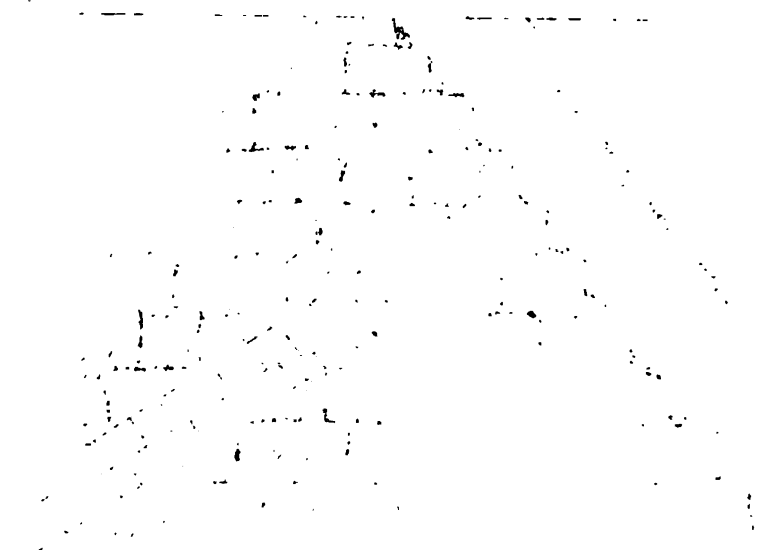
100 50 0 100 200

Scale of British Inches.

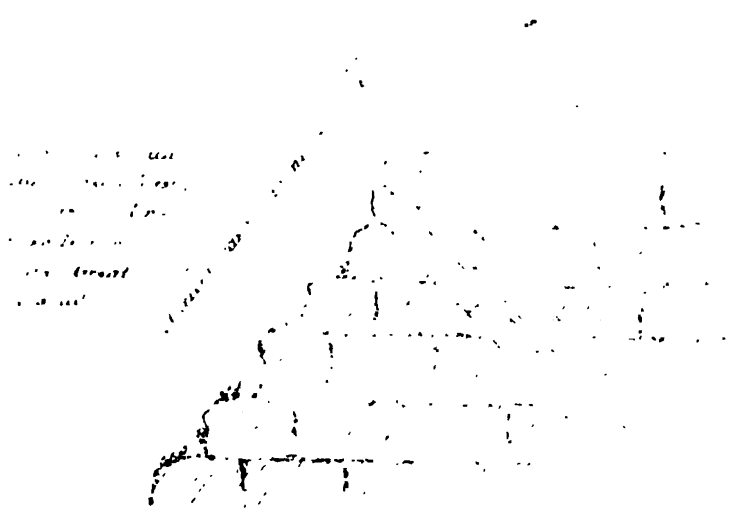
moment, in that contracted space, surrounded with almost infinite non-conducting matter on every side, and no opportunity of radiating externally.

After two hours, the watching for a single trickling drop of water coming through, was given up; but the place was visited again that evening, and again the next morning, though with the same negative result. So we concluded that the north air-channel is at present hopelessly plugged up; and at some part or other, a long way down its tube.

Then we turned our attention to the south air-channel; and all the native portion of the party seemed to think their honour quite at stake, if they could not make water run through there. Old Ibrahim was continually coming to us with theories of his own, beginning with, 'Excuse me, sir, but if all the men were to pour *very* quickly one after the other,—that's the way to make water run in this country.' He did not, however, think lightly of the practical accession afforded to our means of carrying water across the plain, in one of the large tin cans for lamp-oil: for this vessel having been at last exhausted of its original contents, and therefore, after being well cleaned out, brought into use as a water-carrier on this occasion,—was found to be immensely preferred by all the Egyptian children to any of the heavy, thick-sided, earthenware vessels of their own country's clumsy manufacture. Then, too, Alee Dobree borrowed the portable bath out of the bedroom tomb; and got it carried up the Pyramid



A horizontal vertical section through the mountain range
 showing the structure of the rocks and the position of the
 fault line.



Granite
 Gneiss
 Schist
 Slate
 Sandstone

North of the mountain range

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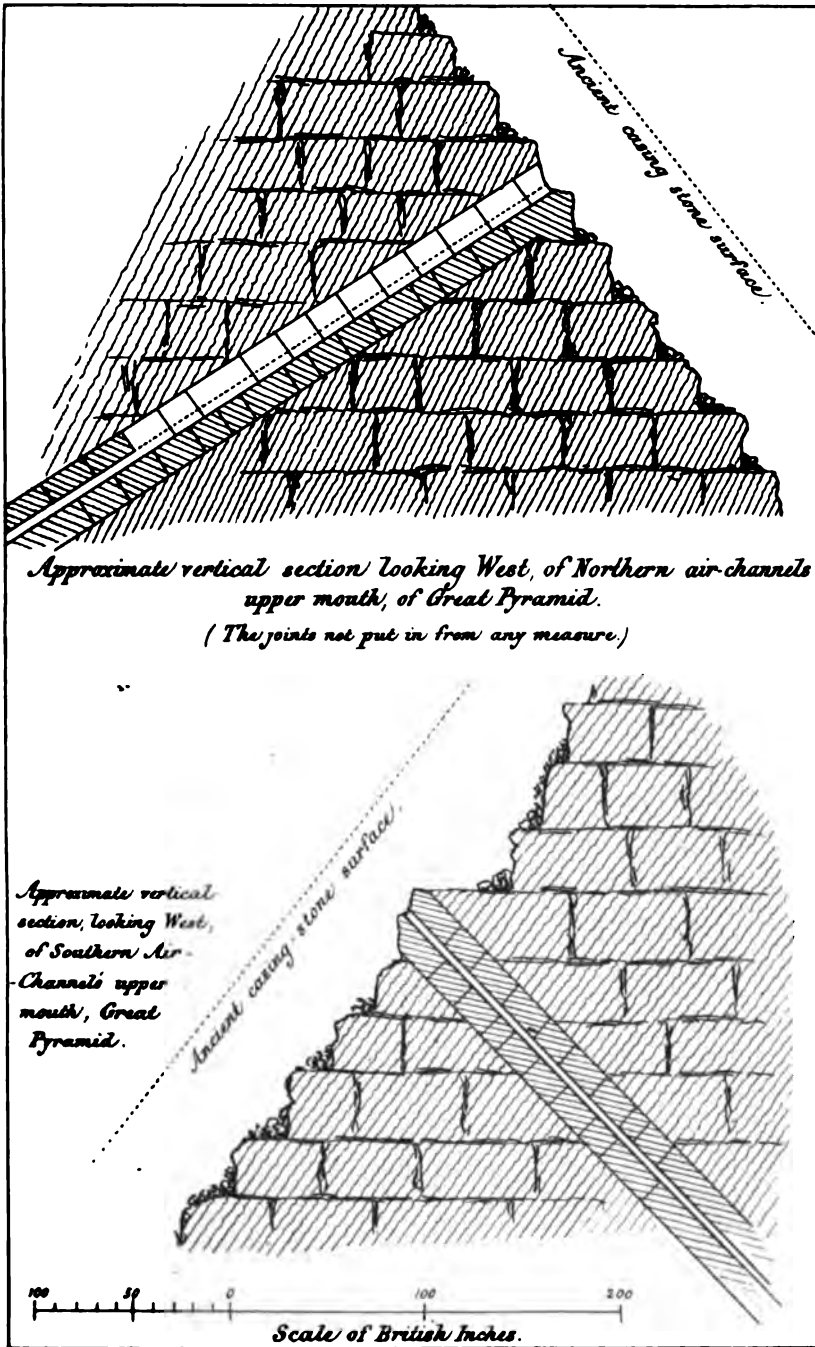
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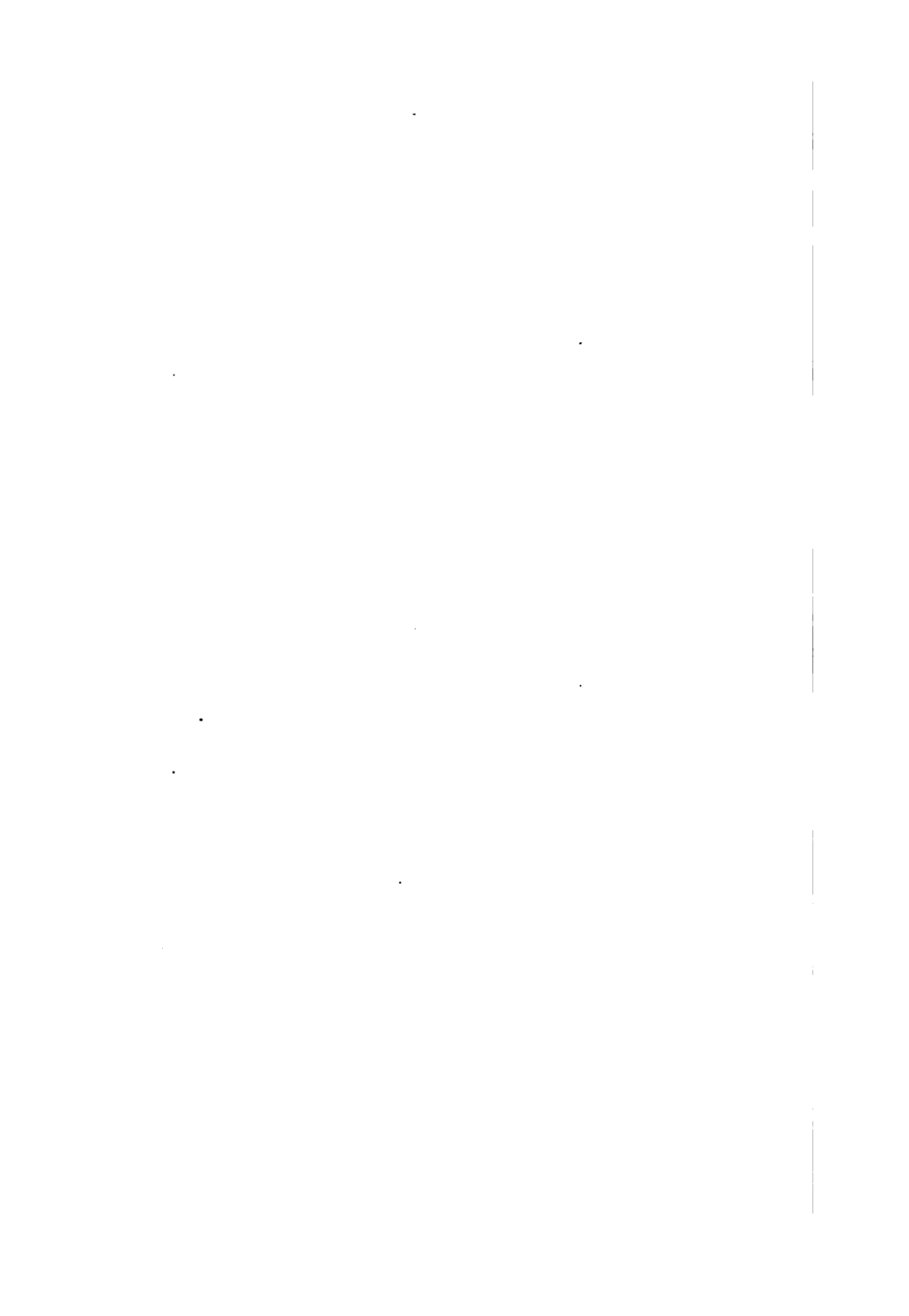
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side, and fixed in position just over the south air-channel mouth, so that it might be filled there by degrees, and form a local supply, ready for a sudden discharge. (See Plate VIII.)

One of the additional hands he had engaged for this purpose was his brother-in-law Abduwahad ; but the poor youth, never at any time very bright or active, had gone half-demented ever since the unaccountable murder of his betrothed in the village : and now his craze seemed to be, because he was a trifle less dark-brown than his fellows, to fancy himself a white European. And therewith he would sit on the sunny side of the Pyramid, letting down his folding dress to expose now one shoulder and now another to view, in accordance with his ideas of the European manly manner. Perhaps, too, he was right in the fact, only a couple of thousand years after date ; for when the city of Lyons was founded under Augustus Cæsar, the commander of the Roman legions in Gaul, L. Munatius Plancus, and the other generals and senators present on that memorable occasion, wore dresses which the ladies would *now* deem ' uncommonly low ; ' and the date of that event was, to an Egyptian, quite recent ; in fact, an affair of only the other day.

But with the assistance of more able-bodied men, Alee Dobree got the portable bath filled at last in its elevated position, and then discharged down the very steep trough (46°, as a very enthusiastic traveller, Mr. Smyth of Lincolnshire, who visited us at

East Tombs in February, ascertained it to be by direct application of a small clinometer),—and about half an hour afterwards, water began to trickle slowly through the south air-channel's lower mouth, and to fall on the floor of the King's chamber. But it came so slowly, that it seemed unable to bring the temperature of the upper parts of the Pyramid along with it, and only gave out that which was shared by the stones closely adjoining the spot where the oozing forth took place.

However, that was a finishing off of what little we could do with the air-channels in their present wholly, or partially, stopped state: and we next turned to a case of angular measurement outside the Great Pyramid.

This new subject was, to ascertain the exact azimuthal angles of those large trenches on the east front of the Pyramid, which Reis Alee Shafei and his little men had been clearing out for us, near their terminations, as mentioned in chap. vi., p. 134. The *linear* measures of the trenches had been taken at that period sufficiently; but now came the *angles*, both as to each other and the astronomical meridian. Carefully, therefore, through the day, was the middle of every trench end marked, and a round pole set up there; for towards such a useful, but, at the time we left Scotland, totally unexpected purpose,—it so chanced that we had the eight ashen poles, of a peculiar build of tent, which

our friend R. M. Smith, Esq., of Edinburgh, having himself used in Iceland, pressed us to take the loan of for Egypt. We had brought it with us accordingly : but on Pyramid hill, where ancient tombs are so much better than tents, the canvas bundle was found most serviceable, simply in shape of a *bundle*, being then used as a seat for Sheikhs when they called upon us ; and these grandly-robed men used to take to it very kindly, while their followers had to sit on the bare rock outside. While now, the lathe-turned wooden poles of the same tent, made more accurate signal-staves than anything else that all the ten nearest Egyptian villages could have furnished, even at the call of the Basha himself.

Towards four o'clock in the afternoon, or when the 'Asr' had arrived,—that division of time nearly midway between noon and sunset, when the Arabs, having got through all their afternoon siestas, ablutions, and prayers, are ready for another, but only a moderate turn of work,—we proceeded with the angular instrument to the central station among the trenches, to make the observations required ; hoping too for comfort extraordinary, because that part of the ground would then be in the shadow of the great mass of the Pyramid, as thrown by the westering sun. (See Map in Plate II.)

Well, in the shadow it was ; but that did not prevent the temperature going up to 92°, 93°, 94° ; why, where is it going up to ? we thought, and what is the meaning of this, that in proportion as the sun

goes down low in the sky, so does the temperature continually rise? The fact is, that one of the hot winds of the desert was then beginning to blow; and was bringing to us, not only the heat of a more southern parallel of latitude, but the physical circumstances of a region approximating to an earth without water; and *that*, in all Egyptian latitudes, is something very tremendous indeed, as well as happily not often endured.

In a natural-philosophy point of view, this want of water effect is a sufficiently interesting inquiry, and was first treated of very seriously by Principal Forbes in the Transactions of the Royal Society of Edinburgh; with the result of showing, that near the latitude of 45° , mean temperatures are the same, whether the relative proportion of land to sea, in the parallel, is large or small; but that, north of such a position, a large proportion of land is invariably accompanied by a lowering, and south of it, with a rising, of the mean temperature; and to such a notable degree, as to form a most powerful climatic influence on the earth as it is.

To take, however, only the case before us at the Great Pyramid,—and, supposing land and sea fairly and pleasantly divided all around and beyond it on every side,—the mean temperature of the year, and therefore a very fair representation of the particular temperature for March 23d, should be (*i.e.*, of the mean for the day and at the sea-level) about 69° Fahrenheit. Whence, then, comes,—though with a

semi-diurnal range of 8° or 9° , and even near the time of the sun going down,—that burning, red-hot day, of above 94° ?

The wind, blowing from the south-west at the time, was bringing us the temperature of a more southern parallel; but even if it had brought us undiminished the temperature due to a position three hundred miles farther south,—that would only have raised the above 69° to 72° ; or if of seven hundred miles south, only to 76.6° ; and that would have required the wind to have been blowing in the southerly direction, for full three days, when it had actually only been so blowing for six hours, besides some other impossible circumstances. The mere latitude-angle variation therefore, of a purely solar climate of the *general* earth, was by no means sufficient to explain the temperature felt.

Let us now, however, try the effect of the only recently acknowledged principle of an excess of earth to sea in the parallels concerned,—and we find, that for the Pyramid latitude, the mean temperature may then be raised to 81° ; at three hundred miles south to 86° ; and at seven hundred miles south to 97° . And to these 'excessive quantities,' we may perhaps add, in such a region, 'at least;' for the observations on which the above results are founded, were by no means made in localities where the circumstances were so nearly those of an earth without water, as are unhappily many parts of the tract swept over by the Pyramid south-west wind. The

theory, indeed, admits of neighbouring parallels having sea to land in any proportion you like ; when watery vapour is never far off, to modify the solar temperature in that happy manner so necessary to all life. But when for a great space to the east, the west, the north, and the south, there is nothing but one arid earth under the cloudless parallel of 25°, the very last atoms of moisture seem to be exhausted ; and the atmosphere of such a region then becomes,—or without the acting of such regular and long-continued currents as the trade-winds, is always in danger of becoming,—a medium merely of dry, scorching, permanent gas ; totally unfit, therefore, for man, quite irrespective of temperature,—though that does then range also dangerously high, and very much higher than ever experienced under the rainy equator.

From this point of view, then, we may quite well explain the relations of some travellers, from Bruce in Africa to Palgrave in Arabia, as to the simoom or poisoned wind ; one of the efforts of nature, under a high unclouded sun, and in the midst of desert sands, to get rid, in a certain confined tract of air, of the last vestige of heavenly moisture. A fearful trial, is this simoom, for living man to have to pass through ; there is not much velocity in the wind, no sand or dust in the air, yet¹ ' the horizon darkens ' to a deep violet hue, and seems to draw in like a ' curtain on every side ;' for the gas, unpenetrated

¹ Palgrave's *Central Arabia*, vol. i. pp. 18, 19.

by watery vapour, is coloured ; then ' a still heat, ' like that of red-hot iron slowly passing over the ' prostrate forms of men and beasts, is alone to be ' felt ;' and when at last the ordinary trade-wind begins again to blow, and, interchanging many films of air from a distance, restores the moist element, and with it the light of day,—the survivors arise, ' half-dead with exhaustion, and looking more like ' corpses than living men.'

Quite similar as to the colour, is Bruce's account of the simoom, or dry gas air ; for again and again ' when Idris cried with a loud voice, " Fall on your ' " faces, for here is the simoom ;" ' the great traveller describes, ' and I saw from the south-east a ' haze come, in colour like the purple part of a rain- ' bow : it was a kind of blush upon the air.' And though a moderate amount of drying of the atmosphere is very good as a disinfectant, this absolute drought, was as bad for the interior organs of living man, as taking oxygen in the concentrated form of nitric acid. Hence the attribution of a poisonous quality to the simoom ; and,—while the merely mechanical disturbances of whirlwinds and moving pillars and clouds of sand were soon forgotten,—only a small mouthful of simoom which the great traveller took into his lungs, produced an effect which he did not get rid of until two years after, and then by dint of gentle stewing in the tepid baths of Poretta in Italy ; while from his memory, it was never discharged,—resulting in his descriptions of his suffer-

ings, 'in passing through melancholy and dreary
' deserts, glowing with eternal sunbeams, and venti-
' lated with poisonous winds,'—or, infested ' with all
' that is terrible to the feelings, prejudicial to the
' health, and fatal to the life of man.'

At the Pyramid, there was nothing so severe as this; but when near sunset, the thermometer appeared above 94°, and the bubble of the spirit-level was momentarily contracting from the expansion of its fluid, so that I was doubting every moment whether I should not take off the instrument, and bury it deep in the earth, or somewhere or other out of reach of this fearful and anomalous heat,—all of a sudden, the most delightfully cool fresh breeze blew on my face,—I darted to look at the thermometer, and lo! it had gone down to 91°, and the spirit-level was saved for that occasion.

Shortly after, too, we caught sight of the Polar star in the bright twilight sky; compared it with the signal-staves of the trenches again and again; and then packed up the instrument, and sent it quickly to East Tombs, by the various men who had been engaged for the portage,—but who had been, during the last half-hour, greatly divided in their minds as to whether to begin their evening prostrations towards Mecca then and there at the trenches, while observations were going on,—or, to wait until the day's work was completely over.

Alee Dobree, however, had remained rather behind the others; and as my wife and self were on

our way home, bringing up the rear,—we suddenly, on passing over a tomb-hill, came full upon him in single combat with an enormous cobra. The cobra, with expanded neck, had reared on his tail in most approved manner for striking, but Alec let fly at him with one of Mr. R. M. Smith's stout ashen tent-poles, in such vigorous manner, that the contest was over almost as soon as it was begun; and though the tail of the animal did move on being touched, when we came up,—Alec explained that that was only the residual life therein; the main life, that of the head, now smashed as flat as a pancake, having departed long ago.

The snake was such an unusually large one, that Alec carried it to East Tombs rather proudly on the end of the long stick; and we looked forward to photographing it next morning with measuring-rods placed alongside it, as an appropriate tribute to Mr. Joseph Sidebotham's method, and recommendation to all photographers. But when morning came, what was our annoyance to hear, that the ancient Ibraheem had carefully carried the carcass to a distance the previous night, and thrown it down a sepulchral pit some seventy feet deep.

'What had he done that for?'

'Excuse me,' he began, and then went on with a long series of stories about snakes; 'and how, if a great snake is killed, and its body remains in the neighbourhood,—the *wife of the snake* comes at night, and mortally bites every one all round

‘ about the place where her husband died.’ And our prophet even went on to describe his own past experiences of the terrific nature of her, the wife of the snake’s, inevitable revenge, and her marvellous subtilty against the children of men,—until we began to think that this was a land where, though ‘ Allah ’ is worshipped by day, the serpent is the power that is feared at night.

CHAPTER XV.

ASTRONOMICAL OBSERVATIONS.

FROM the first week in March, I had been practising every fine night at East Tombs the art of taking observations with a certain altitude and azimuth instrument of rather large size, known to us as the 'Playfair;' and the period of full moon—the glorious full moon too of an almost tropical region—had been chosen for this purpose, so that there might be light enough to assist in finding out how to manage one of the most powerful, but most complicatedly curious of so-called portable instruments ever employed in travelling astronomy.

Such a one had been brought to the Pyramids, because, not only was it the alone movable instrument possessed by the Royal Observatory of Edinburgh, and a first-rate one too,—but because there was that melancholy claim about it in the eyes of any earnest practical astronomer, of its having existed in the world for nearly two generations of men, or fifty-nine years, and never having been employed during all that interval in making a single recorded observation under the blue sky of heaven—not one

measure whether of the burning sun by day or the shining stars by night. In fact, it was a grievous case of a fine astronomical instrument going to its inevitable latter end of decay, without having fulfilled its mission.

Yet it was a splendid instrument, or had been deemed so once ; for it had been procured from Troughton, without regard to expense, and presented to the great Playfair, as an engraved silver plate still records, by a number of admiring students in his class of Natural Philosophy in the University of Edinburgh, in the year 1806. Confessed, too, it was by all who then beheld it, to be an irreproachable astronomical circle ; and certainly the chief ornament of the principal Scottish Natural Philosophy Museum for years and years. At Playfair's death, the instrument was conveyed over to the Astronomical Institution of Edinburgh, of which he had become the President during the latter years of his studious life ; and in one corner of whose Observatory's enclosing walls on the Calton Hill, a classic monument to the great native mathematician of that age was soon after erected, in the fair, white sandstone of Modern Athens. Years passed, and the Astronomical Institution having succeeded in the grand object of its existence,—in not only building a large Observatory, but getting the Government to adopt it as 'The Royal Observatory of Scotland for all time 'future,'—closed its honourable and useful career, leaving the Playfair instrument, amongst other valu-

able property, to the care of Scotland's then newly-appointed Astronomer-Royal,—the late inimitable Professor Henderson.

Cared for by him the instrument was, and respected for its descent, but no actual use had ever turned up for it; and it was still, long after his premature and much-lamented demise, merely an ornamental furnishing of a chamber, to be idly, though admiringly, looked at,—until this proposed visit to the Great Pyramid in 1865 came to be agitated. But that was surely a noble occasion, and well worth the instrument's while to have waited for so long; because, if it could only procure for men good determinations of the astronomical requirements there, its latter age might then be passed in honoured repose.

