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*Authors alone are responsible for the statements made and the opinions expressed in
their papers.*

SOME FORMULÆ FOR THE BENDING OF BEAMS.

By 2ND LIEUT. C. MCG. URE, 75TH (FIELD) CO., R.E.

THE author has found the formulæ given below more easy to memorize and use, and of wider application than those in general use. Besides the maximum stress allowable for the material used, which has to be known at any rate for use in problems other than those involving bending, the only things to be remembered are the general form of the equation, and four constants for the four common types of section dealt with.

b = breadth in inches.





d = depth in inches or diameter in inches.

t = thickness in inches.

w = uniformly distributed load in lbs. per foot-run.

F = maximum allowable stress in lbs. per square inch.

M = bending moment in inch-lbs.

Section.		A.	B.
1. Rectangular		$bd^2 = \frac{9}{F}$	$wl^2 = \frac{2}{3} \times \frac{9}{F} M.$
2. Circular		$d^3 = \frac{15}{F}$	$wl^2 = \frac{2}{3} \times \frac{15}{F} M.$
3. Tubular		$td^2 = \frac{1}{F}$	$wl^2 = \frac{2}{3} \times \frac{1}{F} M.$
4. I form		$bd^2 = \frac{27}{F}$	$wl^2 = \frac{2}{3} \times \frac{27}{F} M.$

In Table "A" w and F may be in any weight units, so long as they agree. *E.g.* w may be in cwts. per foot-run, and F in cwts. per square inch.

Table "B" has been compiled for use with the graphs at the end of Part IIIA., *Military Engineering*.

Formula No. 1 is mathematically correct.

Formulas 2 and 3 have an error of about 5 per cent. on the safe side. No. 3 formula only applies when t is small compared with d . d is the mean diameter of the tube.

Formula No. 4 is necessarily approximate, as the thickness of web and flanges are not considered. These are, however, in all ordinary joists proportional to the size of the joist. The formula will be found to give good approximate results, and is more suited for hasty work and use by N.C.O.'s, than more exact methods involving the determination of a moment of inertia.

EXAMPLES.

(1). *Formula 3, Table "A."*—Cast-iron pipes, diameter 6 in., thickness $\frac{1}{4}$ in., are to be used as girders to take a load of 3 cwt. per foot run. Find maximum safe unsupported length. $F=40$ cwt. per square inch say.

$$\begin{aligned}\frac{1}{4} \times 36 &= \frac{15}{40} \times 3 \times l^2. \\ \therefore l^2 &= \frac{40 \times 36}{4 \times 15 \times 3} = \frac{72}{9}. \\ \therefore l &= 2' 10''.\end{aligned}$$

(2). *Formula 2, Table "B."*—Fir logs, mean diameter 10 in., are available to bridge a span of 14 ft., the bridge to carry 4.7 B.L. guns. How many logs are required? $F=1,200$ lbs. per square inch say.

$$\begin{aligned}1,000 &= \frac{15}{1,200} \times \frac{2}{3} M. \\ M &= \frac{1,000 \times 1,200 \times 3}{2 \times 15} = 120,000.\end{aligned}$$

I.e. B.M. on one roadbearer must not exceed 120,000 inch-lbs.

From *Plate VII., Part IIIA., Military Engineering*, total $M_{\text{eff}}=680,000$ inch-lbs.

\therefore We must have 7 roadbearers.

DELHI CORONATION DURBAR.

THE following is a continuation of the Reports which have already appeared in the *R.E. Journal*, throughout 1914, of the Work carried out by the Military Works Services at the Durbar.

ELECTRICAL WORK.

INTRODUCTION.

On the occasion of the Coronation Durbar held in Delhi during December, 1911, by Their Imperial Majesties the King Emperor and the Queen Empress, the Director-General Military Works was asked to undertake the electric lighting of Delhi Fort and of the camps of His Excellency the Commander-in-Chief and of Army Headquarters. In the former case a complete installation inclusive of power plant was required, but in the case of the camps the work included only the distribution within the camp areas, the necessary power being available from the Royal Durbar Electricity Works.

THE FORT INSTALLATION.

General Description.—The Royal Garden Party was held by Their Imperial Majesties in the fort at Delhi on December 13th, 1911, and for this special occasion the palace buildings and gardens and the roads of approach from the Delhi and Lahore Gates and from Selimgarh were lighted electrically, while the walls of the fort and the cupolas of the above two main gates were illuminated with *Chiraghs*.

Power.—Electric power for the above purpose was obtained from the Military Works Power Station in Delhi Fort, which had been just completed for the supply of power for the ventilation and lighting of the barracks and for wireless telegraphy. The plant installed consisted of two 30-k.w. 220—240 volt Campbell oil engine sets and a 30-k.w. battery, only one set and the battery however being employed at any one time for the actual lighting.

Distribution.—The distribution of power, except in the palace gardens, was through bare aerial copper wire on the 2-wire system ; the palace buildings and gardens lying along the east wall of the fort were supplied from a main running along the *bela* close under this wall, while the remaining distributing lines throughout the fort were concealed from the palace as far as possible by trees.

Within the gardens power was distributed from tree to tree through flexible covered copper wire, and the buildings themselves were wired with flexible wire throughout.

Details of Exterior Lighting.—The details of the lighting were as follows :—

(a). The approach roads from the Delhi Gate and Selimgarh were lighted with 25-C.P. incandescent lamps set in white shades on specially designed posts 20 yards apart, on either side of the road ; the Lahore Gate was lighted with one 100-C.P. lamp at each end of the outer gate, one 100-C.P. lamp over the outside of the great arch of the inner gate and one in the dome within it, and the arcade beyond was lighted by plain unshaded 25-C.P. lamps suspended above every other archway in the arcade from wooden brackets carved and painted to resemble the stone, and fixed to the parapet walls of the upper line of openings on either side of the roadway.

(b). The space between this gate and the Nabat Khana was brightly illuminated by eight 200-C.P. lamps in opal globes suspended 15 ft. above the ground from ornamental brackets supported on square wooden pillars of a pattern in keeping with the surroundings.

(c). The courtyard between the Nabat Khana and the Dewan-i-Am was lighted by these similar fittings equally spread over each side of this area.

(d). The gardens beyond the Dewan-i-Am were entirely lighted from the buildings, and by plain unshaded 25-C.P. lamps suspended in the trees.

Details of Interior Lighting.—The lighting of the palace buildings was effected by means of fittings specially designed to be in keeping with the architecture, with the exception of the Dewan-i-Am, Dewan-i-Khas, the Moti-Masjid and Zafar-Mahal. These fittings consisted of pendants and standards arranged to throw the light upwards and were in the form of a large Chiragh with a flame-shaped globe which for 25 and 50-C.P. lamps were of glass and for 100-C.P. lamps of silk. The pendants were suspended either from the ceiling or from specially designed brackets of curbed wrought iron, painted white.

(b). The Dewan-i-Am was unlighted except for brilliant concealed lighting in and around the white marble throne, the reflected light of which diffused the whole building with effective and subdued light.

(c). The Dewan-i-Khas was illuminated by 25-C.P. lamps concealed in a tin trough fixed to the cornice and painted to blend with the marble.

(d). The Moti-Masjid was brilliantly illuminated by a row of 25-C.P. lamps in front of a tin reflector concealed as far as possible and so arranged as to light up the interior as seen from the door and windows ; one 25-C.P. lamp was also placed in each cupola, and proved one of the most effective illuminations in the palace.

