

means improbable that we owe the idols of *Bamián* to the caprice of some person of rank, who resided in this cave-digging neighbourhood, and sought for an immortality in the colossal images which we have now described.

II.—*Account of the Earthquake at Kathmandú.* By A. Campbell, Esq.  
Assistant Surgeon, attached to the Residency.

On the 26th of August last, about 6 o'clock P. M. a smart shock of earthquake was experienced throughout the valley, and the neighbouring hills, westward in the valley of *Nayakot* and *Dúny Byas*; eastward at *Panoutí*, *Banappa*, *Dulkele*, and *Pholam Chók*; and southward at *Chitlong*, *Chisagarhy*, *Etounda*, and *Bissoulea*. The shock was preceded by a rumbling noise from the eastward. The motion of the earth was undulatory, as of a large raft floating on the ocean, and the direction of the swell was from north-east towards south-west. The shock lasted about 1 minute. At 10-45\* P. M. of the same day another shock of equal duration and of the same character occurred, and at 10-58, a third and most violent one commenced: at first it was a gentle motion of the earth, accompanied by a slight rumbling noise; soon however it increased to a fearful degree, the earth heaved as a ship at sea, the trees waved from their roots, and houses moved to and fro far from the perpendicular. Horses and other cattle, terrified, broke from their stalls, and it was difficult to walk without staggering as a landsman does on ship-board. This shock lasted for about three minutes in its fullest force. And the following is as correct an estimate as can be ascertained (without official documents) of the damage done by it to life and property throughout the great valley and neighbouring districts of Nipal. It is believed that the two first shocks were harmless†.

\* Not by chronometer, but by a good-going clock, which stopped during the great shock. Its pendulum vibrated north and south. [If the clock was set by the sun, the shock must have been 51m. earlier than in Calcutta.—ED.]

† Doctor Campbell's subsequent letters inform us, that there have been frequent shocks of less violence since the above, many of which (on the 4th and 18th Oct. particularly) were felt at Calcutta, Monghyr, Chittagong, Allahabad, and Jabalpur, nearly simultaneously. On the 26th Oct. he writes, "At 10h. 45m. A. M. a sharp shock of the dangerous or undulating kind occurred. The embassy has returned from China, and I am informed that the great shock was not felt at Lassa, so that it would appear to have been confined to India within the Himálaya."—ED.