Now hitherto, the instrument had always existed in one grand piece, or in a completely set-up state, as if ready for immediate observing; and it possessed a great mahogany case for itself as tall as a sideboard. But to prepare for travelling to Egypt, the whole construction was divided into three parts, each of which was furnished with a strong deal box suited to its figure, while the tripod stand formed a fourth package, and the levels, lamp, and other small matters a fifth. Thus packed, it had travelled as yet with perfect safety; and when duly put together upon its stand on the cliff ledge at East Tomba, displaying its large telescope, its two double circles of bright brass, silver divided, and reading off by glittering microscope micrometers for both vertical

and horizontal angles,—the Arabs were positively astounded, and talked earnestly to each other touching what other gorgeous things might yet be contained in some of the long boxes in the Howard Vyse instrument-room.

So much for the triumph, if that had ever been looked for by the maker, in the construction of the instrument ; but then came the trial, when an observation had to be made, and every part was found to be curiously arranged, as if to consume the utmost amount of time, in overcoming the almost impossibility of there effecting what should be the simplest and most straightforward proceeding possible. The microscopes, of course, had long since been deranged, and having to be adjusted for focus, 'runs,' and position were found capable, on the slightest touch, of being made to deviate anywhere whatever ; and, after an immense number of trials, having been brought by happy coincidences somewhat close in most of their elements, were then found to have no means of ascertaining what degree of the whole 360 was being observed. In despair at these and some other features, which began to illustrate why the instrument had existed in the world so long without ever having been used,—we remembered Dr. Pearson's old volumes on Practical Astronomy, and his orderly setting forth, how this species of astronomical circle was the one considered sixty years ago 'as proper 'for a gentleman, to enable him to determine the 'latitude of his country-seat,'—not only with due

accuracy, but, as was thought by some, of even more importance,—with conspicuous employment of all the most ingenious methods of correcting errors, and with many roundabout plans for securing the newest refinements then known to high astronomy.

Well! that description reopens the employments of scientific society in the times of our grandfathers—useful geographical employments, too, in their day; but which the spread of the Ordnance Survey has since then so completely rendered unnecessary, that their successors have to a man turned their back on such problems, and have taken either to equatorials and double-star observations; or, the smaller-handed amongst them, to photographic cameras, and all their attendant ‘baths and processes.’ Hence, at the Pyramid, with this fine instrument,—whose inventor, with rather over-kind officiousness, had originally intended it to occupy much time hanging heavy on the hands of a country squire, and not let his results come too easily or quickly,—some little instrumental adaptations had to be performed, until, on plain mechanical principles, the really magnificent power of the large telescope and the circle’s microscope readings could be rendered available with a little more despatch.

Then, as intimated already, came serious observations of meridional stars for latitude; from dark in the evening until those smaller hours when, at that season of the year, the constellation of Scorpio rose,—a Cosmian colossus crawling straight up into the

eastern sky,—and formed the most strikingly life-like, yet tremendous-looking in such a latitude-parallel, of all the asterisms on the face of the heavens. In this manner, the latitude-position of East Tombs being obtained,—a simple pacing of the meridian distance between that spot and the centre of the Pyramid, gave the reduced latitude for the latter with all requisite accuracy, and a great saving of expense. But presently after, came observations which must be made at the Pyramid itself; such as to determine, not as had hitherto only been done by others, the direction of the rude outside masonry with the astronomical meridian,—but that of the central axis of the finished entrance-passage, in the state, or as referred to the very surfaces, left by the builders at the time of the building before history was born; and this was surely a problem worthy of the veteran Playfair circle, and of some exertion too.

So the place was surveyed, and as the regular tripod stand was perfectly out of the question on the upper edge of the passage's basement sheet of white stone,—descending as it did, steeply, but in steps, at a general angle of near 50° on the outside, and in a smooth, slippery slope of 26° on the inside,—the carpentry of the Howard Vyse Tomb was put into requisition to make, out of our dressing-tomb table with four equal legs, an instrument-stand with two long legs, one short one, many diagonal braces, radiating surface-grooves to keep the foot-screws from slipping, and many other observational require-

ments ; in such proportions too, as not only just to stand on three nicks that were found cut into the stone, and in the vertical plane of the passage produced,—but to carry the instrument with its centre of vertical motion exactly on the level, at that point, of the very axis of the same passage.

All this, of course, required numerous trials to make it practically both what it should be for accuracy, and such as could be worked safely in the dark. But, having been at last brought to a respectable condition, together with a neat luminous signal, formed by a steady light shining through a microscopic hole in a thin bevelled board, fixed in the centre of the lower end of the passage,—we waited with anxiety for the concluding week of March ; when the gain of sidereal, upon mean, time, as already hinted, should bring the greatest elongation of the Pole-star westward, to occur about sunset. For in that way we hoped to be enabled, both to make the determination of the azimuthal direction of the passage depend on the most unexceptionable position of the Polar star for that sort of observation,—and then have the instrument packed up and brought back in all its five boxes to East Tombs, while there might still be twilight enough in the sky, to enable the bearers to avoid the many sepulchral pits which were close on either side of the very rough and uncertain path. But that last March week was cloudy every evening, and we could do no more than practise making observations and

crawling round the instrument on the various slopes, so as to read off the microscopes on every side, without undue pressure on any part of the table-stand ; which, though without any looseness, was certainly rather springy.

At last, however, on Monday, April 3d, the sky being clear once again, Alee Dobree brought over four men, all, it seemed, his own relations,—for he was something of a nepotist where gains were to be made,—and then, although I would have sent each box by two men carrying it by the handles, and caused them to make several journeys,—they asked, with a reference to another plan of their own, ‘ But who ‘ is to prevent the first boxes being stolen at the ‘ Pyramid when we are coming down for the others ? ‘ That is not at all good,’ they said, ‘ in the desert, ‘ where Bedouins may be watching your every ‘ motion from behind rocks, and waiting their opportunity ; and besides, it would be too heavy ‘ work for the men’s arms.’ So this was the way they managed it,—they made one man’s toga into a thick pad for the top of his head, and then two of his companions lifted one of the heavy boxes upon it, and told him to walk off ; the others were very soon similarly burdened, and, following in Indian file, formed a sort of caravan of loaded men, who were groaning like camels, and declaring their heads were ready to break in. But for all that, they stepped along bravely, and never rested until they had reached the top of the rubbish mound at

the entrance passage's mouth, and deposited their burdens safely.

Then came my part of the play, in putting the instrument together upon its stand ; testing its position with reference to the passage ; going down to the lower end of said passage, to test the luminous signal's position similarly ; and finally, observing. First, while daylight was still strong, and the Polar star invisible,—making angular measures for the vertical depression of the lamp-signal ; and then, after measuring the horizontal angle also, turning the telescope to the computed place of the Pole-star, so as to catch the first glimpse of it which the momentarily failing light of the sun, in its rapid approach to the horizon, should allow. In this manner, several references were made, one after the other, from the lamp-signal low down towards the south, up to the Pole-star on the north, and *vice versa* ;—until we were sure there was no material error on the angular measure of things as then before us ; and the caravan of head-loaded men was formed as before, to replace everything for the night within the only safe precincts throughout all that region ; viz., the guard-defended East Tombs.

Next day, the men declared their heads were too sore for any more work of the same kind ; but the day after, they were all marshalled again for a similar observing expedition,—this time to the entrance of the *second* Pyramid ; and after all the

observations had been gone through, and duly computed, the next morning,—for the final results are not to be seen instantly by what is read off the instrument at the time,—we were surprised indeed, to find how closely the meridian had been hit by the ancient builders in both cases. Many persons had indeed talked in a general way, ‘of the astonishing ‘justness of the Great Pyramid’s orientation ;’ and some had declared, ‘it is perfect,’ or, ‘it coincides ‘exactly with the four cardinal points,’—but they had made no positive instrumental observations as to the numerical amount of error or circumstances of the fact : and all they really meant by those grandly-turned phrases, was probably,—that the position was not more than a degree or two, from the truth, when they had expected to find it a whole handful of degrees out.

The only *measure* which I have been able to meet with, is by the Astronomer Nouet, one of the French *savants* of 1799 ; and he made the Pyramid, nineteen minutes of arc out ; but considered that amount, for the occasion, a small quantity. He, however, only referred the star to the general trending of the outside of the Pyramid,—probably preferring to mount his ‘repeating-circle-of-Borda,’ on the safe and flat ground at the north-east foot of the Pyramid,—than to erect it on the dangerous knife-edge, formed by the basement-sheet of the entrance passage ; or, perhaps, because he had not yet come to believe in the casing-stone theory of the outside of

the Pyramid ; and had not appreciated, that nothing but those outside surfaces, which the builders of the Pyramid themselves left as such, are worthy of any attention from an accurate measurer. Nouet died early, but left quite proofs enough behind him of his gallant and impetuous spirit to show, that had he only seen a real scientific necessity for it, he would have run any risks, either to his repeating-circle or himself, in order to have got one really good measure,—not of a line formed merely the other day by vulgar-minded depredators, intent alone on demolishing and plundering,—but one which the Pyramid kings, on noble ends intent, had laid out with their own hands ; and which had been waiting, during ‘the forty centuries’ appealed to by his own master, for some one or other to come and declare its ancient perfection ; but had so long waited in vain. Hence, it was left to the Playfair instrument of the late Astronomical Institution of Edinburgh, and the year A.D. 1865, to prove beyond all doubt, that the error is not 19', but only 5'!

Nay, indeed, there are indications that the 5', or perhaps 4' and a few seconds of space, though forming an actual outstanding difference between the direction of the Great Pyramid's entrance passage and the present astronomical meridian,—are not to be looked on altogether as an error ; because, amongst other things, the passage of the second Pyramid is found to have almost exactly the same direction in space. The clambering up to that passage mouth

was even more difficult than at the Great Pyramid ; and erecting the Playfair alt-azimuth upon its upper edge, was like hanging it on the brink of a precipice, and asking an observer to walk round and round it. But with the assistance of the Arabs it was done ; and a lamp-signal being established below, at twelve hundred and fifty inches of measured distance along *there*, the *granite*-formed entrance passage,—a complete set of perfectly independent observations was obtained, for both the dip and azimuth of that passage. The former quantity then came out, though with a difference under the microscopes, yet nearer to the dip of the Great Pyramid passage than any other men's observations of *it*, hitherto published, have agreed among themselves ; while the latter element, developed itself so excessively close,—will the reader allow me a few lines to try to give an illustrative idea of how close.

During the very time that these observations were going on, we received an interesting letter from an engineer in Scotland, a man of most varied experience, and discussing with considerable acumen the probabilities of correct workmanship being found in the Pyramid. Eastern workmen, he considered, are very clever, but have no ideas of rigorous mechanics, of straight-edges, and the uniform curves described by radii of definite length revolving round axes in firm bearings ; hence they produce finely polished, but wavy and uneven surfaces. And ancient Greek workmen, he considered, had inimitably fine æsthe-

tic perceptions, were never wrong in a matter of taste, but were utterly deficient in the principles of manufacturing; wherefore it came that even the Athenians, under Pericles, could not make *two things alike*. Now this is what the moderns not only *can* do, but do even too well, *i.e.*, abundantly, for they carry it not only into manufactures, but the fine arts also: whence the corporation of a great English city, wishing to do the immense honour to their late eminent citizen, John Dalton, of erecting *two* statues to him within the limits of their burgh, —really thought they were doing so by putting up two casts from the same mould: and again, a Scottish architect, fatuously desirous of emulating the builders of ancient Greek temples,—repeated a certain lion's head no less than sixty times, without variation, round an important public edifice.

But the builders of the Pyramid are neither to be compared to the trinket-making Indians, nor to æsthetic Athenians; no, nor yet to the manufacturing moderns of Great Britain,—though undoubtedly approaching nearer them than either of the other varieties of workmen; for they of the Pyramid excelled in large mechanical work, and *could* also make two things alike when they chose; and if they seldom chose, it was because they did not see sufficient need of high order for attempting the feat oftener. To compare, however, their skill, when they did put it forth, with the best things the moderns have ever done in the same way,—is there any more

accurate class of modern workmen on the face of the earth than astronomical instrument-makers? and is there any structure wherein it should be easier to make two things alike, than two halves of the same astronomical circle? that is, to secure in a moderate-sized circular disk of brass, that from its 0° to 180° shall be equal to from 180° to 360° . That shall be the modern *chef-d'œuvre* against which we will compare the Pyramid builders' ancient work.

Now we tested, towards such an end, the azimuth circle of the Playfair instrument,—the high-priced manufacture of Troughton, the chief of all English instrument-makers,—tested it, too, very closely each evening by the manner in which the passages of the Great and second Pyramids were compared with the Pole-star; and found,—as of course will be found whenever an inquiry of the sort is pushed with sufficient accuracy,—that no man's work, not even Troughton's, is perfect; for there was a very sensible amount of difference in seconds of space between the two halves of his one and the same circle.

Amongst careful astronomers, such a result amounts only to the old, old story, which they all know far too much of. But what seemed new, and really surprising to meet with in fact, when pushing the case on further to the Pyramid, was,—that that amount of difference between the halves of Troughton's circle, expressed in angle, was greater than the angular difference between the azimuthal directions of the axes of the entrance passages of the

two ancient Pyramids, viz., the Great Pyramid and the second Pyramid; though removed as those buildings are by so many hundred feet from each other, and exposed to the brunts of the world for ages. So very nearly, then, had the ancient builders there, made *two things*, and two things of a very high nature and difficult order, *exactly alike*.

On the evening following the hazardous affair at the second Pyramid, we merely took the Playfair instrument and its corps of men to King Shafre's tomb; a short and nearly level road, and the place itself of comparatively almost puerile simplicity. The sepulchral room there was evidently very fairly in the meridian, and we wished to ascertain how near. Already we had been there one noon-day, watch in hand, and told Alee Dobree a quarter of an hour before it came to pass, 'Now, when the hands ' come to such and such a position, or when it will ' be noon exactly, as ascertained by observations of ' stars last night,—that great black shadow under the ' east wall will be gone, and you will see no shadow ' under either wall;' but he had replied, 'Oh no! ' it's impossible to have so much change in the ' shadow in so short a time; and, besides, the sun is ' not accurate, for,' he said, 'he knew quite well that ' the sun rose earlier, and very much earlier, in the ' day, at some parts of the year than others.'

Much astonished was I on this, as on many other occasions in Egypt, to find how little skilful the

natives are in making use of the sun as a time-keeper, compared with the less civilized inhabitants of Southern Africa. There, every half-wild Hottentot prefers his own look at the place of the sun, before any watch of any European ; but in the long-civilized valley of the Nile, one man depends upon the words or orders of another as to what he is to believe about celestial phenomena ; and human precept is thought vastly more of, than the laws of nature. A weakness, however, arising also from the said laws being so perversely employed by the general Egyptian mind ; one of whose characteristic aberrations from primitive truth and modern science has always been, to prefer the risings and settings, to the meridional passages of heavenly bodies for time-keeping purposes. On this one day, however, Alee condescended to wait to see whether, what a local Dervish had told him, or what I now tried to explain, would prove correct ; and he really seemed not a little struck when, at twelve o'clock, as predicted, no shadow appeared all along either east or west side of that remarkable tall-walled room of red granite. It was really a memorable sight ; and in that country, where, if they keep any one particular time at all, it is apparent solar time, this well-chamber of King Shafre's tomb,—however many thousand years ago it was built,—enables a better observation for the instant of modern noon to be taken, than all their present time-finding means in

the wealthy and picturesque city of Masr El Kahireh.

Again, on another day, to get something like a permanent record of this architecturally-chronological fact, we had taken three photographs of the northern end of the room ; one four minutes before, a second at, and a third four minutes after, the time of computed noon ; obtaining thereby very sensible shadows under the east and west walls respectively, on the first and third occasions, and no shadow anywhere on the middle one. But photographs of minutes of time are not of so searching a character as actual astronomical observation ; and when we came to prepare for establishing the Play-fair instrument, on the middle of the northern, and a lamp-signal on the southern, end of the said sepulchral room, and measured the walls accurately therefor,—they proved to be twisted, and of unequal lengths ; while the Pole-star observations made subsequently, showed a very notable defalcation from microscopic truth.

In fact, while there was nothing of the grandeur, there was also little of the exceeding accuracy, of Pyramid passages, about these walls of a mere tomb, approximately oriented though they may have been : and the chief result of the evening was, the relief to all our feelings, of observing on innocent level ground, where the ordinary tripod of the instrument could be used, and nothing was in danger of running off, or sliding away of itself.

Then, too, there were granite seats around for all the party, where, while I was making the observations, they did sit—watching the stars successively lighting up in the momentarily darkening indigo-blue sky; and the Arabs, one of whom had been in Syria, and compared this evening with the last, as being ‘like a resting in a garden of pomegranates after climbing among the rocks of Lebanon,’—inquired pathetically of my wife, if we should ever think of them after we had returned to our own country? and would we prove it by writing them a letter? for they would never go into Cairo without calling at ——— and Co.’s, our agents there, to see if we really remembered them.

The next afternoon the men had to brace up their heads again for hard carrying-work, for we were determined then to take the powerful Playfair instrument, maugre its inconvenient size and weight, into the interior of the Great Pyramid; and there determine by its means, unrivalled hitherto over all that region of monuments, the real vertical angle, so much disputed, of both Grand Gallery and first ascending passage. For this purpose a new lamp-signal apparatus had been prepared, adapted to either, or both, the upper end of the Grand Gallery and lower end of first ascending passage,—the astronomical circle being placed nearly half-way between, on the very convenient flat floor leading to the Queen’s chamber passage; and having its

horizontal axis nicely adjusted to the same vertical height above a joint, marking the base of the ramp line,—that the lamp-signal (looking very much in the telescope like an image of the planet Jupiter, but with still more flattening at the poles, on account of the angle of 26° , at which the really round hole was looked at), stood above the inclined floor, in the distance, either way. This was to be the last occasion of observing any lamp-signal in or about the Pyramid; so we had taken a deal of trouble in utilizing both our experience of the passages, and involuntarily growing skill in carpentry, in making an apparatus that could not be put out of order, and could not carry or show the light, except at one nicely-defined vertical height above the slope of the floor beneath it. (Plate i. vol. ii.)

Hence, partly, the observations made there, near the northern end of the Grand Gallery, were particularly satisfactory; and one of the Arabs present, who had contrived to worm himself into our employment, and whom we began to suspect of being in the private pay either of one Nubar Basha, the chief of a secret department in the Citadel, or of Mariette Bey, to see whether our real object was 'to break the Pyramid,'—if he reported facts correctly, would have given descriptions of how we treated each termination of the ascending interior passages, almost as if they had been the stars of heaven; while the instruments employed in the operation, were much more likely to suffer, than

inflict, injury on coming into contact with the Pyramid.

So we thought certainly after packing up, and in making our exit by the narrow way of the first ascending, now of course to us descending, passage. For, whether it was that the men were tired at the length of time they had had to wait in the dark and bad air, merely looking on at me reverse and re-reverse the telescope and microscopes on the distant light ; or that they knew, when we were now, in a small-bored passage, all following each other like so many air and water bubbles in a narrow glass tube, that those in front were quite safe from being interfered with by an overseer from behind,—certain it is they began to drag, instead of carry, the instrument-boxes along the broken floor, with thundering knocks ; and Alee Dobree, the Arab, when ordered to push past and stop all that noise, quite quailed before the superior strength of his ruder namesake, Alee the Egyptian. A perfect Hercules this man in build, with such positive 'heaps of muscles' in his deep bare thighs, as transcended even the statues of the Grecian hero ; and, in the limited cross section of a Pyramid passage, forty-seven by forty-one inches only,—he became a concentrated mass of opposition and intensity of strength most difficult to deal with.

Meanwhile, as it had been the intention to conclude off this evening, with more observations of the Pole-star, combined with the outside of the entrance passage, (and what thanks and praises

would we not have given His Highness the Viceroy, had he, by boring a straight hole through the granite portcullis, enabled us to compare, not the directions of these petty cramped-up passages only, but the line of the *Grand Gallery* with the meridian of the northern heavens),—as this other work, we say, was to be accomplished before we quitted the Pyramid, and the unequal-legged table-stand had been already established over the top edge of the basement-sheet of the entrance slope,—my wife had found her way there about the evening hour, and had for some time the whole of that hollowed-out region of enormous and tilted, but intentionally tilted, cyclopean blocks of stone to herself. On one side, and half around her, the greatest mass of building ever erected by man ; on the other, the desert hills extending away into the extreme north-western distance, towards the man-improved site of the now utterly ruined Pyramid of Aboo Roash ; and, more towards the east, the sand-plains which cover, and the distant palm-groves which mark, the ruins where some Egyptologists place the site of ancient Cochoe, a town that was of importance in the days of the early dynasties.

Presently she heard the most faint and far-off conceivable sounds as of nothing terrestrial, coming in fairy-like echoes by way of the entrance passage, out of the mysterious bowels of the mountain of masonried stone. By degrees these sounds increased in tone and character, until some human meaning

could be attached to them ; and by and bye came one Arab after another out of the dark interior, bearing one or another box of the Playfair altazimuth, until the whole observing party had at last emerged to the light of day ; by this time faint day, struggling with growing moonlight and gilded with the evening star.

Small occasion though now, to repeat the description of precisely how the comparison with the Polar point of the heavens was again made,—for the observations themselves will be found in our Second Volume. Neither is there much need to spend time over how, during the next day, we measured the length of every side of the base of the Great Pyramid ; and also, with the portable sextant and artificial horizon, determined the "angle of elevation of each flank, from the top of its central mound of rubbish ;—unless it is to express something of the utter astonishment, combined with feeling of grief, wherewith we wondered how, when the real facts themselves seemed to admit of no more than a small handful of minutes of error,—how the best observer in the late learned Cairo Institute had obtained differences of three and four *degrees!* Concerning which, too, he had given me very kindly a copy of his actual observations, and I had them in my waistcoat-pocket to refer to at that very moment :—but otherwise, small occasion, we say, to delay over these matters, for they formed but rough work of very ordinary measuring kind, and

we were preparing meanwhile for a peculiar night on the summit of the Pyramid.

Never had I indulged in any of the rhapsodies of those scientific varieties of Egyptologists, who hold the Pyramids to be ancient astronomical observatories ; and of all unlikely, impossible, and inconvenient parts of them, decide that the summit was where the work was carried on. But, as the summit of the Great Pyramid is in these latter days in which we live, more accessible than of yore, by reason of the once smooth slope of the casing stones having been removed,—I thought there would be no harm in ascending for a night with the Playfair altazimuth, and trying what observing up there might be like. There would at least, too, be one positive good obtained, viz., a salutary check on the latitude observations at East Tombs. For there, while we were at a notable distance from the Pyramid, and the hypercritical could object that its mass being on one side of us, and partly in the meridian direction,—*might* influence the plumb-bob or level, and spoil the latitude deduced ; on the top of the Pyramid, on the other hand, we should be not only vertically above the centre of the base,—but have the whole mass beneath our feet, or in the only direction in which it cannot possibly have any disturbing effect on the angle of the plumb-line.

Monday morning, therefore, April 10th, was spent in interviews with the Pyramid Sheikhs, and

arranging special plans for the safety of all the property at East Tombs during our one night's absence, for my wife was to be of the summit party : and about two o'clock P.M., the first load of instrument-boxes was sent up, two men now to each box, to lift it up every stage of the Pyramid steps. At four o'clock, a second party started, including ourselves ; and most of them clambered up to the summit platform as quickly as they could. I was latterly, however, rather behind the others, being anxious to measure the height of the Pyramid, by summing the individual height of every step ; an operation, indeed, which had been performed most carefully by Bonaparte's architect, Le Père, and his colonel of engineers, Coutelle, also ; but which it was quite within the limits of propriety to repeat.

Now these Great Pyramid *steps*, or things that are used in the present day as steps for travellers ascending,—the reader must by this time appreciate pretty well were never intended for steps originally ; and for the very good reason that they were then considerably within the bulk of the masonry, whose outside was the smooth sloping surface of casing stones. That slope, however, removed,—and certain ranges of filling-in or backing-up stones also,—the rectangular corners of the horizontal layers of masonry forming the bulk of the Pyramid, are left outstanding : acting on the principle of steps, because each course must retreat a little inwards from the one below it, to make the general shape of

the Pyramid ; but mightily different from steps for average-sized human beings in point of actual height ; seeing that the best proportions of blocks wherewith to construct a cyclopean building to last for many thousand years, is one thing,—and the height a man can conveniently lift his feet, another.

The latter is indeed reckoned by architects at not much beyond seven inches ; while the thicknesses of some of the Pyramid courses of masonry are at least seven times seven ; a very inconveniently high step, if any one will actually try it. Hence, the almost necessity for Europeans to have Arab assistance in the climbing. But, as I required both to be independent, and at the same time able to ascend easily and comfortably, as suited to measuring carefully all the way,—I made myself a little mechanical help thereto. Alee Dobree had looked on rather critically, even cynically, at its commencement ; and declared that, in the course of his long experience, he had seen travellers bring all sorts of portable stools with them, to try and divide the high steps ; but none of such European contrivances, he declared, were found to answer in practice,—except to make the position more critical and dangerous ; and their owners had invariably to end in getting the Arabs' assistance, just the same as all the rest of the world. He confessed, however, as the work proceeded, that he had never seen a 'stepping-board' exactly like mine ; *i.e.*, about the height of a spade, and eight inches broad, with one hole near the middle for put-

ting a toe into for making the auxiliary step ; and a second hole near the top, to serve as a convenient handle for drawing up the board by, after one should have mounted the unconscionable fifty-inch platforms ; and the machine was not only employed, but found both very useful and perfectly sufficient ; as well too in the descending as ascending.