(e). The lighting of the Zafar-Mahal was restricted to illuminating

the interior by two unshaded 25-C.P. lamps in each corner room of the building.

(f). The refreshment Shamianas were lighted from pendants fitted with empire pattern shades of white, cream, red or yellow crinkled paper.

(g). Besides the above, electric lights varying from 50 to 100-C.P. were concealed in the cupolas on the roofs of all the palace buildings and 8-C.P. lamps, wired with lead-covered cable and protected from the falling water by glass, were fitted in the niches behind the cascades of Bawan and Bhadon.

Searchlights.—Two searchlights which added considerably to the general effect were placed on the roofs of two of the barracks.

Chiraghs.—The walls of the fort and the upper parts of the Delhi and Lahore Gates were illuminated by Chiraghs.

THE CAMP INSTALLATIONS.

General.—The lighting carried out in the camps of His Excellency the Commander-in-Chief and of Army Headquarters included the distribution within the camp areas and the lighting of the tents and of the roads within the camps.

Power.—Power for this purpose was obtained by 3-wire at a pressure of 440 volts across the outers from the mains of the Royal Durbar Electrical Installation, at points on the perimeters of the camps fixed by the staff of that service, these points being, in the case of the Commander-in-Chief's camp a buried main at the S.W. corner of the camp only, and in the case of the Army Headquarters camp an aerial main running along its front.

(b). Before connections with these mains could be made by the above staff, the whole installation to be connected was required to be provided with D.P. main fuzes, and to pass the following installation test. With all camps and appliances removed from the circuit and all switches and fuzes on, a pressure of 500 volts being applied, the insulation resistance between poles to be not less in megohms than 25 divided by the number of pairs of terminals from which a supply of energy would be taken.

(c). Besides the above tests the Durbar Committee laid down a proviso that no aerial wiring was to be within 75 ft. of the Processional Road, and this entailed a short length of buried cable within the area of the Commander-in-Chief's camp.

Distribution.—With the above exception and except in case of a few short 2-wire services where covered wire, supported on the tents, was used, and in the case of street lighting, the distribution throughout the camp was through bare aerial copper wire, on the 3-wire system, supported on three sections of Indian Telegraph Department Hamilton pattern poles.

(b). In order to localize faults the distributing system in each camp was divided into areas each supplied by one distributor, the

Commander-in-Chief's camp having four and the Army Headquarters camp two, and each distributor was equipped with a D.P. fuze and D.P. switch placed on a pole as near the main feeding point as possible.

(c). The routes followed by these distributing lines were duly laid according to plans. In the camp of His Excellency the Commander-in-Chief a considerable detour had to be made to the east side of the camp in order to avoid spoiling the main vista by taking aerial wires across it, but thanks to the use of large copper in the distributor and to the employment of metallic filament lamps the loss of voltage to the lamp furthest from the feeding point was not noticeably felt.

External Lighting.—In the external lighting of the camp areas, except on the two main gates of the Commander-in-Chief's camp, for which wrought-iron and copper lamps were specially designed, no water-tight fittings were fitted. All other external lights were fitted with ordinary holders and opal or enamelled iron shades, fixed to plain brass 3-in. tubular brackets, screwed to posts, trees, or bound with wire to the poles of the distributing lines.

(b). For the lighting of the main roads of the Commander-in-Chief's camp 50-C.P. lamps on posts similar to those used in the fort were installed from 30 yards to 40 yards apart on either side of the road, power being supplied through ordinary 600-megohm grade vulcanized $1/18$ cable buried 6 in. in the ground.

Interior Lighting.—In the lighting of the tents the lamps and switches were placed in each case as far as possible to suit the particular purpose for which they were installed. The switches were sewn direct on to the stiffening pieces of the *kanats*, and the lamps were similarly fixed or suspended from the inner fly. Except that 50-C.P. lamps were installed in the drawing room, dining room, and study of His Excellency's own tents and in the ante-room of the Army Headquarter Mess, and 8-C.P. carbon filament lamps were used in all bathrooms, the lamps used throughout were 25-C.P. metallic filament.

(b). For the wiring of the tents 600-megohm grade vulcanized $1/18$ or $3/22$ wire was used, the wires lying loose on the top of the inner flies, or sewn to the *kanats* with thread.

(c). The connections were made direct from the overhead bare copper, the neutral being taken direct to the nearest lamp and the outer to a cut-out, fitted except in a few cases with 1 ampère fuze wire, fixed on to one of the ropes outside the tent. The joints in the wiring were insulated with black tape only and not soldered.

(d). In His Excellency's State tents silk shades made on the spot were used, and shades of crinkled paper were installed in all the drawing-room tents of the guests in both camps, some 300 being specially made in the camp by an expert shade-maker brought down from Simla. In other cases glass, opal, or enamelled iron shades

were used according to the situation. A few table lamps were installed in special cases.

STORES.

External.—The external wiring of the fort and camps was carried out with stores from stock purchased for use at Cawnpore and elsewhere but never installed.

The buried mains referred to in para. 10 (c) above consisted of three 50-yard lengths of 19/15 lead-covered cable and were obtained on loan from the spare stores of the Bombay Defence Light Section.

Internal.—For internal wiring a small quantity of material such as switches, cut-outs, enamelled iron shades and table lamps were available from the Roorkee stock mentioned above, but all the lamps, special fittings, and a large part of the covered wire had to be purchased for the occasion. A share of such part of the stores specially purchased as could eventually be used in barrack installations was charged to stock, while the remainder was charged off direct to the service for which it was obtained.

Fittings.—A considerable quantity of the fittings, particularly for the fort, were specially designed for the occasion and made up in Simla and in the workshops at Roorkee.

Searchlights.—The two searchlight projectors, complete with lamps, etc., and a short length of cable each, were obtained on loan from the spare plant of the Bombay Defences Light Section; one of the boilers was borrowed from the surplus Ahmednagar Water Supply plant, and the other with an engine was taken over for eventual use in the Roorkee shops from the Balloon Section of the 1st Sappers & Miners. The second engine and the two dynamos were obtained on loan from Roorkee.

Lamps.—The lamps used throughout the fort and camps, except the few 3-C.P. carbon filament lamps already detailed, were of the metallic filament type of Ediswan and Tantalum makes, obtained on payment through the Royal Durbar Electrical Engineer.

The approximate numbers of lamps in use were as follows:—

	200 C.P.	100 C.P.	50 C.P.	25 C.P.	8 C.P.	Total.
Fort	14	36	40	1000	50	1140
C-in-C.'s Camp	—	4	88	331	97	560
Army Headquarter Camp	—	—	6	299	—	305

PERSONNEL.

Personnel.—The above work was carried out with Indian labour, collected from the Punjab, under the supervision of Capt. L. N. Malan, R.E., on behalf of the Director-General Military Works, and

of Mr. T. J. H. Blackley, Electrical Engineer in Charge M.W.S. Workshops at Roorkee. Capt. Malan executed the work in the camps and supervised generally, while Mr. Blackley was in charge of all work in the fort, assisted in the erection of the two searchlights by Corpl. Fettes, R.E., and Sapper Easthope, R.E., both of the Calcutta Defence Light Section, 1st Sappers & Miners.

TIME.

Time.—The erection of the fort installation was commenced under Mr. Blackley early in September and was completed by the beginning of December.