## Number of Lives lost and Buildings destroyed.

Places.	Killed.	Wounded.	Houses.	Temples and other Buildings.
British Residency grounds, . . . . .	none	none	1	none.
City of Kathmandú, . . . . .	60	38	400	Two pillars, built by the minister, each upwards of 100 feet high : the large Temple of Jagarnáth, built by Rán Bahadur, after seven
<i>South of Capital.</i>				
Patan, . . . . .	6	25	285	years labour, and about a dozen temples, de-
Sano gaon, . . . . .	none	0	40	stroyed. The modern-built garden houses of
Harra Siddhi, . . . . .	0	0	20	several members of the minister's family have
Teshu gaon . . . . .	0	0	25	been rendered untenantable ; one of them, a
Selli gaon, . . . . .	0	0	16	handsome and ornamental edifice, has come to
Pagah, . . . . .	0	0	24	the ground.
Kúkna, . . . . .	1	0	130	
Baghmatí, . . . . .	0	0	80	A crack in the ground of 20 feet in length
Phurphing, . . . . .	0	0	8	was observed at this village on the morning
Chappa gaon, . . . . .	0	0	35	of the 27th ; the entire number of houses in it
Peang, . . . . .	0	0	8	was 206, more than a third of the whole were
Taibú, . . . . .	0	0	18	destroyed, and about 100 men have been much
Bara gaon, . . . . .	0	0	35	damaged. The injury sustained here is pro-
Bali, . . . . .	0	0	3	portionally greater than in any other part not
Pahon, . . . . .	0	0	3	to the east of Kathmandú.
Sasanelly, . . . . .	0	0	2	
Lúbú, . . . . .	0	0	25	
Sana, . . . . .	0	0	7	
Hills about Sasanelly, . . . . .	0	0	20	
<i>East of Kathmandú in the valley.</i>				
Deo Patan, . . . . .	3	0	30	At the eastern extremity of Deo Patan is the Temple of Paspatnáth, containing Pus-
Handi gaon, . . . . .	0	0	20	puti Jee, the patron deity of the Brahmínical
Nág Désa, . . . . .	4	0	20	inhabitants of Nípal. The building escaped
Bareh*, . . . . .	5	0	20	unhurt to the great joy of the rulers and
Temí, . . . . .	0	0	150	people of the land, who attribute the cir-
Gou Karan, . . . . .	0	0	8	cumstance solely to the interference of the
				blind goddess, in behalf of their favourite
				god, rather than to the stout deposition of
				brick and mortar.
Changu, . . . . .	0	0	20	A fine old temple destroyed.
Sankhú, . . . . .	20	5	45	A handsome Temple of Mahadeo, situated on a hill above Sankhú, is reduced nearly to ruins.
Bhat gaon, . . . . .	200	104	2000	The total number of houses in Bhat gaon is reckoned by Mr. HODGSON at 4,700, $\frac{4}{5}$ th of the town is said to be destroyed, 2,000 is the average of many accounts, six or eight fine temples destroyed, and a statue of Rajah RANJIT MALL, one of the Newar Princes of the Bhat gaon division of the valley.
<i>East of Kathmandú beyond the valley, but in the immediate neighbourhood.</i>				
Sangu, . . . . .	2	0	8	
Banappa, . . . . .	10	0	20	
Nala gaon, . . . . .	6	0	11	
Panoutí, . . . . .	18	0	19	Six persons were killed under the ruins of
Dulkele, . . . . .	10	0	21	one house in this village, their remains were found where they had gone to sleep.
Phulam Chok, . . . . .	60	0	300	A fine temple destroyed here.

\* One woman became *Satti* at this village, her husband having been killed.

Places.	Killed.	Wounded.	Houses.	Temples and other Buildings.	
<i>North-east of the valley and more remote.</i>					
Dhulaka, . . . . .	0	0	0	<p>In this direction the earthquake was much more severely felt. Kúti, a town on the Bhote frontier, on the road to Lassa, is said to have been nearly all destroyed, it contained about 600 houses; 50 of which only remain. At Listi gaon, also on the Bhote frontier, a large portion of a hill came down, and an iron bridge was destroyed.</p> <p>At Kan Sing Choke, in the same direction, vulgar report says, that for five days before the earthquake took place, noises similar to the firing of cannons were heard as if under ground: and in this neighbourhood the high road to Lassa is said to be in many places blocked up by the fallen earth from the mountains.</p>	
Mundun Pahar, . . . . .					
Kan Sing Chok, . . . . .					
Kassa, . . . . .					
Kuti, . . . . .					
Listi gaon, . . . . .					
Shípa—the country residence of Colonel Runbír Sinh, 20 miles from Kathmandú on the Lassa road, by the Kuti Pass, is seriously injured. Many small houses attached were destroyed and several lives lost.					
<i>West of Kathmandú.</i>					
Swambunáth, . . . . .	0	0	3		
Hál Chok, . . . . .	0	0	3		
Narod Deví, . . . . .	0	0	1		
Changu Naráyan, . . . . .	0	0	2		
Goorkha Cantonment or Campoo, . . . . .	0	0	4		
Kirtipur, . . . . .	0	0	14		
Thankote, . . . . .	0	0	23		
<i>West of the valley.</i>					
Duny Byas and neighbouring hills, . . . . .	10	0	40		
Tewanpur, . . . . .	0	0	10		
Nayakoth, . . . . .	0	0	3		
<i>North of Kathmandú</i>					
Dharmtulí, . . . . .	0	0	2		
Hukm gaon, . . . . .	0	0	1		
Toka gaon, . . . . .	0	0	15		
Burha Níl Kanth, . . . . .	0	0	2		
Chapaly, . . . . .	0	0	7		
Dharpur, . . . . .	0	0	20		
<i>South of the valley.</i>					
Chitlong, . . . . .	0	0	14		
Chisagarhy, . . . . .	0	0	0		
Mukwánpur, . . . . .	0	0	0		
Total, . . . . .	414	172	4040	<p>The fort here much injured: a large portion of the breastwork facing the south has fallen, and the wall in many other places, although not fallen, is seriously injured.</p> <p>The fort here has also suffered, but in a much less degree than the one at Chisapany.</p>	