Our ascent was from the north-east corner at once, which is not quite the usual path ; but it equally and immediately put us into the train of thoughts which many travellers have described as occurring to them in their climb, and perhaps none have expressed better than Dr. Clarke. ‘As we drew near,’ says this scholarly writer, ‘to its, the Great Pyramid’s, base, the effect of its prodigious magnitude, and the amazement caused in viewing the enormous masses used in its construction, affected every one of us ; but it was an impression of awe and fear, rather than of pleasure. In the observations of travellers who had preceded us, we had heard the Pyramids described as huge objects, which gave no satisfaction to the spectator, on account of their barbarous shape and formal appearance ; yet, to us, it appeared hardly possible, that persons susceptible of any feeling of sublimity, could behold them unmoved. With what amazement did we survey the vast surface that was presented to us, when we arrived at this stupendous monument, which seemed to reach the clouds ! Here and there, appeared some Arab guides upon the im-

' mense masses above us, like so many pigmies,
' waiting to show the way to the summit. Now and
' then we thought we heard voices, and listened ;
' but it was the wind, in powerful gusts, sweeping
' the immense ranges of stone. Already, some of
' our party had begun the ascent, and were paus-
' ing at the tremendous depth which they saw
' below. One of our military companions, after
' having surmounted the most difficult part of the
' undertaking, became giddy, in consequence of look-
' ing down from the elevation he had attained ; and,
' being compelled to abandon the project, he engaged
' an Arab to assist him in effecting his descent.'

But when the Doctor's party had reached the top,
and found that the upper portion is very much
easier than the lower, on account of the greatly de-
creased height of the steps, averaging there only
twenty-two inches, ' an Arab was sent with a short
' note to the officer, urging him to make the attempt
' again ;' and that method being ineffectual, the
Doctor himself went down, ' and having, with some
' difficulty, prevailed on his friend to renew the
' effort, succeeded in conducting him to the top.
' He, the friend, expressed himself unwilling to re-
' turn without having gratified his curiosity by a
' view from the summit, but confessed that the
' effect produced upon his mind, by the stupendous
' sight around him, was rather painful than pleasing,
' and had rendered him wholly unfit for the exertion
' it required,—confirming the truth of Mr. Burke's

‘ observations in his philosophical inquiry into the
 ‘ origin of our ideas of the sublime, as to the impres-
 ‘ sions to which men are liable, who, without the small-
 ‘ est personal danger, are exposed to the contempla-
 ‘ tion of objects exceedingly *vast* in their dimensions.’

Again, too, and with special reference to being very close to the Pyramid, where, besides a knowledge of its enormous size for a work of man, it subtends an angle of 180°, or half the sphere of view and sense, Dr. Clarke says, ‘ The mind, elevated
 ‘ by wonder, feels at once the force of an axiom,
 ‘ which, however disputed, experience confirms,—
 ‘ that in vastness, whatsoever be its nature, there
 ‘ dwells sublimity.’ But, as the idea of the beautiful is said to be founded on pleasure, and that of the sublime on pain, so does Dr. Clarke argue again and again for the indescribable sublimity of the Great Pyramid, from the emotions of terror and feelings of awe, deepening to pain, so often produced on those who, with too irritable sensibilities, have approached it. ‘ Other individuals, however,’ says he, ‘ have felt impressions widely different; and
 ‘ the ideas excited in their minds, have been that
 ‘ of the most dignified simplicity; of miraculous
 ‘ power; and of duration, so perpetual, that, if we
 ‘ were permitted to compare a result of human
 ‘ labour with the immortality which is of Almighty
 ‘ origin, we should say of this Pyramid, that it
 ‘ belongs to an Eternity, which was, and is, and is
 ‘ to come.’ Or, in the solemn-meaning language

of the late Sir William Hamilton's (of Dublin) remarkable ode on 'Quaternions,' and forming their grandest practical realization on the surface of the earth,—the Great Pyramid may be considered as,—
'the three of space, the one of time.'

Ascending is easier, both at the north-east and all the other *corners* of the Great Pyramid; not only because the corner slope of such a solid must be some ten degrees less steep than the middle of its side,—but because these corner lines are built of the hard Mokattam or Maasarah stone; and they have weathered so very much less than the general flank, built of local nummulitic rock, that, viewed by an extremely slanting light, the sides of the Great Pyramid seem to be growing somewhat *concave* towards the centre. As we approach the top, too, the cornering blocks are found to extend further into the courses, until these are at length composed entirely of the hard stones, well squared; and the whole summit of the Pyramid, through a considerable depth, is therefore capped and held together with its best constructive material.

Two hundred and one courses bring us to the terminal platform, about four hundred inches square; but as there are fragments of two other courses mounted upon that, we may say, with M. Le Père, Colonel Coutelle, and Mr. Lane, that there are two hundred and three courses in height existing still; while, if it be true that, in the time of Diodorus Siculus, the said platform measured only one hun-

dred and eight inches in the side, there may have been then five or six courses more. But even that size would only have brought it to the present condition of the top of the second Pyramid,—where there is much to be added both of internal masonry and outside casing; not to say anything of the grand and topmost stone, the head corner-stone of all, to restore the structure to its original completeness. For more exact particulars, however, and for some necessary corrections to the observed mere surface phenomena, see the numerical particulars, and discussion of the same, contained in Vols. II. and III.

By the time that the carrying men had set down their burdens and been discharged, leaving with us on the Pyramid's top, as 'upper' guards for the night, only Alee Dobree and Smyne,—for the latter had been at last freed from the Jeezeh prison, neither much better nor worse in character than he had gone in,—the sun was setting in a dense and lurid haze over the rocky desert table-land towards the north-west; a strong and rather cold wind was blowing from the same direction; and little time was to be lost in getting lamps lit, instrument mounted, boxes arranged into a secure compartment, and many other such necessary night-preparations made. Very soon after the accomplishment of this important work, the two guardsmen went fast asleep under their many-folded togas near one corner of the little platform; all the rest of which was then quite

free for my wife and self to walk over and gaze from, as the view towards any quarter might dictate.

To the south-west stood our nearest neighbour, about on a level with us, the summit of the second Pyramid. Tinged by the light of the sunset-sky on one side, and blanched by that of the rising moon on the other, that monument's venerable head rose high out of the mists of evening,—that hastened to fall on all the lower country, and leave the pair of primeval Pyramids, in isolated grandeur, to address each other with ease over the blue and deep abyss between them: an aerial gulf where, from time to time, a broad-pinioned eagle went floating securely along, but looking downwards on other things as much as we were looking down on him.

Over the eastern foot of the second Pyramid appeared the third, and beyond that similarly the fifth; from continued decrease of actual size, as well as the perspective of distance, a rapidly converging series; only just separable at last from the amphitheatre of sand-hills beyond, the advanced guard of the great south-western desert,—whose arid colours and serrated ridges of rock were traceable round westward and northward for more than 180°; barren, waterless, uninhabited and uninhabitable over its whole extent, and marked by nothing of human work, unless it were a ruined Pyramid on the extreme horizon, and just at the northern end of a stony table-land, bearing about 13° south of west.

Poor Dr. Leider had spoken to us when in Cairo

about that Pyramid, 'Oh, it is the most beautiful thing of everything to see,' exclaimed he; 'to see from the top of the Great Pyramid, just as the sun goes down, far away on the waste Libyan desert, one little pyramid all by itself, and exactly in the west!' A very curious thing it is too, *if really a pyramid*; for it is entirely removed from all the line of known Egyptian sepulchral pyramids, extending as they do from Aboo Roash to Sakkara and Dashoor, but skirting nearly the very brink of the cultivated valley closely all the way. Yet here is one Pyramid far removed from them, in the midst of a howling wilderness; in a stony tract so drear, that there are about it, not even locusts or wild-honey; no water but what is carried in skins; and no man stays his track in its neighbourhood, if he would live;—a scene, therefore, much more appropriate to one of the traditional pillars of Seth¹ (a saint-patriarch with all Shemitic religionists, but the abhorred Typhon² of the idolatrous Mizraites), on which the antediluvian wisdom was said to be inscribed for the benefit of posterity,—than to the necessary graveyard of a nation so comfortable and well-to-do in all the grosser luxuries of a peaceful and agricultural life, as were the early Egyptians of this 'Siriadic' land.³

¹ See Josephus, chapter ii. par. 3.

² 'Set, Suti, Suteck (Seth, Typhon)' of Dr. Lepsius, in his 'King's Book,' and represented as animal-headed, with upright, square-topped ears: the 'Ombte, Obte, Abtant, Tithrambo, one of the characters of Typho, and the evil principle,' of Sir Gardner Wilkinson.

³ Up to the present time I have not been able to gather any other

Here, close about the Great Pyramid, those men's graves are accumulated beyond counting, particularly on the western side, where they lie close set and regularly methodized, to economize ground; while the sand, which has made a clean sweep over that part of the hill, but lain nowhere very thickly,—shows the swelling tombs below, only half concealed by the long-drawn folds of their one, great, unwoven, winding-sheet. Eastward, the hill is again a collection of tombs; and now we distinguish the regular arrangement of all those sepulchral heaps we have been walking over, and amongst, so many months past in our progress from East Tombs to the Pyramid. Beyond, in that direction, lies the sand-flat; then the dark tract of that alluvial ground, which is the gift of the Nile and the essence of Egypt; then the Pyramid villages, with their groves of trees, now all broadened out from being seen at so great a vertical angle; and in the extreme distance, beyond the darkened plain, rise the faint grey forms of the Mokattam hills, projected on the moonlit sky. Smooth along their summits are they, but breaking down steeply towards the north, where the fretted city-line of domes and minarets can just be made out along the horizon edge; and a few tall chimneys too, for burning the

particulars about this Western Pyramid (?) than a Cairo report, that Dr. Lepsius is the only European who has visited it, and that its name is the Pyramid of Es Sedood. But in the maps contained in the learned Doctor's folio publication, the red line of his track of travel does not go anywhere westward of the Pyramids of Jeezah.

black stone, brought now-a-days from the land of the Giaours, to the very spot where the Emperor Saladin used once to hold his court, and collect his lean and sun-dried warriors, to send on passionate campaigns against Richard Cœur-de-Lion.

Except the distant lights in the city, and a chance one in the villages, all is dark in the inhabited valley; for even when we look towards its more notable extension northward, as into the populous breadths of the Delta,—there are now no traces of water left on the surface to reflect the moonlight, and form bright shining eyes in the landscape: the whole spread of the inundation which, with its fertilizing waters, lately made the scene so charming and life-like, as viewed from the Pyramids, having departed completely; and the Nile itself being now retreated out of sight, low down within its deep clay banks; the reservoirs dried up; the canals exhausted; and the well-mouths jealously guarded. Egypt, in this apparently waterless condition, reminds one of some of its troubles of old; for when its water was gone, its wealth and health had departed likewise:—even as when Aaron was ordered to take his rod and stretch it forth ‘upon the waters of Egypt, upon their streams, upon their rivers, and upon their ponds, and upon all their pools of water,’ until they should be smitten that there be no more water; and that Pharaoh might know the Lord was against him—Pharaoh, ‘the great dragon that lieth in the midst of his

‘ rivers, which has said, My river is mine own, and
‘ I have made it myself.’

‘ Why! who can that one man be,’ remarked my wife aloud, ‘ who at this late hour is going past
‘ the northern foot of the Pyramid, into the desert,
‘ and driving a loaded camel and two donkeys before him?’ Hardly had the remark taken fully the form of a question, when Alee Dobree, whose bad digestion would not allow him to sleep, answered, from under his dark-blue toga, ‘ Oh! that’s a man
‘ the Government wants to get hold of, but they
‘ can never find him; he lives in the desert all day,
‘ and only comes near the villages at night for his
‘ supplies; he’ll be a long way off before morning.’

Meanwhile the stars were abundantly appearing in the sky; for the moon’s declination being south, the extinguishing tendency of its light, on other smaller lights, was by no means overpowering; leaving, in fact, on the *northern* side, quite enough of those invaluable stellar milestones of the sky, to enable us to contrast the present Pole-star in the Little Bear, with that other orb in Draco, which once held the same important reference-position when the Pyramid was in progress of building. Not only so, too, but we could trace in more than imagination, the place of the existing Rotation Pole of the sky, and fix its position in the circumference of that remarkable circle which it slowly describes in long ages round the Pole of the Ecliptic; and then, comparing our own Cynosure’s place therein, with that of

α Draconis, as seen from the same Ecliptic centre,—we could at once perceive a something of the several thousand years during which the Pyramids must necessarily have existed, by the amount of *angle* passed through between the Pole-stars of the two epochs; of angle too, on that grandest of dials, (yet one easily to be seen by any man who knows how to look for it in the sky); a dial, the numbers on whose rim do not begin to repeat themselves, until after more than 25,800 years shall have elapsed.

Towards the *south*, on the other hand, were a glowing moon, the vivid scintillations of Sirius, the shapely stars in Orion, and the many-clustering splendours of Taurus; with Venus brilliant on one side, and Jupiter as bright on the other. Orbs of matchless beauty were these, glittering upon us from above through the blue luminous ether: while all the gross lower earth was then cut off from either sharing in, or lowering the character of, our view; that is, all such earth was removed, by our then position, out of sight,—except the circumscribed platform of the top of the Great Pyramid itself, and the neighbouring ghost-like summit of the second Pyramid.

We could almost at times fancy the latter congregation of head-stones *close* to us, in shape of a group of white-robed ancients, now a little nearer, now further, in the moonlight rays; and,—like the poetical philosophers of an ancient Greek chorus evoked by the genius of a mighty Sophocles,—

marching backwards and forwards with rhythmical pomp on our little space of stone,—teaching, instructing, advising, and elevating; improving the heavenly scene around to wayward, troubled mortals; or describing, in Tennyson's happy mixture of telescope-found particulars with ordinary-gaze generalities, the phenomena above and before us, as—

' Each sun, which from the centre flings
' Grand music and redundant fire,
' The burning belts, the mighty rings,
' The murmurous planet's rolling choir,
' The globe-filled arch that, cleaving air,
' Lost in its own effulgence sleeps,
' The lawless comets, as they glare
' And thunder through the sapphire deeps
' In wayward strength, are full of strange
' Astonishment and boundless change.'

But before we had enjoyed these thoughts and communings very long, a suspicious little white cloud began to form in the south; the north-west wind blew past, but could not stir it; it was a 'growing cloud,' well known in some peculiar states of the weather. I hastened, therefore, to get a few altitudes of the Pole-star, though it was not yet in the best position for latitude observations; and by the time I had finished, the whole star-bearing heavens had disappeared behind a nearly uniform milky surface of cloud, which gave little hope for all the rest of the night. About midnight the place of the moon was very closely watched, with the hope of trying to get some idea of the longitude, by means

of the difference of time in transiting the meridian by the moon and certain stars on her parallel ; and the former *was* just visible crossing the field of the Playfair telescope, though with clouds between ; but of all the stars there was only a glimpse of one, and that for about three seconds ; yet it gave a tolerable idea notwithstanding of how very far we were east of the meridian of dear old Greenwich.

Again, between two and three in the morning, there were a few openings in the clouds northward, and some more altitudes of the Pole-star were taken for comparing our latitude determination ; but after that, the clouds extended everywhere from one horizon to the other, and there was little to do but to sit in turn on every side of the platform, and look down on graves, graves, graves. Burial-places, these graves of the rich and poor, and ransacked alike by their fellow-men ; over whose evil deeds Nature herself, with her sighing winds, would willingly filter down the sands as a charitable veil ; but the sinners will not cease from their sinning, and some fresh yawning chasm will even yet appear from day to day.

Most remarkable too looked that trio, away south-eastward, viz., Campbell's tomb, uncovered by Howard Vyse ; the Great Sphinx ; and King Shafre's tomb ; the latter seen almost in contact with the monster's head, and remarkable for the deep and dark shadows among its colonnaded aisles. Attending to this circumstance, we could hardly but recall

to mind Dr. Clarke's description of what he saw from this very spot in 1801, or immediately after the French army had been making their excavations about the Sphinx; and think, that after all, King Shafre's tomb is not wholly a discovery of the last ten years, although neither the maps nor the views of either the great French work, of Howard Vyse and Perring, or Lepsius, allude to it in the smallest degree. 'Beyond the Sphinx,' says Dr. Clarke, 'we distinctly discovered, amidst the sandy waste, the remains and vestiges of a magnificent building, perhaps the Serapeum; a sort of chequered work appeared in the middle of the stones belonging to this ruined edifice. It is unnoticed by every author who has written on the Pyramids.'

The only question here is, What is meant by 'beyond the Sphinx,'—a few feet, or several miles? If the former, the Duke de Luynes and Mariette Bey were preceded by the man of Cambridge, and perhaps by Sir Gardner Wilkinson too; but if the latter distance was intended, and Dr. Clarke forces the passage to an enlarged meaning, by connecting what he saw with the Serapeum (or temple of Osiris and Apis, pronounced in one word), at Memphis, which is certainly many miles south of Jeezeh—the tables are turned.

Yet we doubt whether tombs of any sort, even of ancient kings, presented so remarkable an appearance, as seen in the faint lunar illumination of our night-view from the top of the Great Pyramid,—as

the three huge azimuth trenches on its eastern flank ; awful gashes they seemed in the solid body of the earth ; so deep down, too, within its rocky substance, that evidently, though the rasping teeth of time should eventually remove the whole of the Great Pyramid itself, and its place should know it no more,—those trenches would still remain, and with a marvellous lesson to all who can read in the language of angle !

Suddenly, about day-break or soon after, when, too, the thermometer had gone down to 49°,—the clouds quickly cleared away, the moon was seen setting red and disk-like just over the northern foot of that far-off western Pyramid (?), which we will venture to call, until a better claim be established, 'Dr. Leider's Pyramid,'—a round of azimuth angles was hastily taken ; the sun's level rays began to strike in our eyes ; and, in a moment more, 'the 'travellers' were upon us,—one party indeed arriving after another in almost endless succession.

Their attendant Arabs all came up to shake us very powerfully by the hand, as being old friends of theirs, and long since free of the Pyramid ; but alas ! to see the so-called 'travellers !' The same genus of men who used to cut such mad pranks within the four walls of the King's chamber below, and delighted to bang the coffer so mercilessly, and insult 'King Cheops' gravestone ;' now, they were as quiet as mice ; just looked faintly round for a

minute or two ; turned pale on going near the edge of the platform ; a weaker-stomached brother brought up his breakfast or last night's supper,—and then they were gone again ; but only after expressing many fears, as to how they were ever to be able to make the descent. They might, therefore, have afterwards described their experiences most truly in the words of Dr. Veryard, A.D. 1701, who writes,—‘ descended from the top of the Great Pyramid the same way, but with far greater hazard than when we came up ; as well by reason of the bad way, as the *Terrour* with which the precipice struck us.’ The Sieur du Mont has likewise hit off the feelings of many of these travellers, when he says, ‘ But he who can look to the bottom of the steps without amazement, may justly boast the strength of his head ; for my part, I must confess I was struck with so much *horror* when I cast my eye downward, that I was hardly sensible of any pleasure in viewing so great a variety of objects.’

An enthusiastic party of Americans was, however, capable of more work, though they did not stay up much longer. But in that short space of time, they had arranged themselves into a meeting on constitutional principles of Anglo-Saxon derivation, with a chairman, secretary, and audience ; wherein a resolution was proposed, seconded, and carried unanimously, to the effect,—‘ that whereas this here pile whips everything in the way of building we've seen in all our grand tour through the used-up, worn-out

' world,—yet we calculate King Cheops, its builder, ' must have been such a horrid old tyrant and cruel ' oppressor of the people, that it is hereby resolved, ' by us free and independent citizens of the *Unyted* ' States,—that, " we *won't* give him a cheer."

After which expression of most decided opinion, and offering the thanks of the meeting to their excellent chairman, for his well-balanced conduct and impartial attitude on his very elevated seat,—the gentlemen liquored up, the ladies, as they bashfully expressed it, ' consented just to take a swallow,' and the whole party disappeared down the steep slope of the Pyramid much more quickly than they had come up ;—every man of them, though, with little Confederate flags picked out on the soles of their boots, so that they might have the pleasure of trampling on the hated ensign of the South wherever they went.

A Yankee notion this, with a vengeance ; and it had been reckoned, we were afterwards informed, when first produced in Boston two or three years previously, to be not only ' considerable 'cute,' but ' decidedly *ahead* of anything that had ever been ' invented in the Old World in such a cause.' Yet Sir Gardner Wilkinson writes, at page 366, vol. iii. 3d edit., of his *Ancient Egyptians*, touching certain royal sandals from Thebes, that they ' were frequently lined with cloth, on which the figure of ' a captive was painted ; that humiliating position ' being considered suited to the enemies of their

‘ country, whom they hated and despised,—an idea
 ‘ agreeing perfectly with the expression which so
 ‘ often occurs in the hieroglyphic legends, accom-
 ‘ panying a king’s name, when his valour and vic-
 ‘ tories are recorded on the sculptures: “ You have
 ‘ “ trodden the impure Gentiles under your powerful
 ‘ “ feet.” ’

In still more ancient times too, than those of the above extract,—which probably applies to the eighteenth or nineteenth dynasties,—is it described of King Shofu, or Cheops, of the Great Pyramid itself, that he caused to be engraved on the public roads the figures of the gods of Egypt, ‘ in order that they might be trodden under foot both by man and beast.’

Yet why that primeval king wished them to be so trodden, has never been fully settled. The world, indeed, content to take his character from his enemies only, has for thousands of years gone readily enough into the damning sentence,—that it was because he, Cheops, was an *atheist*; and have even added latterly, that if the temples of Thebes are to be looked on as monuments of idolatry,—the Pyramids of Jeezeh, where no sculptured figures of any species, of either gods, saints, or demons, appear,—are to be held as demonstrations and durable records of the *infidelity* of the kings under whom they were built!

Yet the open-mouthed world has not been always right, on momentous questions of religious faith; and it may be, following the improvement inaugurated

by the late John Taylor, viz., the method of considering all the facts from a Christian point of view, that the real reason was,—that King Cheops, being no atheist, but on the contrary, a zealous, and Elijah-like worshipper of the one true God in spirit and in truth,—took every method which was open to him, for trying to wean his besotted subjects from their degrading animal-worship ; and for showing them practically that their gods, in whom they trusted, were no gods.

This subject will, however, be brought up again in our third volume ; and in the meanwhile, here, on the summit of the Great Pyramid, six men have just arrived from below, by appointment, to carry our instrument-boxes down.

‘ Don’t throw that away,’ said Alee the Egyptian,—the foremost, and by far the most stalwart, amongst these new-comers,—as I was emptying a brown fluid out of a black glass bottle, preparatory to packing up ; so of course, I presented him immediately with the shining ‘quarto’ and all the remains of its contents.

‘ Why, what’s that ?’ he exclaimed, with intense disgust, after trying a mouthful.

‘ Cold tea,’ was the reply.

‘ Tea !’ sneered this graceless follower of a false, though sober, prophet ; ‘ and what sort of stuff do you call that, to give an Arab ! A Pyramid Arab, and on the top of the Pyramid, made sure it was something strong.’

CHAPTER XVI.

MAGNESIUM PHOTOGRAPHY.

AFTER safely descending the Great Pyramid, our Playfair astronomical circle,—its intended work completed,—was finally put away into its packing-boxes and screwed down, in readiness for returning home. The dry-plate photographic camera had been similarly disposed of, the dry plates having all been used ; much of the measuring apparatus, including the Coventry clinometer, was likewise finished with, and packed up ; in fact, there remained now little to do,—in the present state of the Pyramid, be it always understood, as to excavation and exposure,—beyond trying to procure photographs of crucial points of its interior by aid of the *magnesium* light.

Now this operation required the use of wet collodion ; and though we had not fallen into the misfortune, confidently predicted for us by various acquaintances, as to the Khamaseen wind driving sand amongst the bottles of chemicals, until the glass stoppers would no longer fit into their places,—something else had made two samples of collodion ferment, and all the acetic acid very nearly to lose its acidity, or at all events its power either to change

the colour of litmus paper, or to keep silver baths and iron developers from fogging. Hence unnumbered failures in misty, streaky, and spotty pictures, as we were trying the apparatus day after day from the entrance of the Howard Vyse instrument-room. Perhaps too we should have got out of our difficulties sooner, had we been content to take an ordinary photographic camera, as prepared for the many,—instead of plunging into an attempt to organize something new, wherewith to fulfil various requirements not yet brought together in any one apparatus, but still often desired by not a few real travellers.

Thus the principles with which we had started were, that,—

1st, The pictures were to be taken on glasses as small as the ordinary microscope slides, which are only one inch broad ; and can always be had of any optician neatly put up in little grooved boxes, to any amount in dozens, hundreds, or even thousands.

2d, Two pictures were to be taken perfectly simultaneously, in cameras whose distance apart could be varied from three to thirty inches or more.

3d, The exposure was to be limited with ease to any fraction of an hour, a minute, or a second.