The erection of the overhead wiring in the Commander-in-Chief's camp was begun by the *mistries* on September 30th, the work being periodically visited from Simla by Capt. Malan who was finally relieved and arrived in Delhi on the 29th October. The internal wiring was commenced at once and lights given in the tents of the camp staff. Half of Army Headquarter camp was completed on November 15th and the remainder on the 25th. His Excellency the Commander-in-Chief's own tents were completed on the 18th November and the whole camp was finished on the 28th.

COST.

Cost.—The estimates and designs for the above work were prepared in the office of the Director-General Military Works and the expenditure was as follows :—

	Estimate.	Expenditure.			Excess or Saving.		
	£	£	s.	d.	£	s.	d.
Fort	9,180	12,140	9	9	+ 2,960	9	9
C.-in-C.'s Camp	5,297	4,742	0	0	— 555	0	0
Do. Daughter's Camp	220	220	0	0	—		
Army Headquarters Camp	2,500	3,030	3	1	+ 530	3	1
Army Headquarters Daughter's Camp	220	220	0	0	—		
VIII. Divisional Headquarters, supply of TableLamps only	30	30	0	0	—		
	17,447	20,382	12	10	+ 2,935	12	10

(b). The causes of the excesses on the fort and Army Headquarters camp installations were :—

(i). *Fort.*—Incandescent lamps were substituted for arc lamps at the request of the Durbar Committee, who also required a considerable number of extra lamps in the refreshment Shamianas in the sally port, etc., which were not estimated for. A severe storm towards the end of November, when most of the lights in the trees were fixed, caused considerable damage, and no allowance had been

made in the estimate, as storms of such magnitude are abnormal in Delhi at that time of year.

The Durbar Committee moreover demanded more *Chiragh* illumination than was estimated for and this caused extra expense.

(ii.). *Army Headquarter Camp*.—A number of extra tents were pitched in this camp, in excess of those for which provision was asked in the first instance and for which lights were allowed in the estimate. At the request of the officer in charge lights were installed in these extra tents, and he was informed at the time that the estimate would in all probability be exceeded thereby.

(c). The saving on the Commander-in-Chief's camp is due to fewer lights being installed than was estimated for.

NOTES FOR FUTURE GUIDANCE.

The following points, brought to notice during the execution of the works detailed in this report, are noted for the guidance of those who may in the future be called upon to undertake similar work.

As economy was the keynote of the work undertaken everything possible was done to reduce the cost and in consequence difficulties were incurred.

Overhead Mains.—As there was a large quantity of heavy copper wire on stock it had to be utilized and this took longer and cost more to erect than would have been the case had wire of the sizes actually necessary been forthcoming. In the absence of sockets and sole plates of suitable sizes on stock, poles were erected without them; this was a mistake as the heavy (and unexpected) rain about the middle of November softened the ground, with the result that some of the poles were pulled out of the perpendicular by the weight of the wires, and although this did not affect the service it was unsightly. To economize further and in the absence of sufficient proper insulator brackets, the special 4-wire angle-iron arms made for Cawnpore at Roorkee were used. These arms being fitted without their proper struts which were not obtainable, did not in all cases prove equal to the strain put upon them. It is recommended that in future these be made of channel iron and never used without the struts.

Buried Wires.—The lead-covered cables obtained from Bombay for the main connection to the Commander-in-Chief's camp were evidently old and perished, although never used, as they failed on the first day of heavy supply.

(b). The 1/18 600-megohm grade ordinary vulcanized wire used for street lighting stood being buried in damp soil very well. These wires were however only buried 6 in. and this did not prove sufficient as in several places they were broken by the camp workmen when planting cress or fitting the tile edging to the paths and roads. These wires should have been buried at least one foot deep.

Internal Wiring.—The internal wiring proved successful and calls for no remark, except that it is essential that the cut-outs shall be of a pattern in which an arc is an impossibility and that they should be placed at least 2 ft. away from any inflammable material. As it happened on one occasion an accident on one of the Durbar mains put for a short time nearly the whole of the 440-volt pressure between one of the outers and the neutral in the Commander-in-Chief's camp. This caused a number of the cut-outs in the camp to arc badly for some seconds and so fused and destroyed a large number of lamps, besides causing considerable alarm to the guests in the camp.

Lamps.—The metallic filament lamps employed although exceedingly efficient and as far as the light given is concerned satisfactory, are very fragile. So long as they are treated with reasonable care they are suitable for tent lighting but should only be suspended in trees when the absence of high wind and storms is assured, as the severe storm in November caused very heavy loss of lamps in the trees of the palace gardens in the fort.

Stores.—Owing to the want of proper storage accommodation in the camps (due to a false economy) a certain amount of stores, particularly copper wire, was stolen or otherwise disappeared. On a future occasion it is recommended that a lock-up store be provided with a responsible clerk in charge; the extra cost would be repaid.

Labour.—The chief and greatest source of all the troubles that were encountered was the labour. In the first place, with but very few exceptions the *mistries* imported from the Punjab were most unsatisfactory and troublesome. No reliance could be placed upon the majority of them, which entailed very heavy work on the officers in charge, particularly in the camps. The want of a reliable subordinate in charge of each camp was badly felt, but the meagre allotments given for these services were not sufficient to enable even one to be employed. It is strongly recommended that, on any similar future occasion, the European staff be not too much cut down as in this case.

Time.—The time allotted in the first instance proved only just sufficient, but it would have been ample had the original programme, on which the estimate was based, been adhered to. Both the Commander-in-Chief's and Army Headquarters Camps were however occupied, at least in part, over two weeks before the date originally intended, and this put a considerable extra strain on all concerned in their preparation.

L. M. MALAN, Captain, R.E.,
In Charge Military Works Services, Electric Lighting,
Coronation Durbar, Delhi.

*SIEGES AND THE DEFENCE OF FORTIFIED PLACES BY
THE BRITISH AND INDIAN ARMIES IN THE
XIXth CENTURY.*

By COLONEL SIR EDWARD T. THACKERAY, V.C., K.C.B. (LATE R.E.).

THE DEFENCE OF LUCKNOW, MAY—NOVEMBER, 1857.

The first practical intimation that the contagion of the cartridge question had reached Oudh was manifested early in April. Here it is necessary to state the troops by whom the newly annexed province was garrisoned. At Lucknow itself were quartered H.M.'s 32nd Regiment about 700 strong; a weak company of European Artillery; the 7th Regiment Light Cavalry (native); the 13th, 48th, and 71st Regiments of Native Infantry. Besides these there were at Lucknow, or in its immediate environs, two regiments of Irregular Native Infantry, raised for local service in Oudh, the 4th, and the 7th; one regiment of Military Police, the 3rd; a large proportion of Mounted Military Police; * one regiment of Oudh Irregular Cavalry; and two batteries of Native Artillery. Thus the native armed troops were in the proportion of nearly ten to one Europeans, the actual numbers being 7,000 to 750. At Sitápúr, in addition to local troops, the 41st Native Infantry was stationed having a detachment at Malaun; at Sultánpúr, the 15th Irregular Cavalry. The other stations, Daryábád, Faizábád, and Bahraich, were garrisoned by local corps.