The above shews that the earthquake was much more severe to the north and east of the valley than here; and that even within the valley it was much more violent to the east of *Kathmandú* than at the capital itself, or other places to the west of it. The town of *Bhat gaon* is not more than eight miles in a straight line from *Kathmandú*, and even there its violence must have greatly exceeded what it was at the latter place. To account for the immense disproportion in the loss of life and property at both places, something may be allowed for the more frail state of the buildings at *Bhat gaon*; but this is not sufficient, and this circumstance must be considered as inexplicable as most others attending this fearful phenomenon. The brahmans of Nipal say (and it is believed with truth) that the occurrence of a more violent earthquake than this is recorded in their histories. It was about 600 years ago, and then the cities of *Mangak*, *Patan*, and innumerable towns were utterly destroyed and thousands of their inhabitants killed\*: the modern capital *Kathmandú* did not then exist.

---

### III.—Census of the Population of the City and District of Murshedabad, taken in 1829.

To the five or six accurate estimates which we possess of the population of the cities of India, we are happy to be able now to add one of *Murshedabad*, both city and district, which we owe to the private or ex-official industry of Mr. H. V. HATHORN, while magistrate of that zillah in 1829. The detailed statements accompanying this officer's letter to the Government will be published without doubt in the Transactions of the Asiatic Society, to which body they have been transferred: we proceed however, as on former occasions, to offer an abridged analysis of the tables, that the readers of the JOURNAL may be in possession of all the accurate statistical knowledge of India furnished from authentic data. How easy would it be for every officer in charge

\* The *Jyotishis* say that the planets Jupiter and Saturn were at the occurrence of this present one in the same situation as when the above destructive one happened. From this greater mischief was for many days after the 26th hourly expected, and many lucky moments were fixed upon by the said astrologers for the catastrophe; but all fortunately have come to nought, and although slight shocks continued to recur until about the 15th instant, no addition has been made to the effects of the one great paroxysm of the 26th.

VI.—*Further particulars of the Earthquake in Nepal.* By A. Campbell, Esq. Assistant Surgeon attached to the Residency. ✓ R. X.

In pursuance of the attempt made before to note the destructive effects of the earthquake of the 26th August last, throughout the valley of Nepal, and its immediate neighbourhood, and with the hope of shewing, as correctly as my information will permit, the probable seat or central point of the commotion, I beg to offer the following memoranda of other places at which the shock was experienced, as well as its comparative degree of intensity at each.

The means of estimating the violence of this phenomenon are of course most defective, if not wholly inadequate to the purpose; but in absence of better data, the ascertained amount of damage done to the frail and perishable works of man, may be received as an index of its intensity at one place, compared with that of another, and in conformity to this mode, it would appear, that the most extreme violence of the shock, as far as its occurrence is as yet known, was expended within a tract of country extending from this side of the great Himálayan range on the north, to the course of the Ganges on the south, and from the *Arún* river (in the Nepal hills) on the east, to the western branches of the *Trisúl Ganga* on the west, comprising a space of about 200 miles from north to south, and 150 from east to west. In this space, the valley of Nepal, though not geographically the centre point, is most assuredly the portion that has suffered the greatest violence of the calamity; and, unless the inexplicable producing causes have been expended in the frequent and severe shocks that have to this day continued to recur, we may from our experience of the progress of earthquakes in other parts of the world, with reason, as we ought with resignation, look forward to further and more violent exhibitions of the same terrible nature.