And 4th, The sensitive plates were to be keepable, and in their best state, for nearly any length of time after sensitizing and before impressing ; or after impressing and before developing.

The small size of these plates would evidently be a boon to many a wandering scientific man on the

score of portability, if there could be secured sufficient definition at the same time, to allow them afterwards to be enlarged by the copying camera,—say to the size of a plate for illustrating a quarto book,—and still possess detail and sharpness just beyond the power of the naked eye to penetrate fully ; and this it turned out can be done, wherever the subject of the view is such as to allow the employment of those ‘small stops’ which are used in cameras of every kind, whenever fine definition is required ; such size of stop being, from 1-20th to 1-50th of the focal length, whatever that may be.

Again, a small size of plate, though not necessarily so small as an inch in breadth, combined with the use of two separate plates, was expected, and has since been found, to be a perfect panacea for the cure of some radical difficulties connected with the preparation of accurate and effective stereographs on glass, for scientific purposes. For these latter purposes alone, we venture to say ; because, as for the artistic men, they have long since shut themselves out from an important field, by having adopted the fascinating idea that, if the centres of the lenses of the two cameras wherewith the two members of a stereoscopic pair of photographs are taken,—be removed linearly *more* than two inches and seven-tenths apart,—they will give an entirely and absolutely false view. ‘What is truth?’ asked the old Roman more than a thousand years ago ; and who has dared in all the interval to answer him posi-

tively ; until in the course of a recent year, a writer in a photographic journal said, roundly and simply, 'It is photography'? But he has since been improved on by another similar author, who has particularized truth, as, 'a photo-stereograph, taken with a binocular camera, whose two objectives are 2·7 inches apart.'

This latter idea,—produced originally in the study,—as touching a limited question of linear stereoscopicity alone ; and altogether overlooking the grand pictorial difference, that no photograph whatever gives human-eye truth, when the latter sees by luminous and coloured, and the former is impressed by chemical rays producing only a monochromatic shading ; yet this idea travelled quickly among working photographers,—aided, we fear, by their knowing too well, how much easier is a binocular camera and a single glass plate to employ in the field, than two separate cameras placed at a greater distance apart. But the practical result has been, that the stereoscope, once so excessively popular, has gradually dropped into extreme neglect ; for, excepting when fore-ground objects are very close, these binocular-camera-born photographs give so little appreciable stereoscopicity, that some gazers ask, What more is to be seen by looking at two such pictures viewed in a troublesome machine, than at a single one unassisted ? In fact, one large picture they then consider far more satisfactory.

Leaving the artistical photographers alone, then,

with the suicidal result they have themselves brought about to the public,—we looked at the matter only in connexion with the requirements of science, which simply demands to have as much knowledge of a subject as possible ; and if the nature of a thing can be better ascertained by looking at it from either end of a base-line of thirty or three hundred inches,—than from one of two inches and seven-tenths only,—will immediately do so. Nay, when the world-admired stereographs of the moon, by Messrs. Bond, Whipple, and Rutherford, in America, and by Messrs. Hartnup, De La Rue, Fisher, and others in this country, have been the result of removing the two telescope-cameras to what is equivalent to *several thousand miles* apart,—why is an astronomer to be limited in choosing his camera separation-distance with any other of his subjects? To say that the moon is an object outside, and not belonging to the earth, while landscapes, and even interiors of great Pyramids, are upon and belong to it, and must be treated on a different principle,—would be to re-enact the supposed radical difference between things terrestrial and things celestial, which was the great obstacle to progress in ancient philosophy ; and which no scientific man of the present day, who holds the advance of science dear to his heart, and repudiates perpetual motion, could tolerate for an instant.

If, in the case of the lunar stereograph, it has been found advantageous in giving a knowledge of the real form of the moon, to remove the two cameras

virtually some thousand leagues apart, because a mere separation of two inches and seven-tenths, subtending no sensible angle at the enormous distance of the moon, would give no stereoscopic effect,—so also will it be found desirable, in studying any large and distant terrestrial forms, to remove the two objectives by which they are viewed, to such a linear distance from each other, that they shall have at last a powerful angular command of what they are gazing upon; always attending, however, in every view, to the requirements of all the items which compose it, and reducing the separation of the lenses whenever a very near object is projected on the extreme distance; or, contriving to exclude any obtrusive foreground trifle, if the shape of a distant mass is the result desired to be attained. This, is for *scientific* purposes only, and the gathering up of knowledge in various ways; for the artistical man will be artistical still, and may be allowed to take photographs of the moon in a binocular telescope, if it please him so to do, and to look at them in a stereoscope, and see the lunar disk infallibly as flat as a pancake, or as the unassisted human, and animal eye also, without employment of the reasoning faculties, see it in the sky; and he may declare that that is 'truth.' He may also, of course, go on using a similarly 'Siamesed' pair of objectives, though with shorter focus, in depicting any scenes upon the earth for himself,—if he thereby satisfies his own conscience, and is unable to rise to the higher truth,

that every stereographic pair, when otherwise perfect photographically, is equally true to the angle under which it was taken ; while some angles are much more instructive than others, and can only be obtained with distant objects by increasing the separation of the two cameras apart, very many times the amount of separation of an average pair of human eyes ; which may be near, but is by no means always, that critical quantity of 2·7 inches.

For our own *scientific* objects therefore alone, and to satisfy *our* conscientious scruples therein, we had gone to the trouble of two separate cameras, to be fixed on each occasion of using, at any distance apart thought most appropriate to the subject in hand, and to the purpose it was being taken for. And then we expected certain facilities to follow, in afterwards combining the two separate views on one glass plate of suitable size for a transparent positive in the stereoscope, from the original negatives being so very small as the one inch square already described,—facilities that certainly could not have been commanded were the glasses more than, or even so much as, three inches broad.

To try to carry out these scientific-intended principles, therefore, if I dabbled in photography at all, was evidently something of a duty upon *me*, an astronomer ; and not only had I already ordered a peculiar double apparatus to be applied to the cameras, so as to make the exposure of both simultaneous, and without either jar or disturbance to

definition, whether worked slowly or quickly,—but, a house-carpenter in Edinburgh, a very worthy and ingenious workman, had made me two vulcanite baths, with part of the front in plate-glass, so as to allow the picture to be impressed on the collodion-plate, while it was actually in the silver solution; and this proved an invaluable feature. *First*, because, from the small size of the plates, and the dryness of the desert air, they rapidly, almost instantly, deteriorated, when not under the surface of water; and, *secondly*, the outside surfaces of the plates were then free from those trickling drops of fluid, which so often spoil the finest definition, when they occur on the collodion side; and tend, when at the back of the glass, to add to the ‘halation’ or blurring sometimes produced there. This fault had been much discussed in the photographic journals during 1864, and several corrective methods were proposed; none, however, so complete as doing away with the reflection of the second surface of the glass by immersing it in a highly refractive liquid, contained in a vessel whose back was of a dense, dead black. All this is mentioned to the praise of the carpenter, Mr. John Air, who had had an immense deal of trouble, and shown remarkable skill, in preparing the apparatus to fulfil all the required conditions.

In the next place, and for scientific purposes also, I did really wish to try after more *quickness* than is usual in taking photographic pictures; for evidently, when we apply a telescope with cross wires,

we may immediately see, that one very powerful reason why nearly every so-called artistic photograph has the most unartistic possible of smooth, cloudless skies, is because the clouds are always in motion ; in five seconds, nay, sometimes in one, they blurr themselves out of all natural shape or likeness, and in the two or three minutes of the dry processes, they have made a dozen different combinations, each of which would have been a little fortune for a painter to be able to reproduce, and not a trace of one of them has remained on the 'sensitive' plate. Who also has not been grieved by the dreadfully stuck-up portraits of men, who have been got to stand to represent figures in many a photographic landscape ; or the phantom of a horse or dog, which stood by accident for half the time required admirably, and then moved off ; or the bare and deserted appearance of a scene which was really thronging with human life during all the time the camera was at work upon it. Surely, no one would presume to say, in any of our fashionable photographic studios, that *that* bare and empty view of a really crowded street, on account of being a photograph, and whether binocularly taken or not, was 'truth, the *whole truth*, and nothing but the truth.'

Not a few photographers, have indeed of late taken to instantaneous attempts, more especially Mr. Skaife, with his uncouthly-named pistolgraph, though the most successful arrangement for quick purposes yet produced, and one deserving of much more

popular favour and professional attention than it has yet received. I suspect, however, that his chemicals must have been in better order than mine were at East Tombs ; for there was no need there, of a spring to work the exposing shutter with superhuman quickness. The said shutter had been arranged in a special manner, rotating on finely-turned centres, and a thumb and finger could always produce a quicker opening and closing of the sensitive plate, than the photographic action could follow, to make an effective picture, even with the largest available aperture. And here was the main limit to what could be done ; if the aperture exceeded a certain proportion to the focal length,—the resulting picture was so ill defined, notwithstanding that the lenses were double combinations by one of the first London makers,—that little could be distinguished clearly upon it, of either moving or stationary objects : and if it was below another proportion, good definition was obtained when the object stood still ; but if in motion, was more blurred by that, than by the larger aperture, though quicker performance on the former occasion.

Hence, while we found that an aperture of 1-20th the focal length, gave exceedingly neat definition of still objects over the whole one inch square of the glass,—equal, with our short focussed lenses, to about thirty degrees square of the landscape,—the several seconds necessary for its performance, limited it to inorganic, or at least stiffened, nature. An aperture of

1-10th, with an exposure of about a second, gave the delightful aspect of a plain, full of animated groups of human beings, if such were there; though, when examined by a magnifier, the figures were found pulled out by their motions during a second of time, into the most anomalous Chinese or Japanese-looking forms. But when an aperture of 1-5th was employed with an exposure of 1-10th of a second, the definition of the lens was not sensibly impaired by the average walking movement of men or horses, at the distance they usually were from us; this, however, was when the definition, with so large an aperture, was super-fine nowhere, and only tolerable over about fifteen degrees in diameter of the middle of the glass; while the focus was extremely difficult to hit, with even a respectable approach to sharpness of result.

If any one else has a photographic lens which will give bearable definition over a moderate angular field, with a larger proportionate aperture than 1-5th,—he is a happy man; and will be able, other things being the same, either to take pictures more quickly than I did; or, putting in a smaller stop, to take them as quickly, but better defined. And I have *heard* of a lens which gave good pictures when the aperture was *equal* to its focal length, or which would have taken pictures in 1-25th part of the time that my apparatus did at its quickest,—but I have seen neither that lens nor its performances, and have had no means of estimating its owner's ideal of what good definition may, and ought to be.

To work, however, with an aperture of only 1-5th, and wet collodion, under a bright Egyptian sun,—imparted the beginning of great satisfaction. For then in all the experimental trials at the landscape view from East Tombs cliff, there was no occasion to ask any one to go and stand in such and such a position and be very still; but, as soon as a plate was ready, it was fired off; and if there was any one in the scene, either far or near, going or coming, in motion or stationary, he was sure to be taken. Wherefore it came, that the villages in such views were rendered populous and the fields tenanted; some groups of idlers, or perhaps very hard workers, were always near the Shadoof at the well; some one or other was sure to be just in the act of fording the canal; and one or two of the camels grazing on the dry plain, were in the act of lifting up their heads to peer about and look like camels; of course divers personages were to be seen footing it on the road from one village to the other, and three or four turbaned men were usually seated on the sand, discussing the burdens of Eyioob, or laying out their schemes for mammon.

These figures, however, from their distance, were mere specks on the glass; and it became an object therefore to take advantage of any passing groups nearer at hand, such as 'the travellers' going to, or coming back from, either the Great Pyramid or Sphinx. And as those gentry could not be regulated touching the times of their appearance or disap-

pearance,—then came the advantage of Mr. John Air's operating baths, which enabled the plate to be prepared, placed in the camera, and left there for an hour or two under a hot sun without any harm (unless perhaps a residual chemical action, requiring a trace of free iodine and bromine in the collodion to overcome).

So the camera having been duly loaded and pointed at some pictorially effective parts of the road up the hill, was left until Alee Dobree raised the cry of 'travellers;' whereupon I had to rush out of the tomb and twirl round the exposing shutter, at the instant when said travellers were passing the most striking of the rubbish-heaps. Or if by chance they might just at that moment, as they often did, run together into a confused crowd, then it was necessary to follow them by rotating the optic-box, until they opened out more picturesquely in the plain,—and then catch them all when they were least expecting it, or thinking about nothing so much as getting up their donkeys into a tolerable amble, much assisted by the 'Hooi! 'hooi! English fashion!' of the attendant native boys, when they begin plying their pointed sticks into the poor animals' hind-quarters.

In this way some respectable little groups were obtained, showing not only examples of the several kinds of travellers, but the manners of the Arabs, in surrounding them on their arrival, and running after them for baksheesh on their departure. Yet

we rather preferred the figures which went more legitimately past us by a country road that wound itself through an opening in the northern causeway, —and showed before our gaze, in the narrow gap which the tombs themselves circumscribed, the natives of the country wending along on their several affairs,—with a poetry of circumstance and abounding variety, that reminded one of the passing scenes in the mirror of the Lady of Shalott; and the restricted, as well as evanescent, view which she alone allowed herself of all the outer world and its busy throngs, ‘as they went down to Camelot.’

‘Sheep,’ shouted Alee Dobree; and there was the shepherd in a flowing burnouse, walking pensively along, holding his long crook horizontally with both hands behind his shoulders, and humming a melancholy, dreary, monotonous, song,—his sheep in the meanwhile trotting as readily after him as so many attentive poodle-dogs, or as if he had been a very Orpheus indeed.

‘Camels’ was immediately after shouted forth, but there were no plates ready, and we could only simply look on at the procession of a whole Bedouin tribe, with all their wealth of camels; the women confined in basket-cages on the rearmost (very proud of the confinement too), and the whole length brought up by armed men, and young camels; mere youths of camels, with long thin legs, stepping delicately, and beginning to learn the method of carrying their heads floating on the air in front

of them, in the same touching and unapproachable manner as their fathers before them.

Another day, and we thought, 'Surely that pair of camels has been past very often.' 'Of course they have,' said Alee Dobree; 'they belong to Sheikh so-and-so, and he is carrying off stones from a tomb beyond the Sphinx to build another room to his house.¹ He has just married another wife, and is getting very rich with the price which his cucumbers bring now in Cairo; all that piece of land which you see over there, in square patches, green and black, all that is his; and he gets as much money now for every little basket of cucumbers, as his father used to receive for a whole camel-load. He is not one of the Pyramid Sheikhs; a Pyramid Sheikh would know better than to break the monuments; but that man is such a great Sheikh, no one else in the village can say a word to him.—Ah, there's the hawk again!'

So it was too, the same identical, big-headed, solemn-looking, hawk, which the sculptor of the fourth dynasty represented standing behind King Shafre's chair. But the camera was ready this time, so bang, though without loud noise and with less murder, it went,—and the royal bird, with

¹ We visited afterwards the particular tomb that had been plundered, and found it one where a few weeks previously we had immensely admired the internal walls composed of fair white limestone, in admirably cut blocks of very moderate size; but these were now all gone, and their site had become merely a shapeless hole in unmeaning rubbish.

finely outspread wings, was secured on both plates ; though not sharply, for I had been rather slow in working the trigger, and the landscape part of the view appeared somewhat overdone.

Another pair of plates was, however, prepared, and we went to dinner ; and there, while Ibraheem, —with all manner of gratified smilings of his brown-varnished face, and twinklings of his one powerful eye,—was receiving the compliments usually elicited by his performances ; and was explaining on this occasion, that all his dishes of fried and otherwise cooked potatoes during the last few days had actually been furnished by *one* large tuber, which he himself had selected in the bazaar,—suddenly, ‘camels’ again was the cry. We looked, and through the cleft in the northern causeway came a travelling group, two camels largely loaded, one of them a grand shaggy fellow with a long mane depending from his neck, looking like the king of the camels ; a knot of human beings, large and small, followed in close order, and a turbaned man on a little horse. On the whole, they formed too compact a mass for a picture, so I followed with the double-barrelled camera as they crept along the plain, hoping for a better grouping to occur ; and, just as there was some tendency towards it, what must the patriarch camel do, but turn off at right angles to the line of march, to browse on a few blades of prickly grass that slightly enlivened the sand thereabout. So before he had quite doubled the group

upon itself, and stopped up all the lights between the figures, I was obliged to fire, photographically, and take them all as they were at that moment; remarking, though, upon how very inconsiderate of that camel, so free and easy in his proceedings.

‘ Ah !’ said the ancient Ibraheem, ‘ he’s the only
‘ one there who is at all free. That’s a slave-gang
‘ you see, and they are going on to be sold in the
‘ city. They’ve left off having the slaves sold
‘ openly, but the trade goes on by night outside the
‘ city walls, just as much as ever. That man on
‘ the horse now, he is the owner, and he has brought
‘ all those black boys and girls from beyond Nubia ;
‘ but when he comes near this part of Egypt, in-
‘ stead of making straight for the city, he goes a
‘ long way into the desert behind the Pyramids, and
‘ then comes in just as you see now in the afternoon
‘ from quite another direction. He’ll get to Jeezeh,
‘ too, just about dusk, and wait there until the rich
‘ merchants come to him out of Cairo, and they’ll
‘ pay him plenty of money.’

For the sake of showing up the nefarious transaction, we could have wished that the resulting photographs had been better than they turned out. But they had fewer spots, and other faults than their predecessors, so we cut short our extraneous musings, and concluded that both camera and chemicals were now almost ready for the interior of the Great Pyramid; and it only remained to arrange for the lights, and make sure also that the apparatus would

travel. We were testing this point next day on the hillside, and found the first plate indifferent, the next worse, and the next after that with hardly anything upon it. Then we changed both collodion and developer, and got nothing at all. What can be the meaning of this? I thought; and putting my head into the operating-box, examined the several arrangements, to see if there was any visible screw loose there. While so doing, the sky, which had not been very bright throughout the afternoon, suddenly became darker, and cries of all inconceivable kinds began to arise from the villages in the plain.

On looking up, behold the whole air full of flying, or rather drifting, locusts. They positively darkened the upper regions like a snow-storm; and looked, as they drove along from north to south, like flakes of snow in shadow, partly floating and partly falling in front of the only bright light that remained and streamed in on the scene from the eastern horizon, tinged yellow, green, and red, or with most unactinic hues. Before I could pack up on the spot, the locusts were falling all about; and in an hour's time they almost covered the ground, so that wherever we went, they rose up in flocks, and came drifting against one's face with their prickly legs: and all night long they came flying into the East Tombs dining-room, looking by the fitful lamplight like so many illuminated skeletons.

Whether really they had been in such numbers in the upper air, as to have imparted their own green-

ish hue to the light, and so prevented successful photography, it were dangerous to say,—but in three days they were all gone again ; that is, all but a stray one here and there, which had gone down into some of the deep sepulchral wells, and could not contrive, with all his flying, to fly out again. And then the villagers left off making their noisy cries, which had been intended to induce the great devourers to go to some other person's fields than theirs ; just as the Hindoo seller of green stuff says, and dare not do more, to the sacred Brahminy bull of his village,—when the pampered beast is devouring everything that is laid out on the poor man's stall,—‘ Please, my lord, go to another shop.’

At last, on April the 17th, everything was thought ready for the long-expected magnesium-light photography inside the Pyramid, and Alee Dobree had brought over at sunrise a number of men for the carriage of the apparatus. So there was a great fetching forth out of the Howard Vyse instrument-room, of cameras, tripod-stands, measuring-rods, water-bottles, magnesium-lamps, ordinary lamps, and whatever else might be required ; and arranging them into convenient loads. But while that was in progress, Alee Dobree reported that one of the men had gone.

‘ Where ?’

‘ To the Pyramid ! There are travellers come !’

‘ But did you not engage him regularly for this

'service to-day, and tell him that he would get his wages in the evening?'

'Oh yes,' said Alee Dobree, 'I told him all that; but what are wages for work, compared to bak-sheesh from travellers?' and even while he was speaking, two others of the engaged men made off without saying a word to any one. Then we looked forth, and beheld all the plain alive with parties of natives, as well as travellers. They had not been so numerous since the end of Ramadan; and presently the sage Ibraheem informed us, that this day was the feast of the beginning of El Khamaseen, or the festival of 'Shemm en-Neseem,' the smelling of the Zephyr; when the people of Cairo troop out by thousands to smell the air, and obtain great good therefrom. So we bowed to fate; gave sixpence to every man who had not gone off without leave; and then let them go and compete with the truants for serving all the travellers.

Now this El Khamaseen, or period of fifty days, is a time when certain unhealthy winds are supposed to blow,—so violent, so oppressive, and so dusty, as to be the terror of all Egyptians, both strong men and invalids, all the year through. And it had been Ibraheem's industrious care, to try to assure my wife for months past, that the Khamaseen winds were by no means so evil as usually described; that he had known some English gentlemen who lived in the desert all through the Khamaseen period; during which a stormy wind only blew occasionally for two

or three days, just as it had already blown with us once and again ; and that there was no need, on Khamaseen account, for our breaking up the establishment at East Tombs, or ceasing to pay him wages as our cook and dragoman.

But when we asked why the people went out in such numbers to smell the air on the first day of the fifty,—he said that that was in remembrance of the plague in *former* years, for it was always worst towards the end of the Khamaseen. The people, therefore, went out, as anciently accustomed, on the ‘Shemm en-Neseem,’ to take the last enjoyment of the open air, and then shut themselves up in their houses, waiting patiently to see whom the angel of death would take, and whom he would leave alive. In the Coptic churches, the priests at this time read the burial-service over the whole congregation, and if any one dies between that ritual and the end of Khamaseen, such public reading is supposed to serve his needs, and is made to do so ; for sometimes no priest, and but few of the congregation are left survivors. All that, however, Ibraheem declared to be only what the old men remembered ; and plague, he averred, did not come to Egypt now. It has not been there, too, according to other testimony, for about a dozen years ; but Cairenes and Alexandrians alike were at that very moment on the brink of an equally devastating appearance of cholera, and no man thought about it.

On the next morning our party was organized

again ; and, with my wife in the company, we started at six A.M., hoping now to have all the interior of the Pyramid to ourselves. Successfully we reached its northern foot ; got all the boxes and paraphernalia safely conveyed along and up the passages and Gallery into the King's chamber ; placed measuring-bars around the coffer to give, at first, its *outside* proportions. Then erected the camera and operating-box at the other end of the room ; poured out all the solutions ; appointed who was to appear in the picture, and who to light the magnesium-wire when the nick of time should come ; enjoined sombre silence and the utmost quiet on all of them, lest they should raise the fine white dust, which,—ever since the washing down performed by Reis Alee Shafei and his school of boys,—had been slowly returning ; looked again into the cameras to see that they were both nicely focussed and truly directed ; and then, stepping carefully lest I should break my own rules, began to pour the collodion on the first glass plate that had ever been prepared for photography within the Great Pyramid. But hardly had the collodion set, when my heart almost collapsed within me ; for, could any one have believed it at that early hour ! Yes ! it is so indeed ! The 'travellers' are upon us again ! And the multifarious echoings coming up the Grand Gallery, testified that there were 'travellers' in numbers overwhelming.

'What is the use of going on now ? I could not but mournfully deplore to myself ; 'the travellers

' will be in the room before a plate can be sensitized ; and after they have once entered, there will be so much dust in the air that no faint reflected actinic rays will be able to penetrate through it, between the coffer and camera !'

Whether Sheikh Abdul Samed perceived my despair, I know not,—but he saw some of the exigencies of the occasion ; and, as the noises coming up the Grand Gallery waxed louder and louder, he suddenly said—' He would try to arrange so, that only the travellers and none of the Arabs should enter the King's chamber, in order to the dust being raised as little as possible.'

I thanked him for the idea ; and therewith he took all our people out with him to the great step at the beginning of the Grand Gallery ; and while I sat grimly between the camera on one side and the operating-box on the other, to defend them from all comers,—my wife peeped out from the antechamber, to see how the Arabs would accomplish their benevolent intent.

Never, according to her subsequent report, had she seen, in the party that was now approaching, such a fearful conglomeration of human beings ; the whole Grand Gallery was full of them ; the travellers themselves were innumerable, and each of them with three Arabs carrying flaring candles. And ' Oh,' thought she, ' if they should stick fast in, and block up any of, the small passages when going out ; and prevent us ever leaving these awful

‘ regions of majestic architecture, with their unpity-
‘ ing surfaces of solid stone,—where no human aid
‘ can possibly reach us, through their walls which are
‘ mountains thick, yet without any of the friendly
‘ rifts which nature would have inserted even in the
‘ severest of *her* dungeons !’

But the Arabs pondered over no such sentiments, though they had thought of a great deal more than they had told me ; for the result at last came about,—that after I had sat between the two instruments for a long time, expecting every instant to have to point out to entering travellers how to avoid their spreading feet,—and had heard the innumerable echoes continually increasing for a while, up to an awful maximum of general din, almost as if Tippoo Saib’s three hundred tigers had been let loose outside the entering passage,—presently the noise began positively to decrease, then to wax fainter, fainter, and fainter ; fainter and more distant still, and then returned all our own party excepting the Sheikh, and said the travellers were gone.