On the 20th March, 1857, Sir Henry Lawrence had assumed the Chief Commissionership of Lucknow. Of all the men who have ever attained a prominent position in India, Sir Henry Lawrence was, perhaps, the most qualified to remove a discontent engendered by action—too fast, too hard, too reckless—on the part of the Government. He had great sympathies with the people, and thoroughly understood them. He did not, however, confine himself solely to the work of pacifying and of reasoning with the people. He realized at a glance the danger that threatened India; he felt that at any moment the handful of Englishmen in the country might have two hundred millions on their hands. Whilst then he used every per-

* The Oudh Military Police consisted of 1,000 cavalry and 3 regiments of infantry, commanded by Capt. Gould Weston, an officer of great ability, who, prior to the annexation of the province, had been engaged for some years in the suppression of Thagí and Dakaití.

suasive argument, and put into action every precautionary measure to avert a crisis, he prepared to meet one.

He began his preparations in April. His own headquarters were at the Residency situated in the city close to the river Gúm̄ti, and upwards of a quarter of a mile from the iron bridge leading to the Mariáun Cantonment. The native infantry regiments, a light horse battery of European artillery, and a battery of native artillery were at Mariáun. At Múdkipúr, $1\frac{1}{2}$ miles further still from the Residency, was one cavalry regiment. In an opposite direction, in a line in fact forming a right angle with the road to Mariáun and at a distance of $1\frac{1}{2}$ miles from the point of the angle, the Residency, was H.M.'s 32nd Regiment about 700 strong. Nearly $1\frac{1}{2}$ miles directly north of the barracks of the British Regiment, and on the opposite bank of the river Gúm̄ti, was the only remaining regiment of native cavalry. South of the river again, at or near Músa Bágh, 3 miles from the Residency, were two irregular native regiments, and between them and the Residency was a magazine containing a considerable stand of arms. About the Residency itself were clustered several substantial buildings of solid masonry occupied by the higher European officials. Here also were the Treasury, the Hospital, and a gaol. A detachment of native troops guarded the Residency and the Treasury. The whole of the Residency buildings were known to the natives throughout Oudh by the name Baillie Guard.*

Rather less than 1 mile from the Residency, on the same side of the river Gúm̄ti, is a castellated stronghold called the Machchí Bhawan. The attention of Sir Henry was, in the first instance, directed to making the Residency defensible, and to a better location of the British troops. With this end in view he began to clear away the huts and other obstructions which occupied the ground close to the Residency; to lay in supplies of grain of all sorts, and European stores; to accumulate powder and small-arm ammunition and to dig pits for their reception; to arrange for a constant water supply; by degrees to send for the treasure from the city and outlying station; and to form outworks on the ground encompassing the Residency. At the same time he moved to the vicinity of the barracks of the 32nd Foot four guns of the native battery stationed at Mariáun. His preparations had not been made too soon. On the 30th April the storm threatened. On the 3rd of May it broke.

The 7th Regiment of Oudh Irregular Infantry was stationed at Músa Bágh, about 3 miles from the Residency. The adjutant of the regiment was Lieut. Meham, a cool, determined, and reso-

* The guard in question commanded by a Subadar was first stationed at this gate by Colonel Baillie, a former resident at the Court of Oudh. Hence the name.

lute officer. On the 30th April when he took his men to ball practice, these suddenly showed a disinclination to use the new cartridge. Meham pointed out to them that the cartridge was similar to that they had been using the previous fortnight. This seemed to satisfy the men, and they proceeded with the practice. But the next morning the sergeant-major reported that the men positively refused to bite the cartridge, that many even declined to receive or even to touch it.

The day following was spent by the men in brooding over their grievances. They worked themselves to the state of fanaticism which will not bear reason, and at 10 o'clock, on the 3rd, they had arrived at the conclusion that they must kill their European officers. The latter warned in time by the quartermaster-sergeant of the disposition of their men, nobly did their duty, and succeeded after a time in inducing the Sepoys to return to their lines, though they refused to surrender their arms.

But Sir Henry Lawrence was not content with this doubtful triumph. The men of the 7th were paraded. The question was put to them whether they would continue to bite the cartridge, or whether they would refuse. The men, after some hesitation, promised to obey, but their manner was so sullen and so insolent that Sir Henry felt he could not trust them. He at once proceeded to the spot with the force he had organized, consisting of the 32nd Foot, a European battery, three regular native regiments of infantry, and one of cavalry. It was dark, but Sir Henry at once brought the 7th to the front, and ordered them to lay down their arms. In the presence of the imposing force in their front and on their flanks and of the lighted port-fires of the gunners the courage of the mutinous Sepoys gave way. Many of them panic-stricken fled wildly from the spot, but, on being followed and assured that no violence would be used if they obeyed orders, they returned, and before midnight all their arms were secured.

The next day the ringleaders were seized, and it transpired from their admissions that a treasonable correspondence with the view to a general rising had been going on for some time between them and the men of the 48th Regiment of Native Infantry.

On May 12th Sir Henry Lawrence held a great Durbar to which the native aristocracy, the European and native civil officials, the European and native officers were invited. Sir Henry concluded an eloquent speech delivered in the native language, by warning his listeners against becoming the dupes of designing men, and of the fate which would inevitably follow the neglect of his advice. He then caused the deserving native officers to be brought up to him, and in the name of the Government delivered to them the rewards they had merited.

The city of Lucknow 42 miles distant from Cawnpore extends

for about 3 miles on the right bank of the river Gúmtí. All the principal palatial buildings, the Residency, and the Machchí Bawun are between the city and the river bank. South of these buildings and covering an immense space is the city. This is intersected by a canal which falls into the Gúmtí close to the Martinieré College, about 3 miles south-east of the Residency. A little to the south of this is the Dilkushá, a hunting-box or palace within an enclosed park. The space between the Residency and the Martinieré was occupied by palaces among which the Motí Mahal, the Shah-Munzil, the Sikandrabágh are the most conspicuous. South of the city, about 4 miles from the Residency on the southern side of the road leading to Cawnpore, is the Alumbágh, a large walled garden, with a high and pretentious gateway.

Not counting the position of the native cavalry at Múdkipún, Sir Henry possessed now three military posts. Two of these, the Residency and the Machchí Bawun, he made as strong as he could. Having regard to possible eventualities he removed the spare ammunition from the magazine into the Machchí Bawun. He seized the earliest opportunity of garrisoning that place with Europeans, of storing supplies there, and of mounting on the ramparts guns of all sorts. Many of these were taken from the King's palaces, and were useful only to make a show. In the Residency compound, over the Treasury, he posted a mixed guard of 200 Sepoys, 130 Europeans and 6 guns—the guns being placed so that at the first alarm they could be brought to bear on any mutineers. The third post was the old cantonment of Mariáun. It was garrisoned by 340 men of the 32nd Foot, 50 European artillerymen, and 6 guns; the three native regiments, and a battery of native artillery. Here, Sir Henry, for the time, took up his quarters.