In the notice of the earthquake by the Secretary of the Asiatic Society, in his Journal for August, he expressed a belief, that the greatest intensity of the shock would be found to have occurred beyond the Himálaya, in the direction of *Lassa*; and judging by the direction from which the shock was felt to have proceeded, and its intensity in the valley of Nepal, such was the probability, though other has turned out to be the fact, and that upon good authority.

The recent return from Peking of an Embassy from Nepal, to the court of the Celestial Emperor, has furnished authentic information on this subject, which otherwise might have been long wanting; and the whole tenor of it shews that the great Himálayan range itself, and the country

on *this* side of it, was alone the theatre of the earthquake's presence, and that it was not even in the slightest degree felt beyond a very short distance on the Tibetan side of those huge mountains. The Embassy was at *Lassa*, on the 26th of August, when and where the shock was not experienced. At *Digarchi*, in the following month, it first received accounts of its occurrence from Nepal; to the inhabitants of that place the circumstance was known only from reports brought from this side of the mountains; along the road from *Digarchi*, the answer to all inquiries was the same, "No earthquake on the 26th of August," and not until its arrival at *Tingri* was it found that the shock had been felt. *Tingri* is a small Chinese post, immediately beyond the great *Himálaya*, and the first stage on the table land (as it is called) of Tibet, going from hence to *Lassa*, (by the *Kúti* or eastern pass from the valley of Nepal.) From *Tingri* to *Kírun*g, a distance of 8 or 10 marches, the route is nearly due west, running along; and through the northern side of the *Himálaya*, and throughout this tract, though but thinly inhabited, authentic reports of the occurrence of the shock were received. By *Kírun*g (the eastern pass from the valley into *Bhote*), the Mission penetrated the great range, and at each stage (four in number through the pass), intelligence of the occurrence was communicated by the few individuals who inhabit that wild and sterile region. But such information was not required, as its effects were sufficiently manifest: in the village of *Kírun*g itself, supposed to contain 400 houses, 60 were fairly demolished, and many more seriously injured: two men had been killed under the ruins of their houses, and about a dozen wounded. From the exit of the pass to *Kathmandú* there are no towns along the route, and scarcely any villages; but at many places, insulated houses of the mountaineers had been thrown down, and the precipitous banks of hills and mountains had been hurled into the subjacent valleys.

This shews the extent of damage done towards the north, and enables us to fix upon the line of *Tingri* (Lat. 28°) as the northern limit, of the earthquake's presence, and reports would shew that of *Jabalpur* and *Calcutta* to have been the southern one. *Rangpúr*\* defines the east and *Dehli* the west.

North-east from *Kathmandú*, as far as *Dílka* and *Kúti*, the violence of the shock would seem to have been greater than in the valley. West from *Kathmandú* it diminished at every step. At *Gorkha*, only two houses were destroyed; at *Palpa*, none; and at *Dotí*, on the borders of *Kemaon*, the shock was felt, but not by any means severely. It will

\* Mr. WALTERS informs me that it was also felt at Chittagong.—ED.

strike every one as remarkable, that while here, the shock was more violent than elsewhere, its effects should not have been felt equally at as great a distance from hence to the north as to the south. Why this ? is the natural question, but who can answer where all are in darkness. Other explosive forces spread equally in all directions, this did not; granting that the centre was where the violence was greatest. To the south, the country is a level, uninterrupted plain, calculated to facilitate the rapid transmission of the agitating force, while to the north are the mightiest mountains of the world ; it may therefore be supposed, that the quantity of force expended in reaching to the summits of the Himálayan peaks, and in shaking like molehills the whole of the mountain region around, could not be far short in intensity of that required to agitate slightly the plains to the southward, even to the distance above recorded. In this light, it may be imagined, that the explosive force may have spread itself equally on all sides, the greater surface distance to which it reached towards the south being balanced by the immense vertical spaces it traversed in shaking from their bases to their summits the innumerable hills and mountains of the extensive region lying between the plains of Hindustan and those of Tibet.