‘ Gone ! and how has that come about ?’ Why, all the time that some other persons had been merely indulging vain despair,—Alee Dobree and his friends had taken off their dark blue togas and spread them across the antechamber, so as to make the space behind, leading into the King’s chamber, look as black as night. Then the Sheikh, gracefully seated on the grand step, like the Sultan himself, congratulated the leaders of the travellers’ band as they

arrived, on having reached the most glorious part of the Pyramid.

‘Well, but where,’ they asked, ‘is the chamber we have come to see, and every one tells us we should not leave the Pyramid without seeing?’

‘The *beautiful* chamber,’ answered the Sheikh, ‘is below, and if the guides did not take you to it as you came up, they will doubtless do so as you return.’

‘Well, but what’s that place beyond there,’ said some travellers, pointing to the antechamber, ‘and what are all the people doing away there behind?’

‘Oh! that place is only a dirty little hole,’ replied the Sheikh, ‘and there’s a photographer or some fellow of that sort who is doing something or other there; and these poor starving people have come with him.’

‘Well, if that’s all,’ exclaimed the spokesman of the travellers, ‘we’ll certainly go back and see the beautiful chamber below; but first we must burn a little magnesium here.’ So therewith he explained to his companions, and one of them producing a strand of magnesium wire, and setting fire to it, displayed before their wondering eyes the enormous height of the Grand Gallery; the dignity of its seven mysterious overlappings of stone, and the inexplicable and dangerous angle running through the whole. Wherefore the boisterous shoutings in the further parts of the crowd ceased, and there was a deep reverberation of more solemn applause

again and again, as long as the light lasted, from every part of that huge collection of human beings.

‘Oh! so immense it was,’ said my wife afterwards; ‘such a number of faces to be collected together; and all of them dreadful! whether in colour red, or brown, or livid white:—a surface of such faces before her as far as she could see, the whole way down the floor of the Grand Gallery; some, deadly pale in the oppressive heat, others fever-flushed with excitement, or toilsome labour, but all looking up at the mighty ceiling and the impressive walls composed of surpassing primeval symbols of structural language.’

After that, though, the travellers went away peaceably enough; and the Sheikh accompanied their band to make sure that the guides took them to the ‘beautiful chamber,’ i.e., the Queen’s chamber. And when some one there, thinking of accounts he had read as to the King’s chamber, asked,—‘Well, but where is the sarcophagus?’ the turbaned chieftain replied, ‘that all *small* antiques were now re-moved to the Museum at Boolak.’

Perhaps it was as well that they did not inform me until it was all over, of this piece of organized hypocrisy, so speedily invented and so successfully carried out by pure Arab genius; but so it happened; and I was now fully occupied in preparing the photographic plates. How much magnesium should be burned in order to produce a photograph, was a question only to be settled by actual trial; I

suspected much more than what had been employed hitherto in portrait-taking in England; first, because a large surface, say fifteen feet by ten, had to be illuminated; and secondly, because that surface was excessively dark and unreflective. At the first attempt, therefore, we tried sixty grains,—burning it in the shape of hanging tapers in Mr. Brother's (of Manchester) very convenient shield-holders. A faint picture appeared. With another pair of plates, aperture 1-5th all the time, one hundred grains were consumed; and still the picture was faint. So then one hundred and twenty grains were tried with a third pair of plates; and hardly any impression was obtained! This bad result arose from the vapour of the burning magnesium diffusing itself throughout the room, in spite of all our efforts to condense it on surfaces of glass or porcelain. So by ten o'clock, finding the atmosphere of the King's chamber was so thick we could hardly see the further end,—we left the apparatus standing, and under special guardianship of two Arabs, who were to remain at the head of the Grand Gallery all day.

About three P.M. I returned, to find the top of the said Grand Gallery smelling fearfully of Arab men; and the room still smoky. A pair of plates was tried, but one of the white-robed Muslims looming through dense haze, was all that was pictured by an expenditure of another one hundred and twenty grains of magnesium. The ordinary candles, too, burned very palely; and we deeply deplored

once again, that the ancient ventilating channels had been surreptitiously stopped up within the last few years.

After two days' relaxation on outside works, we arranged for another photographing inside the Pyramid ; and were gravely annoyed to find, when just ready to start, that all the men required for the carrying, had left us ; yea, even our two engaged servants, Alee Dobree, and Smyne also. A proceeding really too bad of them on this occasion, for Ibraheem had gone on a special journey into Cairo, and during his absence they knew that much of our safety and comfort depended on them. But off they had gone notwithstanding, because, forsooth, some enormous crowds of steamer-passengers, whom they had never known anything about until they actually appeared, had come out to the Pyramids.

So there, in spite of all our large payments, and all our endeavours for months to sympathize with, and help, these people,—were my wife and self left entirely alone and undefended, except by poor Alee, the day-guard, who was too much of an invalid to walk many steps away ! When, towards evening, Alee Dobree did at last return,—I endeavoured to set before him his want of truth in not adhering to his engagement ; and his want of friendship in preferring utter strangers before us, who had known and cared for him so long ; and should be leaving him for ever in a very few days more, after which he

might dance attendance on steamer-passengers or any other new-comers as much as he liked. He looked rather foolish at this, and still more so when I told him that he and his countrymen would never be free—would always be a nation of servants to the Turks, or some other masters, unless they could learn to appreciate truth and justice, and stand by what they had pledged their word to, even at a passing inconvenience, or loss to themselves. But then came his lamentable religion to his rescue, and he began peeling off his outer garments and droning out his usual set prayers towards Mecca, as if nothing had occurred, and no one was present.

He attended, however, in improved spirit next day, so that with him and three other men I was off to the Pyramid at 5.30 A.M. ; finding the morning air on the road fresh and healthy, but the inside of the Pyramid still dusty and foul with the traces of yesterday's visitors. Three experimental pair of plates were tried with a new sort of magnesium-burner, and we returned to East Tombs in time to accompany my wife to our first and last party out, from the time of our reaching the victorious city of Kahireh in December, to leaving it again in May.

This unique piece of hospitality in Middle Egypt, came from Sheikh Abdul Samed. He had long spoken of his desire to ask us to dinner, and this was the day he had at last fixed us to.

We went over accordingly between twelve and

one o'clock to the village, rather a large party ; for besides a young Scot recently arrived, and also invited, and of whom more anon, the portrait-taking camera had been applied for. The Sheikh, too, had apparently arranged with Ibraheem, that both he and Smyne were to do the waiting at table ; while Alec Dobree undertook the part of *cicerone* and guide,—leading us by the shortest walk through the sands to the cultivated grounds,—and then and there duly mentioning whose were the particular patches of either corn or vegetables which we passed, or whose were the houses which loomed most conspicuously in the village before us. While he was explaining, too, why the men of his village did not care to increase their number of date-palms, because the taxes on them very nearly balanced the advantages derivable ; and why they clipped them so very close of all their lower leaves, not only to have the materials for basket-work and household furniture of various kinds, but to prevent the 'life-giving' Etesian winds' swaying the great woody fronds backwards and forwards, and damaging the bunches of fruit hanging down, in their season, amongst them,—while all this talk was going on, we passed one of the more popular wells near the side of the road ; and, amongst other dignitaries seated by its brink, was Sheikh Murri, looking not particularly well pleased at the movement in progress.

Poor man, he had begun to be jealous some time since of our employing more of Abdul Samed's,

than of his, people ; and now he thought the rival Sheikh had decidedly outflanked him in our favour by this invitation to his house. A cut, moreover, to Sheikh Murri, the unkindest of all ; for *his* domestic affairs were sadly disarranged about that time, on account of his having *two* wives ; and they had fought so fiercely together, that he had been obliged to divide his establishment, and keep one wife in Jeezeh and the other at his Pyramid village.

But on we went, along the northern side of El Kafr, past the public pond of clayey water, where geese were drinking in large numbers, and more Arabs congregated to gaze at the Sheikh's guests. And then, on our entering a door in a mud-wall, we were taken through a small yard,—where was huddled a great flock of white chickens hatched in the ovens at Jeezeh, and bought by the pound-weight in heaps ; things that had never known, and never were to know, a mother-hen's loving care and experienced instructions ; and looking, not so much like earthly chickens as a collection of naked souls on the bank of the Styx, shivering in the unkindly winds of a strange land, into which they had been brought they knew not how. Then up a flight of outside stairs, and then across a sort of upper court to a raised guest-chamber, with a very uneven floor,—that said little, indeed, for the qualities of palm-tree trunks for building purposes,—but furnished with a piece of Turkey carpet and cushions in one corner. Here they made us sit, and drink coffee in small

cups, which were almost filled with sugar before any of the brown fluid was poured in, and our host and his brethren drank in concert with us; but when the dinner appeared, they all vanished. A moderate affair it was, brought in upon the usual little table; rice and mutton chiefly, with oranges following; and symptoms that, small as was the spread, they had politely offered us the first partaking, and made their own dinner off it afterwards. Coffee then came in again, and the entertainment was over.

Meanwhile, however, the photographic camera was being established, and while I was taking the party of men collected on the terrace outside, the Sheikh brought his wife to exchange sentiments rather than words with Mrs. Piazzi. Sheikh Abdul Samed, to his honour be it spoken, and to the real comfort and satisfaction of his household be it understood, has only one, and has never had but one, wife; and she seems a woman of more than average Egyptian mind and feeling; her attire was costly, of embroidered cashmere, and her jewels were numerous and valuable. A portrait was to be taken of *her* also, with her children; but she seemed to have a strong objection to being placed for the purpose on the terrace, which could be commanded from many other houses, and was only at ease in the lower courtyard. Now that was rather unfortunate, for the light there was weaker than above; and even above, on that particular day, the photo-

graphic action had been strangely slow. No doubt the sun was shining,—but there was a yellow, diseased sort of look in the sky, and men talked to each other of Khamaseen winds, and red dust, clouds of locusts, and moving pillars of sand, until they got as truly wretched about the weather as an inhabitant of Edinburgh discussing the north-east gales which blow there in its cutting severity of spring-time. Certain it was, however, that instead of taking portraits, as I had hoped, in one or two seconds,—twenty, thirty, and even forty seconds of exposure were found too short. In fact, it was no day for taking portraits at all, especially of personages who could not be taught the absolute necessity of perfect stillness ; and in the last attempt we made, a married daughter, also living in the house, dandled her baby up and down violently all the time, thinking if she could only keep it from crying, its picture would be beautiful for ever. Madame Abdul Samed, indeed, sat very steadily, though rather too modestly retired within a doorway ; but the Sheikh's youngest son, strikingly and picturesquely attired in a little burnouse and a witch-like hood over his head, was the figure which told with most force and distinctness ; yet no credit to him, the little miser, for he had just made unlawful gains to himself, and was fascinated with the sweetness of the look of a forbidden prize.

The child was pretty enough, fair for an Arab, with large almond eyes, an aquiline nose, thin

flexible lips, and a pointed chin. But then he was the Sheikh's youngest son, and on that account a spoiled favourite with the father; who used frequently to take him to the Pyramid and delight his own soul with his beauty for hours, when waiting for 'travellers' to appear. Once the Sheikh had brought his favourite to East Tombs on a morning visit, and the child was so bashful and coy he could hardly be brought forward to show his face from under the pointed hood; yet he was peering about furtively all the time; and the moment the visit was over, and the dining-room tomb vacant for a few minutes, he slyly returned,—opened a packing-case where my wife kept her entomological collections in little glass bottles; took the whole of them, and having emptied all the contents on the floor, deposited the bottles one after the other deep down in a long and capacious pocket in his burnouse, and then followed his father up to the Pyramid, looking as innocent as a cherub. On Mrs. Piazzi's return, she was much dismayed to find all her specimens lying on the ground, the box open, and the bottles gone. She immediately called Ibraheem, and asked who could have been in the room. 'Oh,' exclaimed Ibraheem, 'I know, it must have been that wicked 'little boy;' and he at once followed on his track, and reported to the father what had taken place; when, on the young culprit's pockets being examined and found to contain all the stolen bottles, he received such a correction that he was not likely to

come to East Tombs again ; 'no, never again,' repeated Ibraheem.

But the petting of the favourite child was soon resumed as before ; and on this occasion of the dinner, my wife having taken some little presents to each of the children,—the 'general nuisance' set his heart immediately on getting for himself what had been given to his sister. And he took it, too ; but my wife, being close by, insisted on its being restored ; wherefore he declared he did not like her at all, and would not remain anywhere near her. But he managed his further goings out and comings in so adroitly, that by the time of my taking the last picture he had plundered his sister again of the coveted pair of scissors in morocco case ; and was gloating in a perfect trance of ecstasy over the unholy acquisition, which he held low down between his knees, all the while the camera was at work ; his little soul already dyed scarlet in a precocious love of mammon.

Having packed up the camera, and sent it back to East Tombs,—we took a walk with Alee Dobree through and about the village, before returning there ourselves ; noting how the most conspicuous of the very few houses with an upper storey, and the only one fully white-washed, was that of a retired dragoman, who had made his fortune in boating excursions. The other houses had indeed something above them, for the roof was the storage place for their supplies, of that species of artificial

fuel mentioned in chap. ii. p. 24. And while the mud walls below, were as utterly devoid of architectural pretensions as mere mud walls can be, the owners really showed commendable taste in arranging their cakes of ammonia-composition, in a sort of serrated manner, which made them form quite a striking coronet around every house-top; and gave them something of the look of ancient Egyptian temples,—besides enabling one to judge of the wealth, or provident habits of the owner below. But the soil around the village was lamentable pot-clay, so dry and hard everywhere, except in occasional holes, that it was a wonder how the date-tree palms could live in it. There they stood, however, with their great columnar stems; through gaunt and serried colonnades of which, would appear most effective views, every now and then, of the desert, the desert hills, and the range of the Pyramids on the summit of the hills, far surpassing in actual height what they stood upon.

Proceeding onwards now to the west, the palm-trees fall behind, with the last trace of green, or even dark-brown earth, and the desert opens out with its 'melancholy gold' in front, and to the right and left, as far as one can see; the solitary Pyramids becoming more and more the kings of the deathly scene, and drawing all attention upon themselves. This is very much the view which Sandys was most struck with, and attempted to picture in A.D. 1627; and again, Howard Vyse in A.D. 1837.

The former, in his description, joins with all the rest of the world in abusing, what they so little understood ; and therefore inveighs against ‘ those ‘ three Pyramides, the barbarous monuments of ‘ prodigality and vainglory ;’ yet, immediately after, he makes some of the very same confessions that many other authors have done, and which indicate strangely certain lingering traditions of higher motives. For otherwise, why should he write, ‘ By ‘ such shape, that of a Pyramis, the ancient did ex- ‘ prease the originall of all things, and that formlesse ‘ forme taking substance. For as a Pyramis begin- ‘ ning at a point, and the principall height by little ‘ and little dilateth into all parts ; so Nature pro- ‘ ceeding from one undevidable fountaine (even ‘ God the sovereign essence), receiveth diversitie of ‘ forms ; effused into severall kinds and multitudes ‘ of figures ; uniting all in the supreme head, from ‘ whence all excellencies issue’?

But it was the ‘unheroic eighteenth century,’ which thought least of the Pyramids,—from Niebuhr, who flattered himself that, ‘by employing a little ‘ natural philosophy, he had reduced their reputed ‘ wonder to very moderate dimensions,’—to Bruce, who was positively provoked that any one should still talk about them. ‘Why,’ exclaims he, ‘the de- ‘ scription of them is in everybody’s hands. En- ‘ gravings of them had been published in England, ‘ with plans of them upon a large scale, *two years* ‘ before I came to Egypt.’

The then last discovery was that of Davison's chamber ; but the only thing extraordinary there, in Bruce's estimation, was, 'its having escaped discovery so long ;' or, if there was anything else also to be called extraordinary, it was, 'that for such a time as these Pyramids have been known, travellers were content rather to follow the report of the ancients, than to make use of their own eyes.'¹

'Yet, it has been a constant belief,' says he, 'that the stones composing these Pyramids, have been brought from the Libyan mountains (according to Herodotus), though any one who will take the pains to remove the sand on the south side, will find the solid rock there hewn into steps. And in the roof of the large chamber, where the sarcophagus stands, as also in the top of the roof of the Gallery, as you go up into that chamber, you see large fragments of the rock, affording an unanswerable proof, that these Pyramids were once huge rocks, standing where they now are ; that some of them, the most proper from their form, were chosen for the body of the Pyramid, and the others hewn into steps, to serve for the superstructure, and the exterior parts of them.'

The Pyramids themselves survived this atrocious libel by the great traveller of the age ; but the opinions of polite society were quite destroyed, or sunk to such a depth of ignorance and error, that nothing less than the volcanic upthrowing and overturning of the French revolution, were required to

¹ Quarto edition in 1770, Bruce's Travels, vol. i. pp. 41, 42.

induce any one else to use *their* eyes, where Bruce had already employed *his*: or to read again their Herodotus, and find that the portion objected to, when properly translated, is to a very great extent perfectly true.

With the *savants* of Bonaparte's expedition, however, at the end of the eighteenth, and beginning of the nineteenth centuries,—came men who cared little for precedent or aristocratic names, but much for matters of fact, and the superior searching powers of modern science.

When they therefore arrived at the Pyramids, and began to observe for themselves in a more accurate manner than had ever been attempted before,—soon one discovery followed another, and high scientific ideas began to be entertained touching what other men had looked upon only as tombs. Thus too, the world might have arrived long since, at a full knowledge of the meaning of the most remarkable work of ancient men,—had not the British Government rushed in perfectly needlessly; confusing all those learned researches; and doing so, at an expense of many millions of money, as well as thousands of lives of Britain's sons who could ill be spared, and whose unaccomplished careers upon earth will never be made up to their nation.

'But was it needless,' does any one ask, 'to send out our great military expedition to Egypt under Sir Ralph Abercromby, when Britain was engaged in a life and death struggle with France, and there-

‘fore bound to oppose that power in every possible manner, and especially to check each movement of her rising chieftain, Bonaparte?’

‘Yes, perfectly needless,’ we reply, after hearing local particulars, and feeling some of the climatic circumstances. Because, the two warlike ends quoted above, would have been served infinitely better by our not having sent out a single soldier, and merely letting matters in Egypt alone, and keeping them so. For how stood the case?—the French army was at the time completely cut off from its parent country by our command of the sea; its stores exhausted, its arms and uniforms all in ruin, daily harassed and thinned by more or less fighting with Turks, who were continually increasing in numbers as those of the French were decreasing; sickening also with a desire to return home that could not be gratified, and growing daily in hatred against the general who had brought them to such a country, and then deserted them. In fact, if they had been simply left there for many years more, the majority would have been killed or died off, and the few survivors,—become rabid anti-Bonapartists,—would have taken peaceful service in British ships, or accepted any sort of occupation to escape.

Even as it was, when we had been slaughtering them in battle, and they killing too many of our soldiers in return, and we engaged to take them back to their own country in our ships,—it is recorded by Dr. Clarke that the detachment of French troops,

ragged and miserable, sent on board his brother's man-of-war, the 'Braakel,' would do anything to ingratiate themselves with the British officers and men ; and, amongst other voluntary demonstrations, got up a band, which used to play night and morning, 'God save the King,'—George of course ; and all who could speak any English, *would* make a special point of giving the line, 'Send him victorious,' with extraordinary enthusiasm, for it was in fact their only hope of getting out of Egypt.¹

Perfectly needless, therefore, even for its expressed purposes, which *may* be considered patriotic, but not very philanthropic, was the English Government's first murderous expedition to Egypt ; and then it was besides, obstructive to the cause both of science and local social improvement. For the French army had been engaged all the time in giving the most important and deeply required lessons on respect for Europeans, to the overbearing Orientals of the most anarchical country on the face of the earth,—while their *savants* were unrolling the history of the land's primeval days.

¹ Respecting also the whole of the French army, 'a sincere desire to quit the country was evident on the part of the French soldiers,' writes Dr. Clarke, from what he saw of them previous to and at the capitulation of Alexandria ; and he adds the particular anecdote of a Creole trumpeter, who had served under Bonaparte, and pretended to have been always about his person, coming up to a committee of the English officers, and saying, when he thought sufficient attention was not paid to him,—'If you should mention the name of l'Esprit to the little Corsican, you will find that I am pretty well known to him ; and when I shall have arrived in Paris, I will make him explain why he left me in this cursed country here.'

England interfered with the progress of both these subjects, and took up neither of them herself. Not the scientific,—for though we did plunder the French of the ‘antiques’ they had collected; the doing so, while the objects were on Egyptian soil, and then carrying them off to London,—can only be considered as an unrighteous plundering of Egypt herself; as well as a fatal entangling of ourselves with a peculiar thing of spoil, which brings us no blessing from any nation, while it excites against us the most revengeful feelings even still of our nearest neighbour. And not the social problem either was served,—for our dismal defeat on the second English expedition to Egypt at Rosetta, with the beheading there of whole lines of English soldiers by Turkish scimitars, and the carrying away of others to slavery or forced Mohammedanism,—went far towards removing in Oriental minds that grand lesson which the French had given them, when they overthrew the more powerful cavalry of the Mamelukes, even at the very epoch of their greatest strength and impetuosity; and made their battle of the Pyramids both a watchword of triumph to the soldiers of European training, and a classic reference in military annals and the literature of war, for all future time.

Had the French army indeed occupied and ruled the country some time longer in their own manner, it is probable that the Osmanlees would have looked on Europeans with even august respect; and our

expedition to Rosetta in after years need not have taken place, or the losses our troops sustained there been incurred. What these were precisely, it is difficult now to estimate, as sufficiently evidenced by the following almost chance paragraph in Colonel Howard Vyse's first volume :—' Amongst other undertakings, ' a company of Greeks was employed in 1837 to ' weigh up a number of guns in the Bay of Aboukir, ' many of them English, and most probably lost in ' the unfortunate expedition under General Fraser, ' *of which no detailed account was ever published.* ' It was probably thought by the Ministry then in ' power, that the result of the expedition to the Dar- ' danelles was sufficient to gratify public curiosity.'

In one way or another, therefore, the prospects of Pyramid investigation, which had looked so bright at the opening of the nineteenth century, were shortly afterwards utterly extinguished, and remained for a while as black as night ; considering, too, what country it was which had interfered with the progress of those studies, there appears but just retribution in all the severity and expense of their renewal falling upon an Englishman ; though when the national burden for sins, both of commission and omission, against cosmopolitan science, was voluntarily borne by a single individual upon his own private resources,—it became for him an immortal honour.

Colonel Howard Vyse himself, indeed, we have

reason to believe, had no such very elevated thoughts about the importance of his proceedings; but merely listened conscientiously, as an honest man, to the promptings of a still small voice within him, which ever urged his soul to an admiration of whatever appeared to be in itself truly great; and, in calling on, involuntarily obliged, him to devote himself to its prosecution with an earnestness and generosity, which ever rose in proportion as popular favour had *not* hitherto manifested itself, or the justice of the world, according to his ideas, had *not* been done towards the object of his choice.

Arriving therefore in Egypt, more as a fashionable amusement-seeker than anything else, he begins to be impressed with the idea,—in spite of all that Bruce had written half a century before,—that the Pyramids had *not* had justice done them; and thus he reasons to himself as he looks towards the Pyramids of Jeezeh across the ever-flowing stream of the Nile, in a moonlight night's ride in November 1836 from Toorah, where he had been witnessing a review of troops, to Cairo:—

‘They,’ the Pyramids, ‘are probably the most ancient buildings in existence, and are alike unrivalled in extent and the enormous proportions of their materials. Their origin is hidden in the abyss of time, so that even the period of their violation is unknown. And, notwithstanding the repeated aggressions of succeeding nations, they appear comparatively untouched, and have continued from age

‘ to age, through countless generations, the perpetual
‘ and mysterious records of an unknown and mighty
‘ people, whose memory has long since passed away,
‘ and whose very existence is alone established in
‘ these unrivalled monuments.’

A miraculous drop falls into the Nile, say the Mohammedans, on the night of the 17th of June, and causes the grand inundation of the year immediately thereafter to commence : and on the same principle we may suggest, that an invisible ray of immaterial thought must have descended into the Colonel’s mind on that particular night of his lonely ride ; and produced by its workings there all that subsequent flood of surpassing zeal, unbounded liberality, and untiring perseverance which developed themselves so abundantly in him during the following nine months,—as to constitute his labours at the Pyramids the grandest investigation into their nature which has ever yet been conducted by mortal man. And it was toward the end of that period, when local knowledge, joined to the natural gifts of his mind and the varied experiences of his life, entitle him to speak as one of first-rate Pyramid authority, that he writes touching this same view which we have just been alluding to,—or of the line of gigantic Pyramids, as seen from the sand-plains directly east of them, in the following terms :—

‘ The air of desolate grandeur, with which the
‘ ruined aqueducts stretch across the deserted Cam-
‘ pagna, has been often remarked to be peculiarly

‘ appropriate to the *Roman* capital in its present
‘ state ; but how trifling in extent and antiquity are
‘ those brick arches compared with the *Pyramids of*
‘ *Jeezeh*,—which, of scarcely less duration than the
‘ rocks themselves, have existed “*on the utmost*
‘ “*bounds of the everlasting hills,*” from generation
‘ to generation, the wonder and admiration of all be-
‘ holders. From the simplicity of their forms they re-
‘ tain their original character of ponderous solidity,
‘ although whole towns and cities have been con-
‘ structed with materials taken from them ; while
‘ from their vast expanse the finest aerial effects are
‘ produced, and they require repeated examination
‘ to enable any one to comprehend their awful and
‘ extraordinary proportions.