Having made these preparations, Sir Henry Lawrence took an early opportunity to move the ladies and children into the houses within the Residency enclosure. Here also were brought the families and the sick men of the 32nd Regiment. At the same time, the clerks, copyists, section-writers, and others of that class were armed and drilled. On the 27th May he was able to write to Lord Canning, "Both the Residency and the Machchí Bawun are safe against all probable comers." On the same day, Capt. Hutchinson (afterwards Major-General Hutchinson, C.B., C.S.I.), of the Engineers, Military Secretary to the Chief Commissioner, an officer of great talent and daring, was ordered by Sir Henry Lawrence to accompany into the district, as political officer, a column composed of 200 men of the 7th Cavalry, and 200 men of the 48th Native Infantry. The object of sending this column was to rid Lucknow of the presence of men who might then be dangerous, but who posted on the northern frontier of Oudh, might be employed with advantage to restrain the turbulence of the inhabitants. Marching from Lucknow on the 27th.,

the column reached Sandila, 32 miles to the westward of Lucknow, on the 1st of June. There Hutchinson received accounts of the mutiny of the 30th May at Lucknow. The Sepoys heard of it at the same time, and it at once became apparent that they were biding their time. Hutchinson, after vainly endeavouring to pacify them, and noting the increased insolence of the men, urged the officers not to allow themselves to be taken in the net which was preparing for them on the other side of the river Ganges. But they were deaf and would not hear him. The regiment crossed the sacred stream. On the 7th or 8th the men rose, massacred all their own officers but one, Lieut. Boulton, who fled to perish elsewhere, and went off to Delhi. Hutchinson, accompanied by the paymaster of pensioners, Major Mariott, who with him had declined to cross the river, returned in safety to Lucknow.

The precautions before stated had not been taken at that city a moment too soon. On the night of the 30th May the insurrection broke out. At 9 o'clock the evening gun fired as usual. The men of the 71st Regiment, previously told off in parties, started off at the signal to fire the bungalows and murder their officers. A few men only of the other infantry regiments, and some men of the 7th Cavalry joined them.

Sir Henry Lawrence was dining that night at the Residency bungalow at Mariáun. An officer of his staff had informed him that he had been told by a Sepoy that at gun-fire (9 p.m.) the signal to mutiny would be given. The gun fired; but all for the moment seemed quiet. Sir Henry leaned forward and said to the officer, "Your friends are not punctual." The words were scarcely out of his mouth when the discharge of muskets proved that his staff officer had been well informed. The horses were brought up, and Sir Henry followed by his staff started for the lines.

On his way he found 300 men of the 32nd, four guns Major Kaye's battery, and two of the Oudh force, posted in a position on the extreme right of the 71st lines, and contiguous to the road leading from cantonments to the city. Recognizing the necessity of preventing as far as possible communication between the mutineers and the evil-disposed in the city, Sir Henry took with him two guns and a company of the 32nd to occupy the road leading from the cantonment to the bridge. He sent back shortly for the remainder of the Europeans, and for two more guns. Meanwhile, the officers of the native regiments had hastened to the lines to endeavour to reason with the men. Many of those, however, had already begun the work of plunder. A considerable body had marched straight to the 71st mess-house, and failing to find the officers, who had just left, they fired it. Very soon after a musketry fire from the 71st lines opened on the Europeans. These replied with grape, and with such effect that the Sepoys made a rush to the rear. In their hurried

course they passed the infantry picket, composed of natives, and commanded by Lieut. Grant, 71st Native Infantry. Some of his own men tried to save this officer, but a Sepoy of his own regiment discovered his place of concealment to the mutineers and by these he was brutally murdered. Meanwhile, Lieut. Hardinge, taking with him a few of the Irregular Cavalry, had been patrolling the main street of cantonments to maintain order and to save life and property. He was not, however, in sufficient force to prevent the burning and plundering of the officers' houses and the bazaars. The mutineers were prowling about in all directions. One of them fired at Lieut. Hardinge, and when his shot missed fire he came at him with his bayonet and wounded him in the arm.

During this time there had been great excitement in the lines. Gradually, however, some satisfactory symptoms evinced themselves. First, about 300 of the 13th Native Infantry, with their British officers, their colours, and the regimental treasure, marched up and enrolled themselves with the British. They were followed by a very few of the 71st but without their colours or their treasure. Of the 48th nothing was heard that night. The Europeans still remained formed up in the position assigned to them in case of alarm by Sir Henry Lawrence, their front flanking that of the several native regiments. About 10 p.m. some of the mutineers crept up to and occupied some empty lines bearing on that position, and opened a musketry fire. Brig. Handscomb, riding from his house straight into the 71st lines, was immediately shot. The fire, however, soon ceased, and arrangements having been made to protect the Residency bungalow, and the part of the cantonment next the city road, and strong guards having been posted, the force piled arms and waited for the morn.

At daylight next morning, Sir Henry placed himself at the head of the forces, and learning that the rebels had retired on Múdkipúr followed them thither. Crossing the parade ground the men came upon the body of Cornet Raleigh, a newly-joined officer who, left sick in his quarters, had been murdered by the rebels. Almost at the same time the mutinous regiments were discovered drawn up in line. At this critical time an officer on Lawrence's staff noticed, or thought he noticed, a mutinous disposition on the part of the 7th Cavalry, till then loyal. Their attitude appeared to him to betoken an intention to charge the British guns. To set the matter at rest the officer directed the guns to open fire on the distant line. Then the men of the 7th Cavalry with the exception of about 30, raised a yell, and galloped over to join the enemy, who turned and fled with them. Our troops followed them up for about 10 miles and took 60 prisoners. In this pursuit Mr. Gubbins greatly distinguished himself, capturing several of the enemy with his own

hand. By 10 a.m. our force had returned to cantonments, the heat being excessive.

Sir Henry Lawrence had been on the point of returning to Europe for the benefit of his health before the storm arose, when he was summoned by Lord Canning to Oudh. Regarding that summons as a call of duty, with characteristic forgetfulness of self, he had obeyed it. But under the fatigues, the excitement, the anxiety of his new life, his physical condition had become worse than when his medical advisers had ordered him home from Rajputana.

Sir Henry Lawrence feeling his strength daily failing despatched to Lord Canning, on the 4th May, a telegram, in which he earnestly recommended that in event of anything happening to himself, the office of Chief Commissioner might be conferred upon Major Banks, and the command of the troops on Colonel Inglis. "This," he added, "is no time for punctilio as regards seniority. They are the right men—in fact, the only men—for the places."

Major Banks was the Commissioner of the Lucknow Division. He was the most promising political officer who had not actually attained the highest grade in that branch of the Indian Service. For languages he had a remarkable talent. He was familiar alike with Persian, with Hindî, and with Sanscrit. He had filled several offices with distinction and was esteemed by everyone.

Lieut.-Colonel Inglis (afterwards Major-General Sir J. Inglis, K.C.B.), the other officer referred to, commanded the 32nd Foot. He was in the prime of life, an excellent soldier, active, energetic, and quick-sighted. The native army having mutinied, and the only remaining reliable troops being European, it was practically necessary that the officer commanding the European regiment should have the chief military authority.

Sir Henry Lawrence was particularly desirous to retain the services of a large portion of the native troops. He believed that those who had stood the ordeal of the 30th May would thenceforth remain faithful. He believed that without the aid of native troops his position at Lucknow would not be tenable. He collected all the Sikhs from the three native regiments and formed them into one battalion. He also collected about 170 men who had served in the Company's army prior to the annexation, and placed them under separate command. The number of the native brigade was thus brought up to nearly 800.

On the night of the 9th June the whole of the cavalry of the military police remaining at their headquarters at Lucknow broke into revolt. Capt. Gould Weston at once rode down to their lines, followed only by his two native orderlies. He came upon them as they were starting and exhorted them to listen to the voice of duty and of honour, but his efforts proved unavailing. On the morning

of the 12th of June the 2nd Regiment of Infantry of the Military Police mutinied at the Moti Mahal about $1\frac{1}{2}$ miles from the Baillie Guard.