I subjoin an accurate register of the shocks which have occurred up to this date, given me by Captain ROBINSON. Many of them have been severe, and throughout the whole course of these visitations, there have been two distinct varieties observed in the character of the shocks : all those at the commencement were of undulatory or swinging kind ; the others wanted this swell, and were a violent up and down shaking, with little lateral, motion. The first may be called the horizontal, the latter the vertical, variety. The former alone have been destructive to property, while the latter, from the greater noise by which they are accompanied, and the more rapid oscillations of the ground, are perhaps the more terrifying.

*Register of Earthquakes experienced at Kathmandú, from 26th August to 26th November, 1833, inclusive.*

<i>Date.</i>	<i>Time.</i>	<i>Remarks.</i>
August 26th,	One at 5h. 55m. P. M. another at 10h. 50m. P. M. 10-58 P. M. was the time the great one commenced, and its duration was three minutes.	All of the undulating kind, as well as nine others that occurred during the same night.
27th,	4-53 A. M. 5-20 A. M. 5-26 A. M.	Also undulatory.
28th,	7-15 A. M. 4-55 P. M.	Also undulatory.
30th,	4 shocks, one at 9 A. M.	
31st,	2 during the night,	Slight.
Sept. 1, to 11th,	10 shocks,	Slight.
October 4th,	7-30 A. M. a smart one, 1 minute's duration.	This was a severe one, and of the vertical kind ; it was felt at Gorakhpúr and Allahabad.

Date.	Time.	Remarks.
October 18th,	1-55, P. M. severe, and ushered in with a loud noise.	Same character as last one; was felt slightly at Allahabad, lasted here at least a minute.
26th,	10-37, A. M. slight.	This was of the up and down kind, lasted a minute, and occurring at the full moon, when the whole people of Nepal were praying at Pasputnath, excited a great commotion, and was the only instance where the prophecies of the Brahmins were realized, although a hundred lucky moments had for the last three months been determined on for the occurrence of violent shocks.
November 8th,	1-35 A. M. slight.	
16th,	At midnight, slight.	
26th,	11-45 P. M. severe. In all, 39 shocks have been noted: many slight ones have occurred besides.	

VII.—Note on the Fossil Palms and Shells lately discovered on the Table-land of Sagar, in Central India. By H. H. Spry, Esq. Bengal Medical Service.

[Read at the Meeting of the 26th December.]

Some months since, when I forwarded a specimen of the silicified palm trees, I stated that the trap hills about Sagar, which are at an elevation of upwards of 2000 feet above the sea, formed an amphitheatre, not however in one continuous circle, but with here and there a break. Within this circle of trap hills, I ought to have stated that a second jutted out of compact red sandstone, but of a less elevated extent, being portions of the great *Vindya* range.

I took occasion to advert to the former of these two formations, because it was at the foot of the portion that ranges along the *Jabalpūr* road: the limestone bed (travertine and crystallized calcareous spar) projects; on which, mixed with the trap debris, the *silicified* fossil trees are found. I lay stress on the word *silicified*, for it seems singular that silex should be the fossilizing mineral of remains found on a calcareous bed. It would seem to indicate that the bed these remains now repose on could not have been the place of their growth\*, but that they must have been projected from a distance; and yet the distance could not have been great, for although the splintered condition of the trunks would indicate that a powerful force had been applied, the attachment still of all the tender tendrils, so peculiar to the palmata species, to the thicker parts of the roots, and which, though perfectly fossilized, may

\* The constant occurrence of flints in chalk is sufficient to outweigh this objection.—Ed.