‘ They have, however, been often described by
‘ successive passing travellers, and extolled in vari-
‘ ous terms, according to the taste and feelings of
‘ each individual ; but as they, the *Pyramids*, are
‘ unique and without comparison, no description can
‘ convey an adequate idea of them.’

Of course the worthy Colonel himself, notwith-
standing his long experience, must suffer some of
the same difficulty with all the rest of men, when
trying to prepare set phrases and sentences where-
with to realize the whole scene of those truly
world-wonder *Pyramids* at once ; and his language
flows more smoothly when, beginning to picture
merely a small local effect in the course of his regu-
lar working operations, the grandeur of the subject

insensibly floats him away on its noble tide, in the following unintended and ingenuous manner :—

‘ The morning was cold and foggy, and at first every object, even the gigantic Pyramids, were totally obscured ; but as the atmosphere cleared up, the scene from the Sphinx became singularly beautiful. The picturesque forms of the women and children carrying baskets of sand upon their heads on the undulating mounds near Campbell’s tomb, the finely broken foreground extending to the rocks at the southern dyke, and the enormous masses of the ruined temple on the rising ground before the second Pyramid,—were in the finest breadth of light and shade. For a time, the lofty apex of the second Pyramid shone alone in the clear blue sky (like the top-gallant sails of a ship of war), far above the clouds that shrouded its mighty bulk, which by degrees slowly appeared in all its grandeur ; and soon afterwards the southern front of the Great Pyramid, glittering with the morning sunbeams, was displayed in full majesty, as the light vapours melted away from its enormous space.

‘ Owing to the oblateness of their forms, the want of proper objects of comparison, the proportionate smallness of the stones with which they are built, and many other adventitious circumstances, the exaggerated and undefined expectations of travellers are often disappointed in the hasty survey generally taken of these monuments ; and they

'are consequently considered rude and misshapen
'masses of coarse masonry, without symmetry or
'beauty, and alone worthy of notice from their ex-
'traordinary size. A more deliberate examination,
'however, never fails to alter and correct those
'opinions ; and it was universally acknowledged,
'by those who remained any length of time at the
'Pyramids, that the more carefully and frequently
'they are inspected,—the more extraordinary their
'grandeur appeared, and also the striking effects
'which, under the varying influence of the atmo-
'sphere, they continually presented. Pre-eminent
'in dimensions and antiquity over all other build-
'ings in the world, they are alike admirable for the
'excellence of their masonry, the skill and science
'displayed in their construction, and the imposing
'majesty of their simple forms.'

CHAPTER XVII.

CONCLUDING WEEK.

MONDAY the 24th of April opened the last week that we were to remain at the Pyramids, and opened it in most uncertain guise. We had, indeed,—all other work nearer at hand being well-nigh finished,—been contemplating a little journey to the Pyramid of Aboo Roash; and had already made acquaintance with the camel which was to take us, if we *should* go to that northern hill whence the view of the Jeezeh Pyramids is said to be peculiarly instructive, so promontory, if not island, like, appears there the eminence on which they are built. But what should we be able to bring back *photographically*, our thoughts suggested, in such unhappy weather as was then prevailing? for the whole air seemed stagnant, over-full of pale yellow miasma, with baleful sunlight shining through in streaks, and, even at its brightest, with a sickly white-lead hue; while the air-temperature was so high as 88° in the shade; and the drought, of all the severity that 20° difference of the wet and dry bulb thermometers could make it.

What, indeed, could we do closer at home (*i.e.*,

our home of East Tombs) in such weather? We took the camera up to the north-north-east azimuth trench, and in the dead white glare of the sun gave an exposure of twenty seconds with an aperture of 1-10th the focal length and a wet collodion plate, (or full seven times as long as should have been necessary on any ordinary day,) and yet obtained nothing at all; then increased the exposure to three minutes, and got something of the sky; and to five minutes, and obtained further indications of the surface-ground on either side of the trench; but the trench itself appeared as black as night or the bottomless pit, when the plate was looked at by reflected, and the sky flaming red when examined by transmitted, light.

If the sunlight of the outer world, then, has got so completely out of joint, let us retreat into the innermost depths of the Great Pyramid, where no rays of the disordered day can penetrate, and see what burning magnesium can do there. So away we went, through all the passages, and up into the King's chamber, carrying with us on this occasion a Manchester-made lamp, with three *spools* of flat wire, and mechanical arrangements for paying them out so as to burn uniformly just over a spirit-lamp flame; and may I never have such a machine to work again in such a situation! Of course, a Manchester man would have acquitted himself of the task an infinite deal better; but even he must have had some little trouble on finding the wooden cores of the spools

cracked with the drouhty air of Egypt, and the vulcanized rubber springs—that were to have made, by lively vigorous pressure, one pair of smooth rollers move another,—converted into stiffened, dinted lumps of perfectly inert matter. Of course, by means of pressing the rollers into contact with one hand, and turning the endless screw-motion with the other, the three flat bands were made to pay out pretty well for a time, and kept up a tolerable light ; but before a fourth part as many grains of magnesium had been consumed as we judged essential to take a picture, this desperately slow operation of burning the thin band, at *only* three ends at once, had gradually filled the chamber with white smoke ; while presently, and worse still, a fragment of solder in one of the conducting-pipes giving way, the exit of that band in front was consequently stopped, and in five seconds afterwards the spools behind had released all the multitudinous coils, and their stiff and springy threads were in an interminable tangle. Such a place, too, the King's chamber of the Great Pyramid, wherein to have to sit down on the floor, and by the light of one or two miserable candles in the hot and stifling air, to adjust all the elastic and resisting turns of the metal-thread into regular sequence again on each of the three winders,—and our pair of photographic plates with their embryo pictures standing only half impressed all the time !

Well, this proved plainly enough that one thing remained to be accomplished before leaving the

Pyramid neighbourhood, and that was to organize some really effective plan for burning magnesium, suitable to the black surfaces and unventilated interior of the monument ; for even the best of our results as yet, with the several forms of apparatus supplied on leaving England, had produced only the thinnest of negatives. With this view, therefore, we paced our way back to East Tombs, and then found the whole yellow-green air full of falling, rather than flying, locusts. They were coming now from the south-west, the direction whereto they had gone a fortnight before ; which seemed to imply that they had been decidedly wrong in their geography, when they careered along so triumphantly in their late onslaught on those eternal realms of sand, and rock, and unmitigated sunshine.

What did they find there to eat ? is a very natural question to ask ; and any one who has attended to the botany of South Africa, at least within the limits of the Cape Colony, may be inclined to suspect that there would be a tolerable abundance of bulbous plants, producing occasional gorgeous flowers above the arid desert soil ; for, have not many writers descanted again and again upon how beautifully the nature of a bulb is adapted to those sunburned regions around Hottentot's Holland, and the plains of Zwartland ; the bulb being the bud of the plant, and protected from being scorched to death by being buried under so many inches of non-conducting earth ?

All this is quite true, but may yet have its appropriate geographical limits ; and these may be found to reside chiefly in a climate where, however hot the day, the night is cool, and however droughty the summer, the winter has its rains. Such, too, is the climate of South Africa, under the parallel of 33° latitude south of the equator : but at the Pyramids, under their latitude of 30° north (that is not only 3° nearer to a vertical sun, but in the *northern* hemisphere, where the parallels thereabout are almost 4.1° of temperature warmer, or where 30° north is to be held as equivalent to 26° south,—besides, the breadth of uninterrupted, air-drying land being greater in the proportion of five to one at least), in such a position then as that of the Pyramids, the surrounding country is necessarily *too much* of a scorched and burnt-up desert, to support a great deal, if any, of bulbous plant life. We certainly found not a single specimen, but did find three or four prickly and thorny bushes ; one of which seemed, I do not know that it was actually so, to have the very petals of its flower developed in thorns ; and a branch of it, brought home carefully at the end of a long piece of cord, and then tied up into a ring, with its efflorescence of a rose of spikes hanging upon one side of it, was instantly recognised by an American lady, who visited East Tombs in the course of her grand tour, in company with her husband, a venerable German prince,—and who was now finding, he said, that ‘these American ladies

' will go everywhere,'—instantly recognised, by her sharp eyes and quick appreciation, as being the very representative of ' the crown of thorns.'

Yet Nature was always trying to do more; and in any hole or corner, and more particularly in the sunk area on the west of the second Pyramid, and on the floors of the azimuth trenches,—anywhere, in short, where the sun's rays were not quite so long continued as on the outside surface, and where a chance shower was intensified in its effects by drainage from round about,—there were two or three attempts at little herbaceous, though rather stringy, plants; and perhaps in a more favoured season than that in which we were there, they may make more considerable displays. But in the spring of 1865, the locusts found they had confessedly made a mistake in coming to this region, and were now trying back to greener lands.

On arriving, however, at East Tombs, uncertain as to what to attempt next,—behold, work of a new order was prepared to hand there: for the young Scot, Mr. Inglis by name, whom we mentioned as having dined in company with us at Sheikh Abdul Samed's,—had called to ask me to go with him to the Great Pyramid, and see, if possible, why he could *not* find more than two, out of its four, corner sockets; and this is how the matter came about.

Although enabled in one way or another to render a pretty good account of the sizes and angles

of almost all *details* of the Pyramid,—it had been a growing matter of regret with me, that we should return to Scotland without having been able to improve or advance the question of the size and shape of the Pyramid *as a whole*; and yet, we were condemned to that position, when the Viceroy declined to go to the expense of uncovering all four sides of the base, as requested to do in terms of Article A of the Memorial, on p. 8, chap. i. Such a piece of excavation was of course infinitely beyond my private means, on account of the length of the lines to be cleared, and the height of the hills of stone-rubbish to be cut through in the middle of every side; but, seeing that the depth of rubbish at each corner was very small, I had seriously considered, on arriving at the Pyramid, whether we should not at least endeavour to uncover those sockets or fiducial marks which the French discovered at the two ends of the north side of the base. But after looking at the ground again and again, I came to this conclusion; viz., that those two sockets could not be thoroughly understood, unless when seen along with both the other sockets, the pavement supposed to surround the Pyramid, and more especially with the line of the sides of the Pyramid, as shown by casing-stones *in situ*, like those of Colonel Howard Vyse. And that it would be useless, therefore, for anything approaching to final determinations, to uncover only one small part of the features by itself; while the mere act of so doing, might bring irreparable in-

jury upon that part; to the extent of its being no longer in existence, or able to contribute its testimony of exactness and accuracy, when at last the perfect time and the right man should have arrived.¹

I would not therefore presume, merely for the sake of gratifying my own curiosity, and attempting, perhaps, some very bad and almost impossible measures over the intervening heaps of rubbish,—to run a risk of depriving a future explorer, conducting a much grander investigation, of one of his necessary references.

Thus, then, we had lived on there for three months and a half, in Spartan-like self-denial; when, in the middle of April, we were called on at East Tomba, by a gentleman who proved to be a well-known railway-embankment and canal-digging contractor in Glasgow, Mr. William Aiton, of Bath Street in that city, and last from some tangled business in connexion with the Suez Canal. Now Mr. Aiton had a theory of his own with regard to the manner of the building of the Great Pyramid, and announced his intention of sending out one of his engineering assistants immediately, with a party of men, to make the necessary measures to test his views. What these were precisely, I am not competent to say; but of course encouraged any one,

¹ Colonel Howard Vyse reports of the two casing stones, which he discovered, that, on finding them within a few weeks injured by specimen-seekers, he had them covered over by rubbish when he left the place; but that they had soon afterwards been uncovered and 'broken to pieces.'

who was at all inclined to test anything whatever about the Pyramid, through means of *measure*, on every account to pursue so excellent a plan ; and as an inducement, showed a number of specimens of the casing-stone fragments which my wife and I had been picking up week after week,—and exhibited clearly the one peculiar and constant angle which pervaded them all. We likewise spoke much about the socketa, as a remaining proof in the present day, of the original size of the Pyramid ; and when we confessed that we had not seen them yet, but only spoke of two positively, on the strength of the French *savants'* description of them in their great work on Egypt,—and *concluded* that there were also other two, from the manner in which they were alluded to in the Book of Job, as first explained by the late John Taylor,¹—immediately Mr. Aiton's quick perception took hold of that fact, and he determined to do something therein.

He himself was indeed on the eve of going away on a tour in the Holy Land ; but, two days after, his assistant, Mr. Inglis, arrived ; and, obtaining our consent, established himself, with a party of Arab attendants, in the same lower storey of tombs which the Reis Alee Shafei and the youths of Sakkara had so long occupied in January. Extensive levellings from the sand-plain on one side, up the hill, round the Pyramid, and down again to the plain and the

¹ John Taylor's *Great Pyramid : Why was it built, and who built it ?* p. 263.

water wells on the other side,—seemed to be Mr. Inglis's chief proceedings for several days; until he at length informed us, that having found the depth of rubbish to be very inconsiderable at every corner of the building, he had set parties of Arabs to excavate and find all four of the corner sockets!

That was a grand idea in itself, but before going altogether into it, we carefully inquired whether leave had been obtained from the Egyptian Government to do that, which might easily be twisted into the forbidden 'breaking of the Pyramid'? And, 'Oh yes,' we were told, 'that had all been managed for Mr. Aiton by the Consul-General, and he had leave to uncover anything so long as he covered it up again on leaving.'

Rejoiced at this perfect legality of operations by one who was not bound by our tender fears for the fiducial markings of the Pyramid,—we saw, without any feeling of our own responsibility, Mr. Inglis and his men hard at work from early dawn to late in the evening; and, by the 22d of April they had uncovered two of the sockets, viz., the north-east and south-east, both of them cut in the solid substratum of the rock of the hill. (See Plate IX.)

The former socket, was one of those discovered by the French in 1799, and a grand affair it was to our view; a square hollow, about twelve feet long, as many broad, and eight inches, more or less, deep, as measured from the sides,—which were of variable or injured height, though the bottom was exquisitely

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of the other slides were made by the same method. The readings of the level were 100.000, 100.000, 100.000, that is, the level was exactly horizontal. The distance between the level and the surface of the rock was 10.000, 10.000, 10.000.

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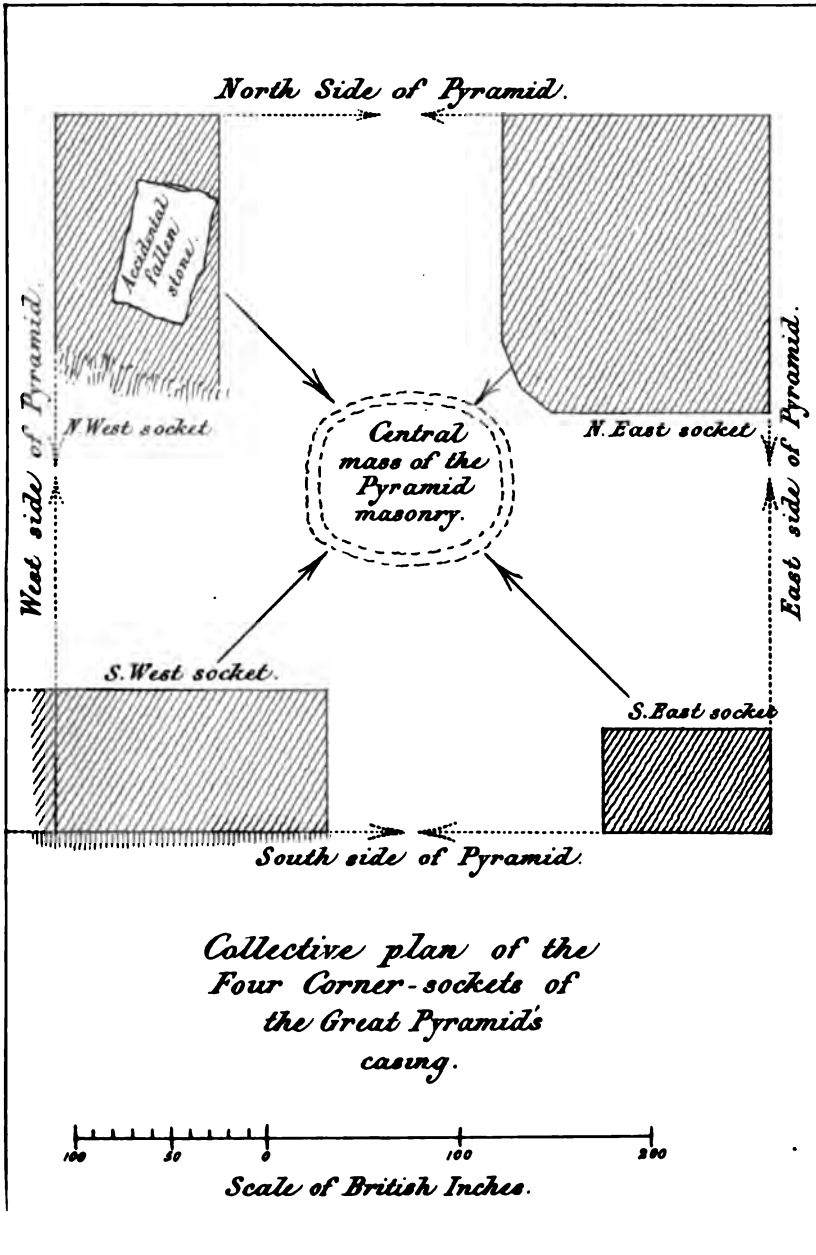
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levelled, and the chisel-marks visible still. It gave one almost a feeling of awe to behold suddenly this ancient testimony brought to light from the soil beneath one's feet! How often had we not walked over that piece of ground; and, though fully believing all the French description, yet had been unable to realize it in its full force and accuracy-giving character, as of a thing existing still. Especially, too, was this the case, on account of the ground at that corner of the Pyramid having been so swept by daily winds, and occasionally washed by showers,—as to have been lowered and levelled down apparently to the very rock surface itself: making that, too, appear rough and rude, and as if forming a place such as only savages would erect a monument upon; while the present corner of the standing Pyramid close by, being also broken and mangled to a degree, causes it to look merely like the beginning of a Celtic cairn, or a piled heap of rough stones.

Small wonder, then, if a celebrated scientific man in England,—in fact the chief of her scientific men,—writing in 1864 on the subject of *standards of linear measure*, quoted 'the Pyramid of Cheops' as amongst the number of things in the world whose claims for being appealed to in such a question, have entirely departed; because, said he, that monument has worn away to such an extent as to be forty feet smaller in the length of a side of its base now, than it was in the time of Herodotus.

And so it may be, as to all of its substance which

is still above the surface of the ground. But as soon as Mr. Inglis's men began to dig,—the apparent gravelly rock was found to be only limestone-rubbish, somewhat cemented together naturally by a spontaneous action of the lime of which it is composed; and, at a foot or two beneath the surface of such *débris*, they came to the true stone-rock of the living hill. Nummulitic no doubt it was; but being entirely unweathered, and as if only recently levelled down to a flat area with saw or chisel, it exposed everywhere a white, compact surface; in the midst whereof, appeared the large sunk area for the corner-stone of the ancient casing; which casing's edge, and which alone, measured anciently the true size of the original building.

Here, then, was a witness,—a witness clothed in white, and almost twelve feet square,—to rise out of the ground in testimony against the modern English libel, which had made as little account of the discoveries of the French *savants*, as of the far-seeing methods of the Pyramid builders for perpetuating accuracy! One felt for the moment almost in the position of being brought into contact with those ancient men themselves, when the intervening veil of four thousand years was thus removed from one of the works of their hands; for it looked so recent, and was shown to be so admirably adapted both in fact and principle for maintaining a record of the exact size of the monument, if not to all time, at least down to this age in which we live!

The Arabs cleared out every particle of dust from the chiselled hollow, and Mr. Inglis examined it over its whole floor with a spirit-level. ‘Why, I cannot find any error in it,’ said he,—‘that is, of level; but it is not quite square.’

‘No, it is not quite square,’ I repeated, ‘inasmuch as two opposite sides are rather longer than the others; but have you measured the diagonals, which for some scientific purposes are more important than the sides?’ And as he had not, I told Alee Dobree to bring the two one-hundred-inch measuring-rods, and lay them from corner to corner. Now these rods had been prepared during the past year in England, not only as convenient rods wherewith to perform measures, but in an expectation that some remarkable features about the Pyramid, though not on its outside and most prominent surfaces, would be found expressed in even *fives, tens, or hundreds*, of inches, and not in such odd numbers of inches and fractions of inches as the native Egyptian cubit of either past or present time is expressed in. So Alee Dobree laid the said rods along evenly from corner to corner, placing them with their planes vertical, so that they might go edgeways close up into the corners of the socket-walls; and then he exclaimed, ‘Why, they just fit in quite tight, as if they were made for it.’ And so it was, to the full astonishment of us all; though Alee Dobree continued to grow in surprise when he found that the two English-constructed fifty-inch rods, put in a line, ex-

tended exactly from the centre to the outer corner, also 'just as if made for it.'

From the north-east, we then adjourned with our rods to the south-east, corner, where Mr. Inglis's second socket had been opened. This socket had probably never been seen by man, except on two distant and remote occasions; *first*, when it was constructed at the building of the Pyramid, and immediately thereafter filled in, with its appropriate corner-casing, and foundation, stone; and *second*, when said stone was pulled out again, at the time of all the casing stones being removed by the early Arab Khaliphs one thousand years ago.

'It is not at all like the other socket,' said Mr. Inglis; 'being so much smaller in length and breadth; so decidedly an oblong rectangle in shape, and so much deeper; but there are chisel-marks clearly on the sides and bottom, and I have tested the floor, and found it to be beautifully level.'

But as he had not measured the diagonals also, Alee Dobree was called on to apply the one-hundred-inch rods from corner to corner, and one rod made each diagonal with practical effectiveness, for it jammed about half-way down the socket's sides, which were not exactly vertical. *There*, then, in these one-hundred-inch diagonals, was a link of connexion, and of a recondite, yet very important order, between the two externally most radically different socket-holes, viz., the north-east and south-east. But their architectural similarity to the same

thing, or rather to their original purpose, was proved still more, on measuring the vertical angle of the top of the Pyramid, as seen from each of them.

For us to have measured the socket's linear horizontal distance from the *lower* corner of the existing Pyramid-masonry, would have been of very little service indeed,—so excessive and unequal have been the modern breakings away there ; but at the *summit* of the Pyramid, there is far less horizontal thickness removed ; and, judging from the general squareness still preserved by the little plateau forming the present top, the amount removed must have been nearly equal on every side. Whence it came that, by moving one's station at either socket, from its nearer to its further corner, or *vice versa*, a difference in the angle of altitude of the top of the Pyramid was obtained, of 15' about at the smaller, and 30' at the larger socket ; showing, in so far, the power of the method ; while the same identical whole angle, to the nearest minute nearly, was obtained at the outer corner of either socket.

Now the hard-working Mr. Inglis was unprovided with any angular measuring instrument, and had merely judged by the look and lay of the stones forming each foot of the Pyramid, whereabouts the corner-stone hole of the ancient exterior surface should be ; and thought, *a priori*, that he had made an equally close hit in each of the four instances, as to where the Arabs should begin to dig. They did very soon, too, at every corner, come to a smooth

and levelled or artificially-prepared surface of the original rock of the hill ; but at the north-west angle there was only a confusion of markings, and at the south-west something which was not understandable at all. Still they went on digging, and Mr. Inglis reported from time to time extraordinary indications at the south-west corner, and thought that that one would presently prove to be the very chief of the sockets of the Pyramid. But the indications invariably failed on being pushed a little further ; the men dug hither and thither, discovered nothing more, and then wanted their contract-money 'for finding the sockets.' But one who had controlled large parties of navvies on the Clyde, was not going to yield prematurely to the clamour of a few Arabs ; so Mr. Inglis came, as already mentioned, to East Tombs late on Monday afternoon, to see if I could throw any light on the reason why, they could *not* find the north-west and south-west sockets.

To the site of this latter one we first went ; and, confident of the ancient truth of the Pyramid's figure, as well as having already tested the vertical angle of the top, as seen from the sockets which *had* been found,—I jumped, instrument in hand, into the fruitless hole the excavators had made,—but was instantly covered with a blinding cloud of limestone-dust which a newly sprung up wind kept in constant turmoil. The Arabs, however, immediately took off their long dark-blue winding-sheets of togas, and with them formed so famous a wall to

windward, that I was able at once to look through the sextant-horizon instrument again, upwards to the top of the Pyramid,—and, without any doubt, to say from its angle, ‘You (Mr. Inglis and men) are too far out from the Pyramid here by eight or ten feet at least.’ And then walking inwards from their hole, towards the present Pyramid stones, could say to the men as confidently, observing the angle of course as I went on,—‘Here, vertically under this point, the socket must lie.’