Since the mutiny of the 30th May, efforts to make the Residency defensible had been pushed on with extraordinary vigour. The outer tracing had been connected by breastworks; ditches had been excavated in front of them, and parapets erected behind them; at certain points ramparts had been thrown up and embrasures had been pierced; slopes had been scarped; stakes and palisades fixed; some houses had been demolished, the roofs of others had been protected; windows and doors had been barricaded; walls had been loopholed. All the ordnance belonging to the ex-King of Oudh that could be found in the city had been brought within the defences. Some houses outside the walls of the Residency were left solely because time had not remained to level them as had been intended. The omission to destroy them was at a later period much regretted, for they were used by the rebels as shelter houses whence to watch the movements of the garrison and to keep up a heavy fire on the defences.

Nor was the Machchi Bawun neglected. Sir Henry Lawrence had originally resolved to hold this post in conjunction with the Residency, only to concentrate on the latter when threatened in overwhelming force. With this view he had strengthened it and made it habitable for Europeans. He then stored it with food and ammunition. On the 13th of June, Sir Henry was able to write to Lord Canning in the words quoted:—"We hold our ground in cantonment, and daily strengthen both our town positions, bearing in mind that the Residency is to be the final point of concentration." Sir Henry continued to strengthen the Machchi Bawun till the very last, believing that the preparations made would be greatly noised abroad, and would affect the moral of the enemy.

A terrible anxiety which preyed upon Sir Henry Lawrence about this time was caused by his inability to assist Sir Hugh Wheeler, then beleaguered in Cawnpore. The cessation of communication with that station on the 6th of June had made it clear that the native troops there had mutinied. That they had gone further and under the leadership of Nana Sahib had besieged the British General in his barracks shortly became known. Writing to Sir Hugh Wheeler on the 16th of June, the Chief Commissioner said: "I am very sorry indeed to hear of your condition, and grieve that I cannot help you. I have consulted with the chief officers about you, and except Gubbins, they are unanimous in thinking that with the enemy's command of the river we could not get a single man into your intrenchment. . . . We are strong in our intrenchments; but by attempting the passage of the river, should be sacrificing a large detachment without a prospect of helping you . . . " etc.

A week later he wrote to Lord Canning : " It is deep grief to me to be unable to help Cawnpore ; I would run much risk for Wheler's sake, but an attempt with our means, would only ruin ourselves without helping Cawnpore." No military critic will question the soundness of these views. To cross the Ganges, even with the entire force at the disposal of Sir Henry Lawrence, in the face of the army serving under Nana Sahib, would have been impossible.

A few days later a letter reached Sir Henry with the information that Wheler had agreed to treat with Nana Sahib. He then knew that all was over. His forebodings were confirmed by the receipt of details of the massacre on the 28th June. The following morning the advanced guard of the enemy's force marched on Chinhut, a village on the Fyzabad Road, within 8 miles of the Residency. This gave Sir Henry an opportunity for which he had been longing. With the foresight of a real general opposed to Asiatics, he felt that for him to await an attack would be to invite a general insurrection, whereas an effective blow dealt at the advanced troops of the rebels would paralyze their movements, and spread doubt and hesitation among them. To say that because he did not succeed his plan was bad and impolitic is not a logical argument. His plan was justified alike by military science and by political considerations. Whilst he fought a battle in which victory would have been decisive, he lost little by defeat.

Sir Henry's first step was to withdraw the troops from the cantonments and to bring them within the Residency. He then ordered that a force composed of 300 men of the 32nd Regiment ; 230 men of the regular native infantry ; the small troop of volunteer cavalry, 36 strong ; 120 troopers of the Oudh Irregulars ; ten guns and an 8-in. howitzer, should assemble at the iron bridge at daylight the following morning to march at once in the direction of Chinhut.

Of the ten guns, six were manned by natives and four only by Europeans. The howitzer was on a limber drawn by an elephant driven by a native. This work being mainly concerned with the siege operations it is not proposed to give a very long and detailed account of the Battle of Chinhut.

The following is the official report of that action by Brig. Inglis, commanding the Garrison of Lucknow, to the Secretary to the Government Military Department, Calcutta :—

Dated LUCKNOW, 26th September, 1857.

SIR,—In consequence of the very deeply-to-be-lamented death of Brig.-General Sir H. M. Lawrence, K.C.B., late in command of the Oudh Field Force, the duty of narrating the military events which have occurred at Lucknow since 29th June last, has devolved upon myself.

On the evening of that day several reports reached Sir Henry Lawrence that the rebel army in no very considerable force, would march from Chinhut (a small village about 8 miles distant on the road to Fyzabad) on Lucknow on the following morning; and the late Brigadier-General therefore determined to make a strong reconnaissance in that direction, with the view, if possible, of meeting the force at a disadvantage, either at its entrance into the suburbs of the city, or at the bridge across the Goterai, which is a small stream intersecting the Fyzabad road, about half-way between Lucknow and Chinhut.

The force destined for this service—the details of which have been given above—moved out at 6 a.m., on the morning of the 30th June.

The troops misled by the reports of wayfarers—who stated that there were very few or no men between Lucknow and Chinhut—proceeded somewhat further than had been originally intended, and suddenly fell in with the enemy, who had up to that time eluded the vigilance of the advance guard by concealing themselves behind a long line of trees in overwhelming numbers. The European force, and the howitzers, with the native infantry held the foe in check for some time, and had the six guns of the Oudh Artillery been faithful, and the Sikh Cavalry shown a better front, the day would have been won in spite of an immense disparity of numbers. But the Oudh artillerymen and drivers were traitors. They overturned the guns into ditches, cut the traces of their horses, and abandoned them, regardless of the remonstrances and exertions of their own officers, and of those of Sir Henry Lawrence's staff, headed by the Brigadier-General in person, who himself drew his sword on these rebels. Every effort to induce them to stand having proved ineffectual, the force exposed to a vastly superior fire of artillery, and completely outflanked on both sides by an overpowering body of infantry and cavalry, which actually got into our rear, was compelled to retire with the loss of three pieces of artillery which fell into the hands of the enemy, in consequence of the rank treachery of the Oudh gunners, and with a very grievous list of killed and wounded. The heat was dreadful, the gun ammunition was expended, and the almost total want of cavalry to protect our rear made our retreat most disastrous.

All the gun ammunition was exhausted in this disastrous action. In this dilemma Sir Henry showed a nerve and decision not to be surpassed. He placed the guns on the bridge and ordered the port-fires to be lighted. The feint had all the hoped-for effect. The enemy shrank back from a bridge apparently defended by loaded guns. They at once relaxed their pursuit, and the little army succeeded in gaining the shelter of the city and in retiring in some sort of order on the Machchí Bawun and the Residency. Their losses had been most severe and they had left the howitzer and two

field pieces behind them.* On arriving at the Residency Sir Henry ordered out 50 men of the 32nd under an officer, Lieut. Edmonstone, to the iron bridge over the Gumti, with a view to their being posted in the two houses on either side of the bridge, to defend it. Towards this bridge the elated enemy surged in crowds, but they never forced it. The 50 Englishmen covered by a fire from two 18-pounders in the Redan battery, held it successfully though not without loss, till noon. The enemy then desisted, and crossed the river by another bridge. Our men were then finally withdrawn. This defence was a very gallant affair.

The first consequence of the defeat was the occupation of the city by the rebels and the uprising of the discontented spirits within it. That very afternoon they began to loophole many of the houses in the vicinity of and commanding the Machchí Bawun and the Residency. They even succeeded in bringing a 6-pounder to bear on the outer verandah of the post afterwards known as Anderson's post. Subsequently in the same afternoon, they brought another gun into position, and soon demolished the outer defences, including a loop-holed mud parapet but recently erected. The post, however, was so important, that orders were sent to the garrison to hold it to the last extremity.