They marked that spot accordingly, and then we adjourned to the north-west corner. It was somewhat strange, perhaps, that they should not have found that socket; for it is one which the French discovered and described in writing, though they did not picture it in their great work, as they did the north-east ‘encastrement;’ but the moment the hole which Mr. Inglis’s Arabs had dug, was tested by the angle of the summit of the Pyramid, it was pronounced too far out by several feet. ‘We walked inwards to the Pyramid, therefore, until the theoretical angle was obtained, and then found ourselves *vis-à-vis* to a huge block of nummulitic rock, rising sheer and vertical out of the ground. ‘Oh, that,’ had told us formerly some Cairo *savants*, ‘is the rock of the hill, left by the builders to mark that corner of the Pyramid; and you will have no difficulty in making out the original size of the Pyramid there, with so clear a projecting mark formed in the solid.’

But there was no slope like that of the casing stones cut on the outside of this post of rock, and its stratification was presently found to be at right angles to that of the hill ; so we unhesitatingly said, ' This is merely one of the great building blocks of the Pyramid, which has fallen out of the mass just opposite, and has tumbled accidentally into the very socket-hole ; yes, into the very socket-hollow you are in search of ; dig round about the block, and you will find the sides of the socket surrounding it.'

This was rather a bold announcement to make in opposition to the ideas of all the practical men on the spot, and on the strength only of the little cock-sparrow thing of a pocket-sextant and artificial horizon held in the hand ; but the principles were clear, mechanical, and above-board, so it was done with confidence. A rather stormy meeting then followed between Mr. Inglis and his men, the agreement having been ' for finding the sockets,' and they wanting now more money when required to dig in a new locality ; but when they found him firm as a rock in refusing to give them anything until the four sockets were veritably visible, the Sheikhs appealed to his humanity to leave off, for he was working their people too hard, and their strength was quite exhausted. Then, however, the Scottish Engineer told them,—I having meanwhile returned to East Tombs,—that '*Mr. Smyth* was so anxious to see all ' four of the sockets before he left

the Pyramids ;' whereupon the Arab chief was graciously pleased to reply, ' Well, then, if that is ' the case, we will labour again to please *him* ; and ' the digging shall be commenced at sunrise, with ' plenty of men to get it accomplished quickly.'

Next day, Tuesday April 24th, I had wandered away to take again the temperatures of various water-wells ; and on my return, Mr. Inglis appeared announcing joyfully that the south-west socket had been found, and just in the place pointed out.

Then if that is the case, I could not but reply, you will assuredly find the north-west one also before long ; and as it will then be the first known occasion in Egyptian history of the four lower corner sockets of the Great Pyramid being all seen open at once,—it becomes our duty to try to turn the occasion to some useful account in the way of measurement, *notwithstanding that there are the still unpierced hills of rubbish lying in the middle of every side,* and preventing any one socket-hole *seeing*, in the technical language of surveying, any other.

Mr. Inglis immediately volunteered ' that he was ' already preparing to take the differences of level ' of the floors of the several sockets, having a good ' levelling instrument and staff ; and he also thought ' of measuring the rectilinear distance from socket ' to socket with a long tape-line.'

This tape-line he had used so much upon ordinary earth-work in contracting business, and had so

much faith both in it and his professional methods of using it in such a manner, as to give *horizontal* distances over any amount of *inclination* or roughness in the surface ground,—that I did not like to tell him scientific opinions respecting tape measures ; especially, too, as the present state of the soil, so atrociously encumbered with broken stones, was perhaps not worthy of much higher means of accuracy. But having first taken the precaution of testing the entire length of his tape in sections over the ‘reference scale’ of all our Pyramid measuring-rods, and not found any error exceeding the easy elasticity of the tape itself,—I answered that I was quite happy to leave those two *linear* departments to his care, and would busy myself only with the *angular* measures that were called for.

To this end, although the Playfair altitude-azimuth instrument was already packed up complete for travelling back to Scotland, and our own time fixed now beyond alteration, by arrangements made through Consul Reade with the Egyptian Government, for leaving the Pyramids on Saturday morning first,—I determined to unpack said instrument again, and use its unrivalled powers, first, in measuring the vertical angle of the summit of the Pyramid from the outer corner of every socket ; and, second, in determining the bearing of the lines joining two adjacent pair of sockets with the astronomical meridian. A troublesome matter this last would be, for it would require the heavy and unwieldy instru-

ment to be mounted near the summit of the hill of loose stones at the middle of a side of the Pyramid, with peculiar critical exactness, and the observations to be extended into twilight, if not into darkness; but Mr. Inglis spiritedly promised to assist in any way he could, and I began the unpacking accordingly.

A little code of signals being soon arranged, Mr. Inglis went off with his now special attendant, Alee the Egyptian, to ascend the Pyramid; and to hold out at a given time, first from the north-east, and second from the south-east, corner of the summit platform, an observing-signal in the direction of a diagonal of the Pyramid,—and at an agreed measured distance from the corner, so as to represent a probable thickness of casing stones and backing stones. Thereby not only giving me an accurate bisecting signal to observe from below, but enabling the angle read off from the instrument to be, without further correction, very nearly that of the original slope of the Pyramid, whatever that may have been,—whether what Mr. Taylor's theory would indicate, or any other. Soon after, Alee Dobreë appearing with a number of his friends, we went up with all the boxes of the Playfair instrument and its stand, to the north-east socket; placing it on the levelled floor there, and, by means of a plumb-bob, accurately over a pencilled cross in the line of the diagonal of the Pyramid; but at such a distance inside the socket's corner, that the centre of the telescope's

motion was approximately in the expected line of the inclination of the corner angle of the Pyramid.

How the Arabs, beginning with Alee Dobree, did admire the plumb-bob. It was but one of the ordinary elliptical, brass-turned, surveyor's plumb-bobs ; but they had never seen anything so neat and graceful before : so true in figure, so slender the thread from which it hung ; so knowing the means of hiding the knot by the little screwed pipe within the substance of the ball ; so quaint the name, which they repeated again and again to each other, until they had got it perfect ; but beyond all, so exquisitely shaped in egg-form, the thing itself, that when they were told it was a symbol of truth and justice, they thought it also a better ideal of the traditional ' egg of creation,' than all the ostrich eggshells that were hung up in their mosques by the dervishes !

More immediately, however, was I inclined to admire the circumstances of observing with an altitude-azimuth instrument on the floor of a Great Pyramid socket ; for besides the astonishing firmness of the foundation, the truth of level was such, that on removing from the north-east, to the south-east, socket there was hardly more than half a turn of any one of the fine threaded foot-screws to be made, to put the instrument level within a second of space.

We were glad when the requisite number of observations, in reversed positions of the circle, enabled

us to signify to Mr. Inglis that his work aloft was finished, for it must have been a giddy employment for him to be looking down over the edge so long ; and dangerous too, while in such a position, to have to hold out a long staff in the teeth of a violent wind. Yet he had so held it for the whole time required ; and now, in order that he might come down the more quickly to help at the next part of the play,—his henchman, Alee the Egyptian, must needs bring him down, not by the north-east corner, but slantingly along the eastern face of the Pyramid, where the courses of nummulitic stone are weathered and rotten to a frightful degree. But the young Scot in his shoes, was fully equal to the Egyptian in bare feet ; and, after safely effecting his descent went off immediately, just as if he had done nothing extraordinary at all, to plumb two tripod signals over the outer corners of the north-east and south-east sockets,—while I was putting up the Play-fair circle on a little nick he had cut out during the day near the top of the eastern mound of rubbish.

When the full magnifying power of the telescope, however, was brought to bear, the said nick was found not to be near enough to a straight line between the two sockets ; one or two other positions were accordingly tried in new nicks prepared *impromptu* among the stones ; but the true position proved to be so evidently somewhere near the middle of a very steep part of the loose slope, as to require both great excavating to secure for the in-

strument a firm standing-place, and an extensive cutting of trenches north and south to see the signals. In fact, so much work, that when it was perceived that each stroke of the pick, under the high wind which was blowing, deluged both instrument and party in a cloud of white dust, while black clouds were gathering over the twilight sky, we gave up the observations for that night. But then, when the instrument was packed in its boxes ready for returning to East Tombs, one man was wanting; who was it?

Why, it was the melancholy, misfortune-stricken Abduwahad. He certainly had not displayed very great interest in our successive adjustings of the tripod of the Playfair instrument on the uneven foundation of broken blocks and limestone dust; and so had vaguely wandered away, somewhat of a privileged person, to where Mrs. Piazzi was watching our proceedings from the altar-like pedestal which Reis Alee Shafei had built near the general junction-point of the lines of all the azimuth trenches; and seating himself a little way off before her feet, he began to discourse, upon 'what a strong man was Mr. Inglis; 'and how he knew he was so strong by the way his 'arm swung backwards and forwards as he walked.' And then the poor creature remarked that it was very hot, and he was extraordinarily thirsty, and must therefore go down to old Ibraheem for a drink of water. But when the other men heard that that was the reason of his absence, they would listen to

no excuse for him! What! he, an Arab, and to feel thirsty when on particular duty! what was the good of an Arab if he could not sit in the desert when required all day long, and not think of thirst? To have given way at noonday would have been bad enough; but, after sunset! the thing was ridiculous, and his misfortunes must have overthrown his Arab nature altogether.

Next day, Wednesday the 25th of April, came the announcement that the fourth socket was found; so the plan of operations for the afternoon's observing was clear before us, except that there arose presently something like a riot amongst our Arab labourers; for they had found, they said, that Mr. Inglis was paying three shillings a day, while I had only paid two shillings; wherefore their clamours were loud that they had been cheated of what was their due, and of what must be repaid them for all the days they had been employed during three months past. Even Smyne, too, our regularly engaged servant, and the recipient of so many favours and undeserved indulgences, even he must go off to the new rising sun, and try to take service there, representing speciously that we could afford to give him up quite easily just now. On hearing of this secret manœuvre, which had not been successful, we of course taxed him with want of faith to his engagement with us; but then he asserted roundly that he had not wanted to leave us at all; that he was still going with us to Scotland whenever we left the

Pyramids ; and he had only been seeking to get three shillings a day by digging for Mr. Inglis, without its at all interfering with his helping Ibraheem in our kitchen, as usual, but where the work, he averred, was so light that it could be done at any time.

Yet when it appeared presently from the course of operations, that Mr. Inglis had not permanently raised the price of a nominal day's easy employment, but only proposed to give the higher rate for a large amount of measured work performed on a special occasion,—the malcontents, who had never contemplated fatiguing themselves seriously for any one, were placed between two fires, and became very surly indeed. For we were not at all inclined to yield to their demands, and thereby make future explorations almost impossible to private investigators, by the ridiculously high price they would have to pay for the commonest labour,—a price, too, very probably, twelve times as high as the then prevailing agricultural wage of the region around.

At no more than the present rate, we fear that even the lordly purse of Colonel Howard Vyse would have failed long before he had accomplished half the investigations he desired to achieve ; for in his time the pay of an Arab workman was 1 piastre = $2\frac{1}{2}$ d. per day ; of a Reis or captain over the men, 2 piastres or = 5d. per day ; and of a woman, or of children, from $1\frac{1}{4}$ d. to $1\frac{3}{4}$ d., 'according to their size.' All Egyptian prices have indeed changed marvellously since then wherever European travellers are con-

cerned, as the subjoined table of the rates paid by the Colonel in 1837, and by ourselves in 1865, will sufficiently attest ;¹ and all the more instructively, on considering Colonel Howard Vyse's statement that the prices at the former date, 'were greatly 'risen above those published by Sir Gardner Wil- 'kinson in 1835.'

But through all these changes, the manners and dispositions of the mass of the country working people must be still very nearly what they were ; for thus the Colonel condenses his experience, extending over many months of daily supervision, and dealings with thousands of them :—'The boys are 'well made and active, capable of great exertion,

| 1 NAMES OF ARTICLES. | PRICES PAID BY | |
|---|-------------------------|-----------------------------|
| | Howard Vyse
in 1837. | C. Piazzi Smyth
in 1865. |
| | £ s. d. | £ s. d. |
| Flour, per 2·5 lbs., | 0 0 7·5 | 0 1 3 |
| Beef, per 2·5 lbs., | 0 0 8 | 0 4 0 |
| Mutton, per 2·5 lbs., | 0 0 5 | 0 2 6 |
| A duck, | 0 0 5·5 | 0 2 0 |
| Pigeons, per pair, | 0 0 2 | 0 1 3 |
| A fowl, | 0 0 7·5 | 0 2 0 |
| Butter, per 1 lb., | 0 0 2·5 | 0 1 6 |
| Eggs, 40, about | 0 0 2·5 | 0 1 6 |
| Potatoes, per 2·5 lbs., | 0 0 5 | 0 1 3 |
| Macaroni, native, 2·5 lbs., | 0 0 7·5 | 0 1 3 |
| Rice, per 2·5 lbs., | 0 0 7·5 | 0 1 6 |
| Oranges, per dozen, | 0 0 2·5 | 0 0 6 |
| Limes, per dozen, | 0 0 1 | 0 0 3 |
| Apricots, dried, per 2·5 lbs., | 0 1 0 | 0 2 2 |
| Charcoal, per mat, | 0 4 2 | 0 8 4 |
| Dragoman per month, besides food,
baksheesh, etc., | ... | 8 0 0 |
| 1st Arab servant, do., | ... | 4 0 0 |
| 2d Arab servant, do., | ... | 2 10 0 |

‘and several of them are intelligent, and work extremely well. But the men, with a few exceptions, are sullen, irrecoverably idle, deceitful, and totally insensible to good treatment, and therefore apparently incapable of amelioration;’ or, as he writes in another place, ‘a despotic government; together with their own idleness, dishonesty, and ignorance, has plunged them into a state of misery which Christianity and its attendant blessings can alone effectually relieve.’

At the very time, however, when this disputation was going on, and Alee Dobree was declaring that he could get no men from his village to carry the heavy instrument,—who should darken the doorway but Sheikh Murri, who had always, by some contrivance or other, been kept out of the way of employing his men in our service? So I immediately called him to witness Alee Dobree’s declaration of inability to help us at this critical time; and inquired if he, Sheikh Murri, could send us any men, each of whom should receive two shillings a day certain, and in case of giving great satisfaction, three shillings a day.

‘On my head and my eye,’ indicated the Sheikh, and was immediately off and away up to the Pyramid, where he knew some of his people were at that time; and so speedily did he bring down a force of most rude and black-brown Egyptian ‘fellah-heen,’ that the instruments were taken successfully, and within the appointed time, to the north-west

and south-west sockets successively ; while Mr. Inglis at the top of the Pyramid held out the signal-stick from the corresponding angles there. Then we all adjourned to the central rubbish-heap of the eastern side, and succeeded in comparing the line of those two sockets with the Polar star ; discovering too, the approximation to be so close, even so very much closer to the truth of nature than anything previously ascertained about the Pyramid as a whole, that we considered ourselves repaid over and above for all the extra labour of the past few days. Wherefore we went rejoicingly back to East Tombs ; there, too, to find what had given us the pleasure of Sheikh Murri's visit at the fortunate moment when he looked in ; and it was this :—The wary chief was not to be outdone in attentions to the strangers, when they were on the point of leaving, by his brother Sheikh of the northern village ; hence, as unfortunate domestic circumstances, already alluded to, prevented him from entertaining at home, he had brought Mrs. Piazzi a present of a lamb—a live and flourishing lamb, half a year old, its ears dyed with saffron, its tail with hennah, and a few blue patches stained on its nose, to resemble those highly prized little tattooing marks about the lips and chin, which are thought essential to every Egyptian Arab damsel of perfect beauty, noble birth, and infinite charms, according to the ideas of the ancient land.

On Thursday morning, there was much field-

photography to accomplish ; for, of course, the sockets must be photographed. The day was windy, and travellers came in crowds ; but we established the operating-box in the bottom of the deep north-north-east azimuth trench, where no one found it out ; (not even the wind, of which, several times in the day, some roaring little cyclones went over the top with their pillars of dust, but were harmless below ;) and from whence, about every half-hour, I was able to issue with two new sensitive plates in the portable bath-carrying frames. Amongst several views too, that were then obtained, and are now most instructive to examine in a good achromatic stereoscope of high magnifying power,—was one we were particularly satisfied with ; for it represented the north-east socket, with the two one-hundred-inch measuring-bars forming its south-east and north-west line of diagonal ; and the two fifty-inch bars, its semi-diagonal towards the outer north-east corner ; while, in each of the two small triangles of the floor so formed, sat one of the Pyramid-village Sheikhs, and in the large space behind, stood the youthful Thomas Inglis, the happy excavator of the whole.

Soon after mid-day, there came,—sent by Mr. Consul Reade's very kind and considerate attention,—the first clerk of the Consulate, to assure us personally that he had visited all the Egyptian authorities concerned, and found them every one in due training for sending their men and camels to us the

next evening, so as to be ready for the removal on Saturday morning. A most efficient head-clerk too, was this gentleman, speaking and writing several languages, both Western and Eastern ; and at a rate of pay in these high-priced cotton times, which the home authorities would surely increase,—if they had real knowledge of the frightful advance in the prices of most necessaries in Cairo, to the families of humble servants of Government, struggling on upon the old fixed salaries of another age.

Towards evening, there were more observations for us with the Playfair altitude-azimuth instrument at the Great Pyramid. This time, on the rubbish-heap of its *northern* side, with the object of comparing the two sockets at each end there, with the Polar star ; and then, through that high reference, contrasting the direction of the northern with that of the eastern side of the Pyramid ; for therefrom, we should be able to determine the angle of the two sides of the base at the north-east corner ; or, in other words, obtain an idea of the amount of error committed by the builders in one of the most radical proceedings connected with the original laying out of the whole Pyramid.

Mr. Inglis had been engaged during the day with Alee the Egyptian, in cutting a standing-place for the instrument in the eastern, as higher than the western, half of the northern rubbish-heap, so gashed has that once single mound been left by the Vyse

and Perring's proceedings of thirty years ago. And he was to help still further in the evening ; for the over-frequent lifting of the too heavy instrument in and out of its boxes, these last few days, had sprained my right wrist, until it had become now close upon powerless ; so *he* very obligingly undertook to do all the *lifting*, and leave me only the observing. Happily the sky was clear, on this the last evening which was possible to us ; but all the circumstances were anxious, if not important ; and both the Sheikhs, Murri and Abdul Samed, voluntarily gathered their many-folded robes around them, accompanied us to the observing place, and stayed there through all that followed.

It was a long and trying work ; for, after erecting the signals (tripod camera-stands), over the socket corners, and the great Playfair circle on its stand upon the proposed shelf hewn out of the excessively steep slope at that part of the rubbish-heap,—it was found the instrument could not see the signals. Men were then sent with picks to cut into the western flank of the compound hill, and after much work there, the instrument station was found too far out from the Pyramid. But as it could not be taken inwards, on account of the rubbish-heap there rising like a wall, it was carried to the culminating top of that part, but then found to be too far in ; in fact, the true place was right in the middle of the steepest part of the whole slope, where no one could cling on except with use of both hands and feet all

at once. So, with desperate resolve, the instrument was put into its boxes again; the Sheikhs carried them away for a little space; and all the men about began hacking and hewing at the bank of rubbish: composed of casing stone fragments all of it, but ground down mostly to impalpable white powder, which every gust of wind threw over us all, in blinding clouds.

Rapidly now was the time passing away; the sun had set, and twilight even perceptibly began to fade. So soon, therefore, as even something of a little recess in the cliff had been made to receive the projecting feet of the tripod,—the instrument was erected again, two men holding each box on the steep inclined neighbouring slope, while Mr. Inglis's strong arms lifted out each component part one after the other. Just space was there for pushing round the erected circle, and duly levelling it,—but lamps had now to be lit, for so dark was growing the air, that the microscopes could not otherwise be read.

We knew that we must be nearer the true position than before; and made a proper azimuth observation at once of the signal over the eastern socket,—then turned round to the west, but no signal could be seen there: evidently, too, it was masked by rather a distant ridge of the rubbish-heap which would require full half-an-hour to cut away, and by that time there would be the darkness of night. So Mr. Inglis, always ready in time of need, volunteered to go with his eighteen-foot surveying-rod,

and hold it vertically over the same outer point of the western socket, where was now the four-foot high tripod only.

‘But what means have you got of holding it vertical?’ said I, glancing involuntarily beyond him at the many stars already visible in the western sky, and thinking how difficult he would find it to note either level or plumb-bob.

‘Is it not,’ answered he, ‘a point of professional requirement with us engineering surveyors to know, by sense and experience, how to hold a staff vertical, and to keep it so for any length of ordinary observing time?’

‘Then by all means go,’ was of course my response; and away he sped, making the dust of the rubbish-heaps fly at every step, while the Arabs distributed themselves about, above, and below, to keep him in sight, and give notice as soon as he had reached and stationed himself at the important signal-place. So at their shout, I looked through the telescope, but its field was sadly dark under the shade of the western horizon; and only just when on the very point of giving up all hope,—was at last the battered upper end of Mr. Inglis’s well-known levelling-rod seen, standing fairly vertical, above the intervening rubbish-slope. Instantly it was observed, the angle noted, and the telescope turned again on the eastern signal,—but it could not be found. Has the instrument slipped? was the first fear. The telescope was, therefore, set to ex-

actly 180° from the staff on the west, but no east signal! 'It's blown down,' cried an Arab; and I turned back to the west signal, but now it was absolutely undiscernible in the darkness. Both our landmarks were therefore gone: but both had been truly observed, and the readings noted, so that if the steadiness of the instrument, on certainly no very steady foundation, could be depended on, we might still be saved. With such anxiety, however, as never had an observer before, did I go through the operations of turning the telescope to the Pole-star,—and, with the most unexceptionably delicate manipulation I was master of, make three complete observations, upon that celestial referring point, one after the other.

They did not show any other movement in their respective intervals, than that of the star itself according to the time, which was carefully noted on a pocket-chronometer daily tested for its error by observation; and on turning back to the notes of the two signal-measures, I saw that they were happily within a minute of space of being precisely opposite to each other,—so that really there was a chance, looking to the enormous optical power attached to the Playfair instrument, of our having obtained a very respectable measure after all. At the least, we had done whatever was then in our power, and that on the last night the Playfair altazimuth was destined to look at an Egyptian sky: so we announced to the people around that the work was all over,—but before packing up, told

them they should see the evening star as they had never seen it before. The telescope therefore being turned to the planet Venus, which was now glittering in the west upon a dark field of black-blue sky, each man present looked through,—saw the elegant crescent of more than lunar dazzling light,—and, putting his hand respectfully to his head, averred that, ‘God is great.’

But the most peculiar termination of the day was that witnessed by my wife, who had sat all this weary time in the recess on one side of the entrance passage of the Pyramid,—looking on in alarm and sympathy at our dangerous position and protracted proceedings. But presently, in the faint twilight, she saw the bats coming out of the Pyramid into the outer air; they came flying at full speed, and always in flocks; flock following flock for a quarter of an hour or twenty minutes without any cessation; so that the number of individuals must have been enormous, and well entitling the Great Pyramid to the appellation usually bestowed by the Arabs on the Northern Pyramid of Dashoor, of ‘Haran el ‘Wataweet,’ or the Pyramid of the Bats. As fast, however, as these poor creatures came out to the fresh air, some luckless members of them were pounced on by large hawks,—hawks she thinks certainly, and not owls, though after sunset,—to whom it proved a perfect carnival of enjoyment.

Early next morning, Friday the 28th, the Playfair

instrument was repacked in its boxes for the last time; and we spent the greater part of the day inside the Pyramid, taking the final magnesium-photographs; for we had by this time made up some new tapers, which promised to meet the requirements of the place. There was a little extra work indeed towards the middle of the day, when the sun had cracked the glass tube of Mr. Inglis's levelling-instrument, and threatened to interfere with the progress of *his* department of the socket work; but there was fortunately a spare tube in Mr. Coventry's clinometer-box, which would fit into the place of the broken one very well; and would answer, if it could only be fastened there. So Alee Dobree was sent off to the neighbourhood of the third Pyramid to get some of the gypsum which lies about there abundantly; and on his return with a supply of the raw material, he set to work with great skill, as well as,—being anxious to show his mental superiority over the burly strength of Alee the Egyptian,—with exceeding spirit, to roast and then grind the crystals to powder, or to fine 'plaster-of-Paris,' in a certain very conveniently hollowed fragment of ancient red granite. This was indeed a fine old relic, which had been previously picked up on the hillside, and established as a seat at the entrance of the dining-room tomb: and yet, though looking very handsome there, it had not been much employed: for the ancient Ibraheem used to say, when he had come to make one of his long 'countings' of in-

numerable little kitchen expenses, and was just in the middle of some of his most serious arithmetic, — ‘Excuse me, madam, but I find this alabaster ‘seat very cold.’

The native-made plaster, however, mixed famously with water, and formed an excellent cement for fastening the new glass bulb into the brass casing of the old one ; so then, Mr. Inglis was free also to bear a hand during part of the time with the last magnesium experiments. The new tapers had from twenty-five to fifty threads or flat bands of about a foot long ; not fastened close together, when they check each other’s burning, and not perfectly loose at the sides, for then they often start out at right angles to the vertical pendant of the whole thing, as it is burning upwards after being lit below ; but the bundle was, on the contrary, loosely confined within a rather open spiral cage of iron wire, and fastened with that to a hook inside an angular trough either of tin-plate or wood,—which served to reflect the light forward on the object to be delineated, and at the same time to prevent it shining into the object-glass eyes of the camera.