The following morning the enemy opened a heavy fire on the Machchí Bawun and on the Residency. Sir Henry had foreseen this action and had prepared for it. Resolved to concentrate all his defensive efforts on the Residency, he signalled the following night to the garrison of the Machchí Bawun, to evacuate and blow up that fortress. These orders were admirably carried out by Capt. Francis, 13th Native Infantry, then commanding at that post. A quarter of an hour past midnight the garrison of the Machchí Bawun entered the Residency with their guns and treasure without the loss of a man. Shortly afterwards the explosion of 240 barrels of gunpowder, and of 594,000 rounds of ball and gun ammunition announced the destruction of that post.

The garrison, consisting, including civilians, of 927 Europeans, and 765 natives were now concentrated in the Residency. To all appearances the situation was desperate. Not only were the fortifications incomplete, but the enemy had at once occupied and loop-holed the houses which had been left standing, outside and close to those fortifications. The west and south faces of the enclosure were practically undefended, the bastion which had been commenced at the angle of the two faces having been left unfinished.

Since the retirement of our force within its lines of defence, the

* These were however spiked by Capt. Wilson, the A.A.-General, before they were left. The heroic efforts made by Lieut. Bonham, of the Artillery, to save the howitzer would most assuredly, had Sir Henry Lawience lived, gained for that officer the Victoria Cross.

fire of the enemy upon it had been continuous. Night and day, from the tops of surrounding houses, from loopholed buildings, from every point where cover was available, they had poured in a perpetual fire of round shot, of musketry, and of matchlock balls. Many of the garrison who were in places considered before the siege perfectly safe were hit. But no place was so exposed as the Residency itself, and on it a well-directed fire was constantly maintained. Moreover, the enemy had recourse to digging deep approaches to their batteries and guns, and these effectually concealed them from our sharpshooters. But long before this cautious system of attack had attained its full development, the garrison sustained an irreparable loss.

Sir Henry Lawrence occupied in the Residency a room convenient for the purpose of observing the enemy, but much exposed to their fire. There the day after the defeat at Chinhut, he was seated, conversing with his secretary, Mr. Cooper. Suddenly, an 8-in. shell fired from the very howitzer that we had lost at Chinhut, fell into the room, close to them. It burst, however, without injury to either. The whole of the staff then implored Sir Henry to remove to a less exposed position. But this he declined to do, remarking with a smile that another shell would never be pitched into the same room. Later in the day, when it was evident that the enemy's round shot were being directed at the Residency and were striking the upper storey, Capt. Wilson and Mr. Cooper again pressed Sir Henry to go below, and to allow his things to be moved. He promised to comply on the morrow. The following morning he went out to post and arrange the force which had come in from the Machchi Bawun, and to place the field pieces in position. He returned tired and exhausted about 8 o'clock. He lay down on his bed, and transacted business with the Assistant Adjutant-General, Capt. Wilson. He was engaged in this work when a howitzer shell entered the room, and bursting, wounded him mortally. He lingered in extreme agony till the morning of the 4th when he died.

"Few men," wrote Brig. Inglis when commenting on his death, "have ever possessed to the same extent the power which he enjoyed of winning the hearts of all those with whom he came in contact, and thus ensuring the warmest and most zealous devotion for himself and for the Government which he served." The deep affection with which he was regarded when living survives to the present day. Of no man is the recollection more warmly cherished. He devoted all his energies to the country he served so well. In a word, he was a striking type of that class, not a rare one, of the public servants of England in India, who give themselves without reserve to their country. That Sir Henry Lawrence felt to the last the inner conviction that he had so given himself wholly and without stint, is evidenced by his dying wish that, if any epitaph were placed

on his tomb, it should be simply this : " Here lies Henry Lawrence, who tried to do his duty."

The credit of the successful defence of the Residency of Lucknow is due in the first place to Sir Henry Lawrence. He alone made it possible to successfully defend it. Three weeks before anyone else dreamed of the chance even of a siege he began to lay in supplies. He caused to be brought into the Residency the treasure from the city and, wherever feasible, from out-stations. He collected there the guns, the mortars, the shot and shell, the small arms, the ammunition, and the grain. He strengthened the fortifications, formed outworks, cleared away the obstructions close up to the Residency. He did all this before the siege commenced.

Sir Henry died on the 4th July. In consequence of his death-bed instructions, Major Banks assumed the chief civil authority, whilst the command of the troops devolved upon Brig. Inglis.

The ground on which were built the detached houses now about to be attacked was an elevated plateau, the surface of which was rough and uneven. The defences traced around it had the form of an irregular pentagon. The accompanying plan will show that regarding the point indicated as " Innes's house " as the northernmost point, its eastern face ran irregularly parallel with the river Gúm-ti as far as the Baillie Guard. The line from that point to " Anderson's garrison " constituted the south-eastern, and from Anderson's garrison to " Gubbins's battery " the south-western face. The western face comprehended the line between Gubbins's battery and Innes's garrison.

Innes's garrison occupied a long, commodious lower-roomed house, containing several rooms, two good verandahs, and having a flat roof. It was commanded by Lieut. Loughnan, of the 13th Native Infantry, a most gallant officer.

Overlooking this post on the eastern face was the Redan battery, at the apex of the projecting point of high level ground. This battery was armed with two 18-pounders, and a 9-pounder. It was commanded by Lieut. Samuel Lawrence of the 32nd Foot. The line of intrenchments between the Water Gate and the Banqueting Hall, transferred into a hospital, was commanded by Lieut. Langmore of the 71st Native Infantry. It was entirely without shelter.

Passing over the Residency and the Banqueting Hall, we come to the Treasury buildings situated below and to the eastward of the latter, known under the name of the Baillie Guard. This was armed with two 9-pounders and an 8-in. howitzer, commanded by Lieut. Aitken, 13th Native Infantry. Following the outer tracing we come to Fayrer's house* with one 9-pounder, commanded by Capt.

* Named after Surgeon-Major Fayrer, afterwards Surgeon-General Sir Joseph Fayrer, Bart., K.C.S.I.

Gould-Weston, to the Financial garrison post commanded by Capt. Sanders, 13th Native Infantry; and to Sago's house commanded by Capt. T. T. Boileau, 7th Cavalry. The two last-named buildings were commanded by the Post Office armed with two 18-pounders and a 9-pounder, and whose garrison was under the orders of Lieut. Graydon. Following the line of outer works we arrive at the Judicial post, an extensive upper house, commanded by Capt. Germon, 13th Native Infantry. Next to that, and forming the south-eastern angle of the position, was Anderson's post—a two-storied house surrounded by a wall, with two good verandahs, and intrenched and loopholed. No battery was attached to this post. It was commanded by Capt. R. P. Anderson, 25th Native Infantry.