Of course, this plan made abundance of smoke ; but that smoke went straight up to the ceiling first of all, and had not begun to diffuse itself by its peculiar corkscrew motions throughout the room, until long after the short lengths of magnesium wire had all burned themselves out ; so that a light, equal to that of the consumption of a great length

of single wire, was obtained, but in a *short* time ; and with the accompaniment of comparatively pure air in the visual direction, as well as a consequent strong picture. Only one photograph, however, was possible in each chamber ; for by the time that a second pair of plates was prepared, the smoke of the fifty short lengths burnt all at once, had then spread itself through every part of the room. The full development though of this plan of increasing the number of simultaneously burning threads, but decreasing their length, was most nearly carried to its *ne plus ultra* by employing a quantity of grain magnesium, duly supplied by Mr. Mather and the Magnesium Metal Company of Salford, Manchester. For the burning of that preparation, assisted by a little saltpetre and mealed gunpowder, was so nearly instantaneous for the whole mass, as to enable the camera to take with equal ease both moving figures of ephemeral humanity, and the solid granite blocks of the eternal Pyramid.

On returning from this last experiment to East Tombs, behold all the camels arrived and encamped in the plain below,—while the Turkish officer in charge had already reported himself, and Ibraheem's coffee-manufactory was in full employ. So packing went on until dark : and then, on tea being placed upon the table, the two Pyramid Sheikhs arrived by express invitation : wherefore, after having partaken of the refreshing beverage as it is made in

Scotland, and heard our warmest thanks for the pains they had been at in our behalf for so many months past,—they received a variety of presents we had prepared for them : such as, a certain sum of gold, and then so many useful articles of our domestic establishment, now about to be broken up ; and amongst which articles I was most happy to hand over to them,—and not to have been obliged to use any of it myself,—all our supply of gun-powder and lead.

Private arrangements were then made with the Sheikhs, as to bringing up next day all the men of both villages who had acted as guards to us. And when these two chieftains had moved off with their several parcels wrapped up in their voluminous sheets of dresses,—then were a cup of tea and some words of sympathy ready for Alee Dobree ; who, with all his weaknesses for running off to serve travellers of any nation under the sun, came next to the Sheikhs, of the whole Pyramid village population, for general probity and trustworthiness ; he had moreover a gentlemanly soul, some refined feelings, and considerable natural abilities. But when he was asked what he would like as a keepsake of a number of things about the tomb,—he stood quite silent for a time ; and then, suddenly putting his fingers up to his eyes, rushed out into the night, to conceal his crying there.

The kitchen servants were, however, by no means so nice ; for as soon as both Ibraheem and Smyne

heard that all the domestic chattels were to be given away to the villagers next day,—they were continually coming with requests, of ‘ Oh ! might ‘ they not have just this one thing, or just that ? ’ each small by itself, but repeated so often,—that at last we were obliged, in justice to the other recipients-elect, to make out a list of what these two who were on the spot, had got prematurely promised to themselves. And when Smyne came up again, for about the tenth time in one hour, for something more,—we inquired inquisitively why he was so anxious for *that* particular tin pot ? ‘ Oh, ‘ because,’ replied he, ‘ it is what they used to send ‘ me my dinner in every day when I was in prison ‘ at Jeezeh, and I came to love it so ; ’ opening up thus to us some information we were not quite clear about before, touching both the employments which our kitchen utensils had been subjected to, and the prison system of the Egyptian Government, which throws the burden of feeding prisoners on their own relations.

On Saturday morning a second Turkish officer had arrived, to insure the correct performance of the camel service on the part of the Egyptian Government ; and a cavass also appeared with a letter from Mr. Consul Reade, to give us all the authority of his office. So there was then, and thenceforward, a great clattering of swords upon the rocky staircase : while immense industrial exertions were going on in the Howard Vyse tomb,

with Mr. Inglis's assistance, in packing and screwing up all the twenty-seven boxes ; for though many of their stores were already consumed, and some of their contents had been taken out and deposited in the dining-room tomb for a particular purpose presently to appear,—the place of those things was abundantly made up by natural specimens, especially of the geology of the region. We had indeed among them upwards of twenty specimens of casing stone fragments of the Great and second Pyramids ; but these were broken off from nothing standing, and had been merely picked up by hand among the other loose fragments composing the soil daily trodden over by all men walking about the Pyramids ; where too there are infinite numbers of such specimens still, and in the same maltreated position. Alee Dobree, certainly, wanted to press upon our acceptance some 'antiques' of his, such as an ancient Egyptian paint-box, a scribe's inkstand, a comb of 4000 years old, and one or two other such over curious things ; but we declined them, on the principle of keeping rigorously and finally to our first statement expressed to the Egyptian Government, of having no desire to plunder the museum and saleable antiquities of the country, or accumulate virtuoso relics,—but only to make measures and examinations for the purposes of science.

At length, about eleven o'clock A.M., the boxes had all been screwed down and conveyed to the plain below,—where the loading of the camels began,

in the midst of a momentarily increasing crowd of Arabs from the villages around. Quite friendly were all the men ; indeed most of them had brought their youngest sons with them, either to look on at this unusual event of their world, or perchance be in the way of receiving some waifs and stray trifles. But when the camels were at last loaded and sent off, then began, in Arab eyes, the solemn work of the day,—for the two Sheikhs were to present one after the other, in order to their receiving *baksheesh*, the men who had acted as our guards ; first, Sheikh Murri, being the older of the two, was to introduce his best man, and then Sheikh Abdul Samed his best ; then Sheikh Murri his second best, and Sheikh Abdul Samed the same ; going down thus continually in the scale, until it was understood that those who were presented last, had been some of the troublesome hands whom the Sheikhs had had great difficulty in driving over to their duty on many occasions. Each man was to receive one pound sterling in English gold, and a something else in goods ; but this something else, began with magnificent globe lamps, mounted in copper, with the best men ; and gradually descended through saucepans and frying-pans, to merely miserable mouse-traps at last, for the bad subjects.

Before, however, more than three or four men had been paid, the cry that *baksheesh*,—nay, even yellow *baksheesh*, was being extensively given,—spread like wildfire ; and the Arabs from below

stormed the cliff in such numbers as to upset all the studied arrangements of presentation. So the two powerful Sheikhs had to turn round and set to work, laying about them with their heavy sticks, and thus clearing all the staircase, by main force, of the whole of their countrymen, good and bad together; through which thorough-going means, order being again restored, the presentations recommenced, and continued uninterruptedly until the twenty-fourth night-guard had been duly decorated; and then, we called for old Hassan.

This seemed to make an immense sensation in the crowd; for he was considered so old and useless, that who of them would trouble themselves about him at all? and it was so long ago that he had acted as our day-guard, they thought we must completely have forgotten him. But now he was helped up the narrow way, and, besides a sovereign, had a roll of blanket given him. The latter too, he did not despise, but he seized on the money with such an agony of clutch, and his eyes brightened with so strange a fire, that, alas for perverted human nature! we feared we had done more harm to his soul, than good to his body. Lastly was summoned 'Alee 'the day-guard;' and very efficiently had that honest man performed his duties to us up to this, the final day; for though always so much of an invalid as seldom to be able to stand many minutes at a time, without a fit coming on,—he had never given any trouble (as the other stronger men so

abundantly had, ever since the murder in the village, about the want of guns to keep off imaginary Bedouins), and he had taken many a man's spell of night-guard, as well as his own period by day; so there was a sovereign for him, and a large bundle, besides the many smaller gifts he had been receiving from time to time.

Thus was concluded the most formal part of the proceedings. And a division of all the remaining dining and bedroom furniture having also been made, under my wife's auspices, in favour of those of the villagers who had served best;—at last the inevitable moment arrived for taking leave of Mr. Inglis; who, we feared, would find troubles accumulating when left the sole European at East Tombs; though he was full of fine enthusiasm for accomplishing the whole of his intended Pyramid work. So, after many adieus and much shaking of hands also with our Arab friends, we moved off for Cairo. A Turkish officer on a big horse led the way, while on either side of us rode the Sheikhs, mounted, with all their flowing robes, on most curiously little donkeys; Alee Dobree and Smyne accompanied us close on foot; while Ibraheem, the cavass, and the other Turkish officer brought up the rear.

With the exception of Ibraheem, whom we retained in our service until we left Cairo, and who also took charge of our instrument-boxes while in that city,—the formation and arrangement of the

rest of the Pyramid part of this train, was purely voluntary and perfectly spontaneous with the several individuals. But it was amusing to notice, that no sooner were we conveniently abreast of the Pyramid village, than the previously too much devotion-protesting Smyne, suddenly found that he must leave us to attend to 'urgent private affairs.' Yet the two Sheikhs, Murri and Abdul Samed, together with Alee Dobree, accompanied us the whole way into El Kahireh; and not only so, but the Sheikhs,—'most 'potent, grave, and reverend signors,' as they had generally appeared,—gave themselves a holiday there of three whole days, letting the Pyramid and travellers of all nations take care of themselves for the time; while Alee Dobree allowed himself yet two days more, as he had many purchases to make for his wife and son; and when he did take leave of us at last, it was with almost as much emotion as on the parting evening at East Tombs.

In a few days, however, he was in again with a letter from Mr. Inglis, who had been making some additional measures in his department of the Pyramid sockets. And when the ancient Ibraheem,—in full dragoman costume, and with his little son Mohammed (like another dragoman in miniature, and in his father's uniform of brown cloth, embroidered in black silk),—came to see us off a week afterwards by rail for Alexandria, he certified, unasked,—that the general impression of both Sheikhs and people at the Pyramid villages was, 'that they

‘ had not experienced anything so fully and finally
‘ satisfactory to them as the Scottish astronomer’s
‘ visit, for nearly as long as they could remember.’

But a higher testimony came afterwards from the same worthy American missionary, the Rev. Mr. Lancing, who had been of so much service to us at the beginning of our Egyptian experiences : for he, in returning from a tour among the churches of the Faioum, visited East Tombs within a very few days after we had left ; and having had much conversation with the natives,—reported subsequently, ‘ that there was a most perceptible improvement in ‘ the manners of the Pyramid Arabs ; and he only ‘ hoped it might continue.’

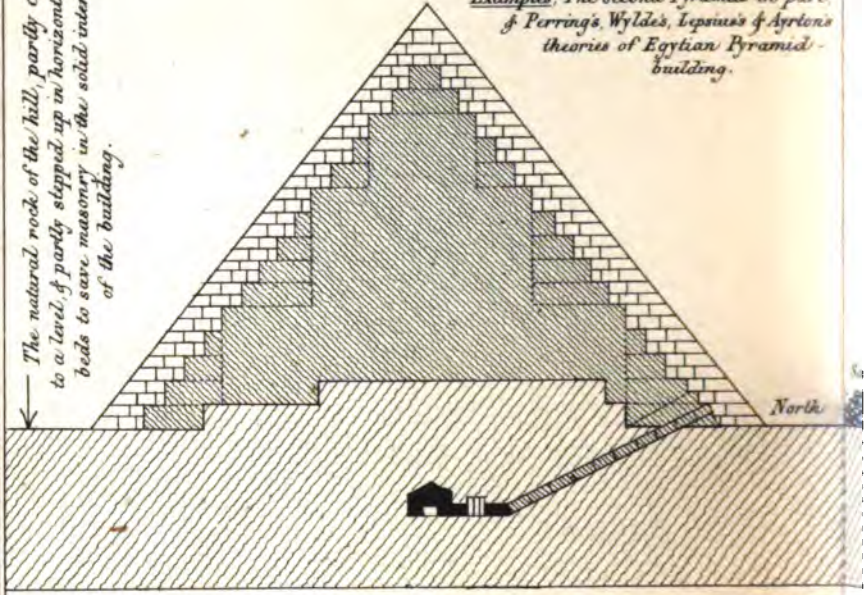
END OF VOL. I.



Vertical Sections, (through plane of passages) of an average

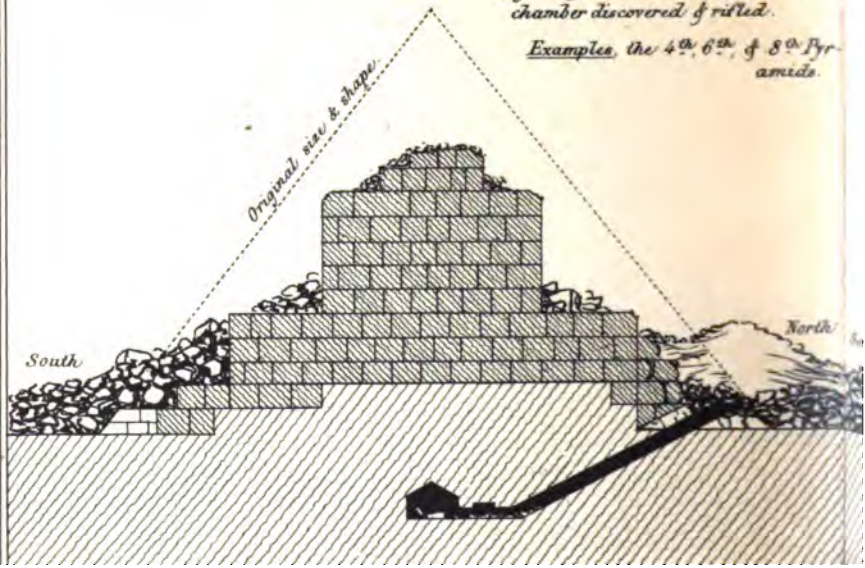
The natural rock of the hill, partly cut to a level, & partly stepped up in horizontal beds to save masonry in the solid interior of the building.

Condition 1. Original condition; Examples, The second Pyramid in part, & Perring's, Wyldes, Lipsius's & Ayrtou's theories of Egyptian Pyramid-building.



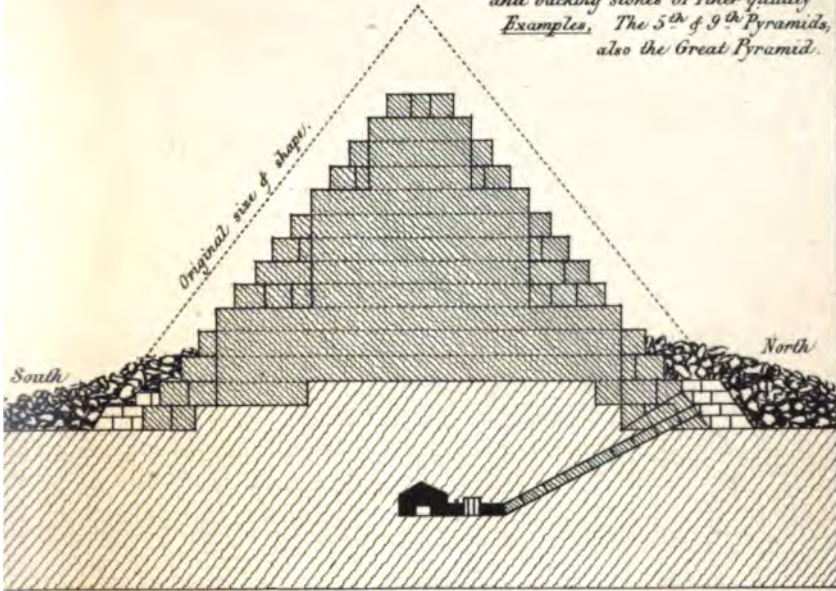
Condition 3. The architectural-filling in courses gone, and the Engineering stages exposed. The subterranean chamber discovered & rifled.

Examples, the 4th, 6th, & 8th Pyramids.



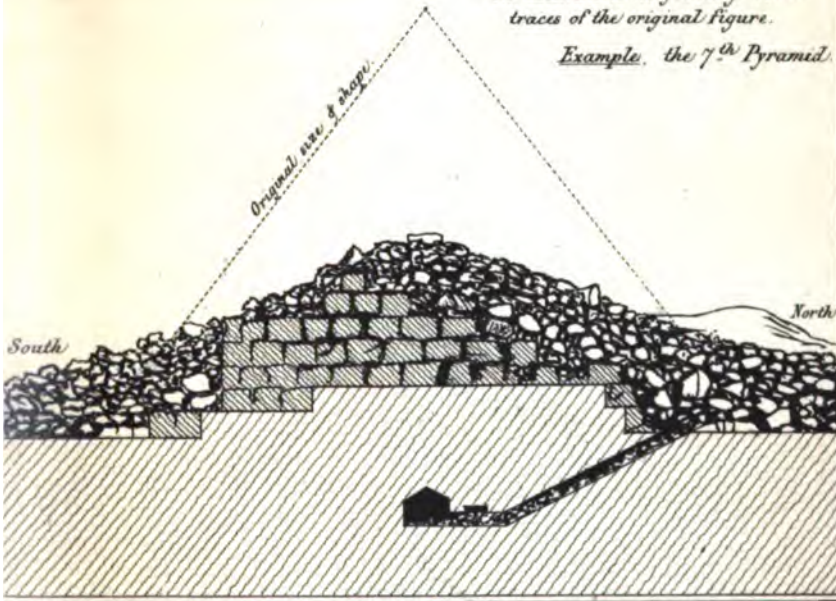
the Jeezeh Pyramid, showing its progressive mode of decay.

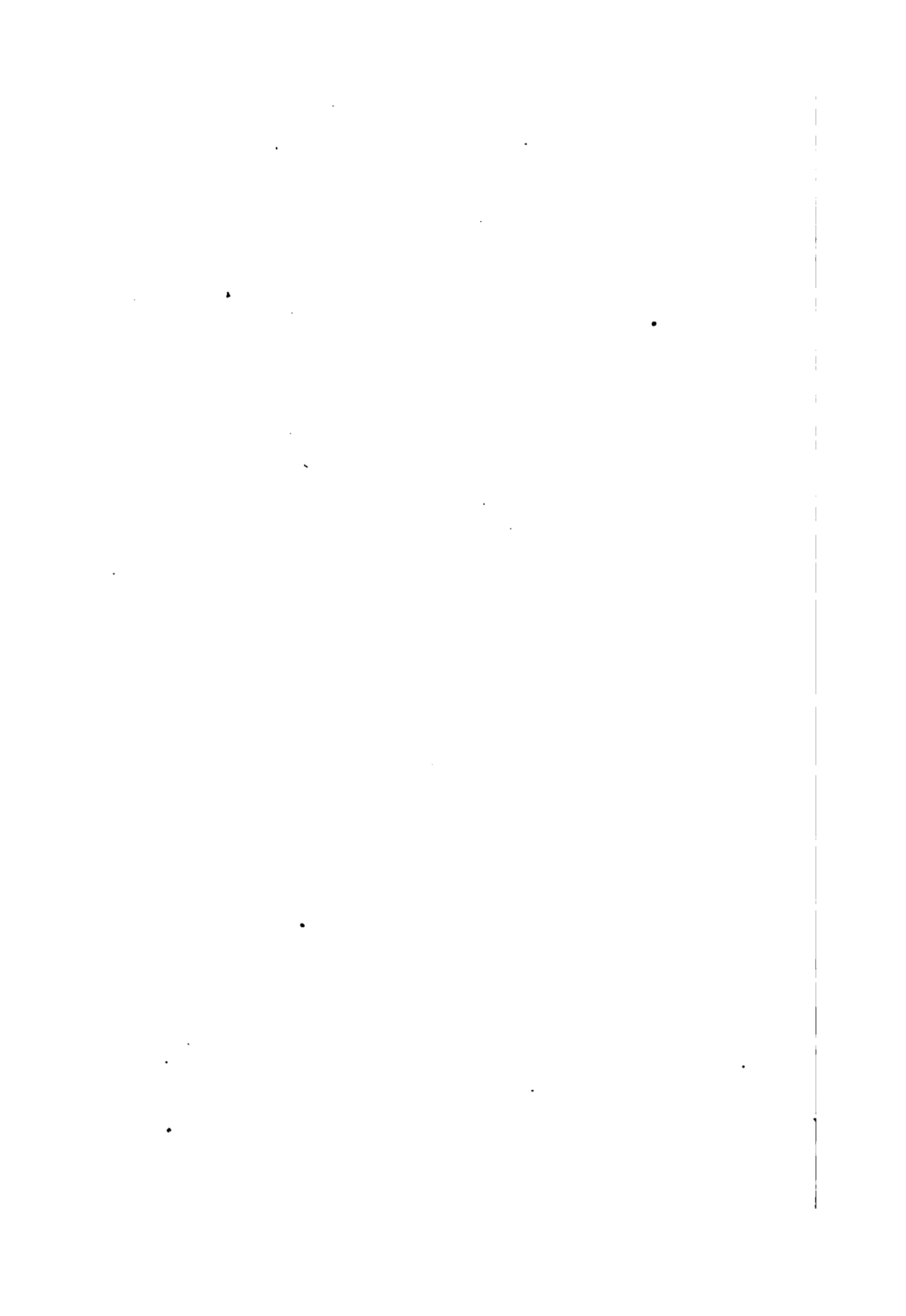
Condition 2: Denuded of both casing-stones and backing stones of finer quality
Examples, The 5th & 9th Pyramids, also the Great Pyramid.

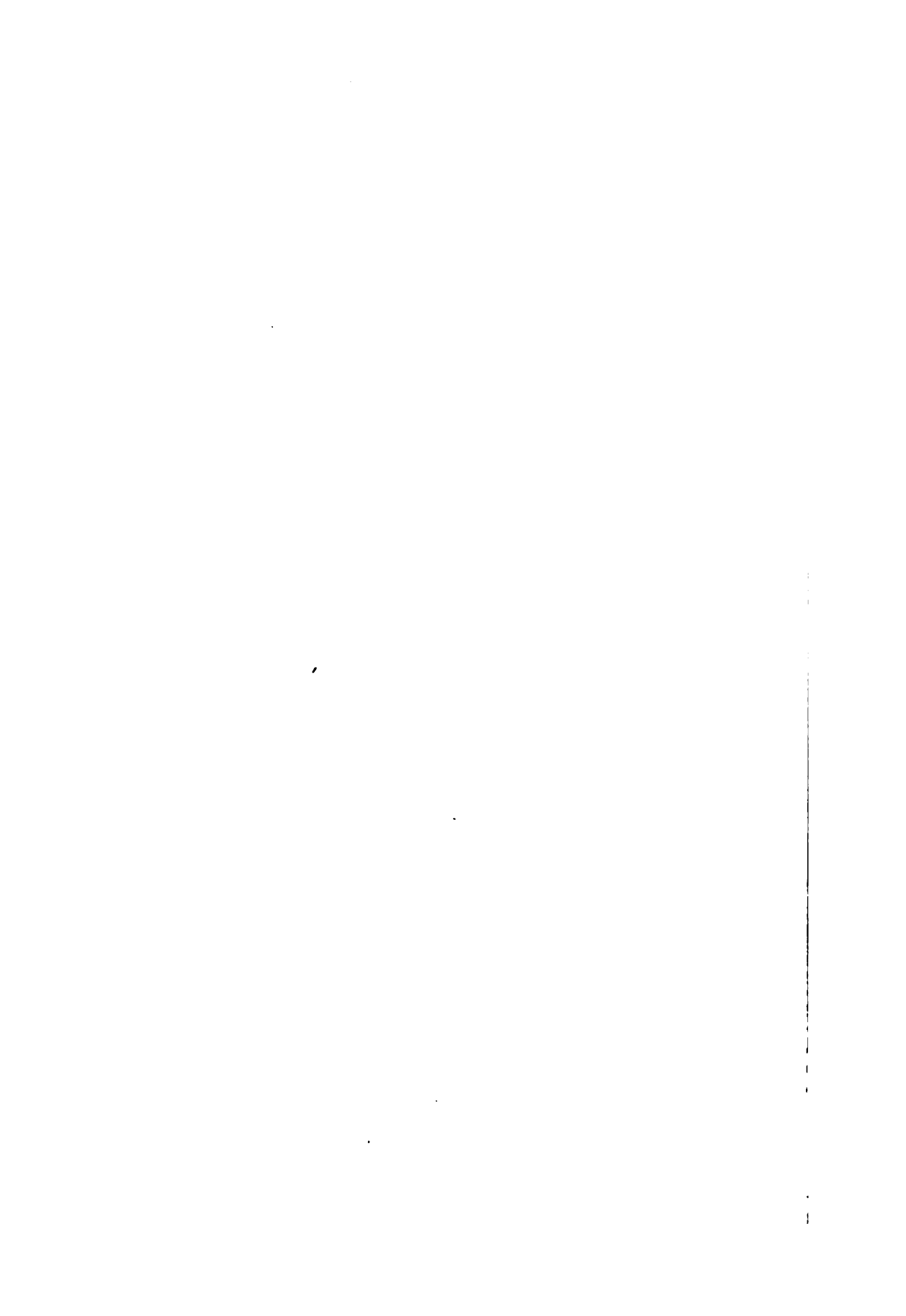


Condition 4: Reduced externally to a mere heap of rubbish: yet capable on excavation of yielding some traces of the original figure.

Example, the 7th Pyramid.







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