The Cawnpore battery, constructed of earth and palisades, was the new post. This was armed with an 8-pounder, and two 9-pounders. This was the only post the commandant of which was constantly changed. The reason was that it was so entirely commanded by the enemy's works, that when they concentrated a heavy fire upon it no man could live in it. But neither could the enemy occupy it, for it was entirely commanded by the house behind it. It thus remained to the end a part of our defences. The Thag Gaol, occupied by the boys of the Martinieré College, and commanded by their principal, Mr. Schilling; the Brigade Mess, a high and convenient building, commanded by Colonel Master, 7th Light Cavalry; and the Sikh squares led to Gubbins's post, armed with two 9-pounders, and an 18-pounder, and commanded by Major Apthorp, 41st Native Infantry. Between this post and the Church Garrison were the Bhúsá intrenchments and sheep pens, slenderly manned by the officers and soldiers of the Commissariat Department. The Church Garrison consisted of about a dozen Europeans. The church was stored with grain. Of the garrison within the lines of defence may be mentioned Ommaney's post, connected by a lane with Gubbins's post and supported by the residents of the Begum Kothí, few in number and principally on the staff.

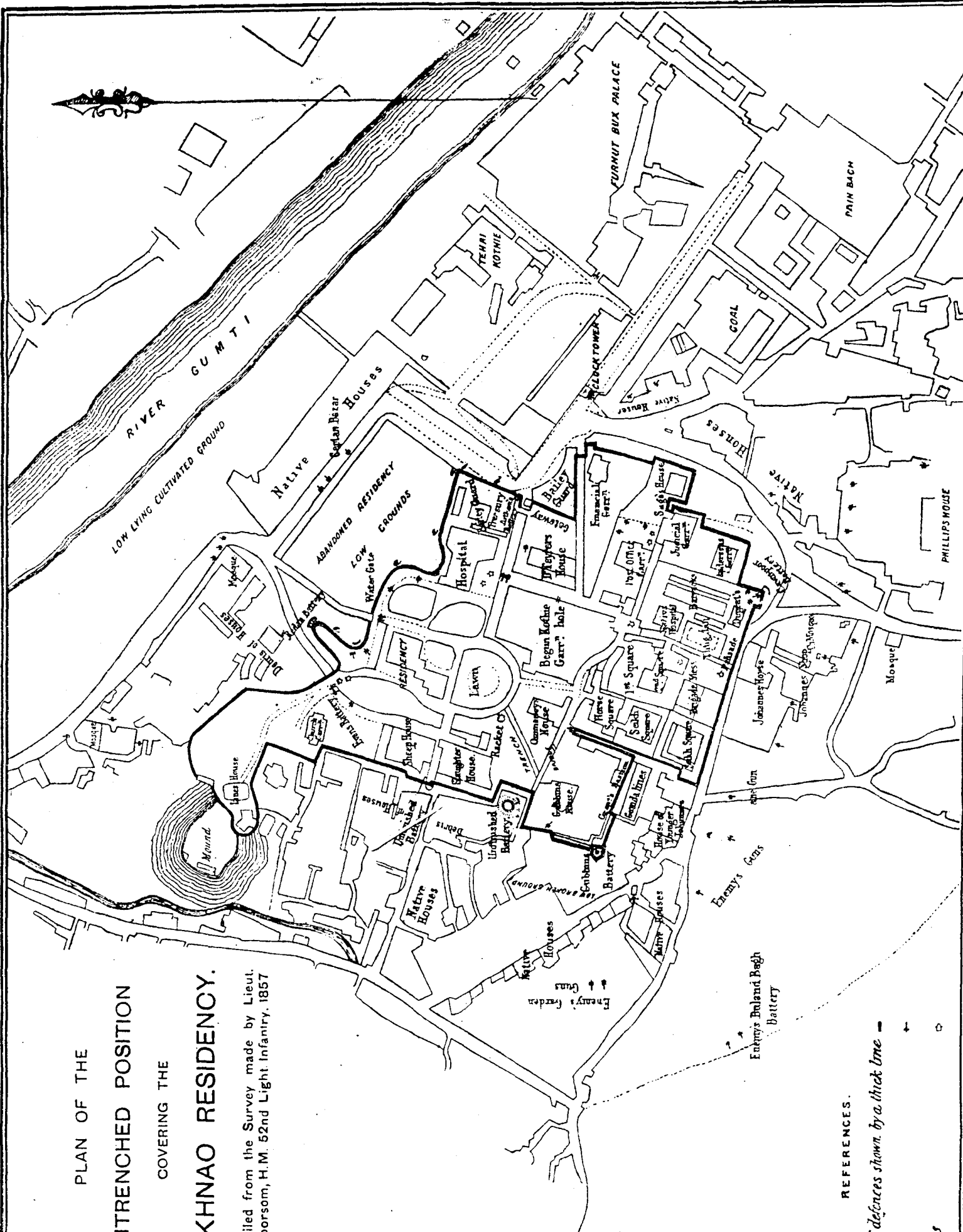
Far from taking that prompt advantage of their victory at Chinhut which a capable general would have seized, the rebel leaders for nearly three weeks did everything but assault these slight defences. They occupied in force the houses which commanded them, they erected batteries, they placed guns in position, they dug trenches to protect their men from our shells, and from the 1st to the 20th July, they kept up a terrific and incessant fire day and night, not less than 8,000 men, and probably a larger number, firing at one time into the defenders' position. Their fire was very effective. The mosques, the houses which from want of time to destroy them had been allowed to stand, the not very remote palaces, afforded them commanding positions.

Their shells penetrated into places before considered absolutely

PLAN OF THE INTRENCHED POSITION COVERING THE LAKHNAO RESIDENCY.

Compiled from the Survey made by Lieut.
W. Moorsom, H.M. 52nd Light Infantry, 1857

SCALE OF 400 FEET = 1 INCH



REFERENCES.

Line of defenses shown by a thick line -

Guns

Mortars

secure. Many of the garrison succumbed to this incessant rain of projectiles. Mr. Dorin was killed in an inner room of Mr. Gubbins's house, Mr. Dunmaney, of the Civil Service, was mortally wounded on the 4th July, Major Francis, of the 13th Native Infantry, a very gallant officer, on the 7th, Mr. Polehampton, the chaplain, the same day, severely. Before the 20th July, the list of casualties had been increased by Mr. Bryron shot through the head on the 9th, by Lieut. Dashwood, 48th Native Infantry, who succumbed the same day to cholera, by Lieut. Charlton, 32nd Foot, shot through the head on the 13th, by Lieut. Lester mortally wounded on the 14th, by Lieuts. Bryce and O'Brien wounded on the 16th, by Lieut. Harmer wounded, and Lieut. Arthur killed on the 19th. That day Mr. Polehampton, wounded on the 7th, died of cholera. In addition to these officers, many privates, Europeans and natives, succumbed. A few of the latter deserted to the enemy.

Upon the improvised defences the effect of the enemy's fire was even greater. On the 15th Anderson's house was entirely destroyed by round shot, though the post was still nobly held by the garrison; on the 18th many round shots were fired into the Post Office, Fayrer's house, Gubbins's, and the Brigade Mess House. At one time the rebels succeeded in setting the Residency on fire by firing carcasses into it. At another they threatened an assault on Gubbins's post.

A large number of the bullocks perished, and the burying of the animals was no slight addition to the labours of the garrison. The heat during this time was excessive. Cholera was busy. The stench from putrid animals was most offensive. Few officers had a servant. Whilst the days were consumed in fighting, the nights were passed in developing means for the continuance of the struggle. Then stores had to be dug out and carried, guns to be shifted, trenches to be dug, shafts for miners sunk, the dead buried, and the many necessities devolving upon men so situated attended to. Still the garrison showed no sign of faltering.

On the 7th July a sortie was made. The party consisted of 50 men of the 32nd and 20 Sikhs. The object was to examine Johannes' house, a building outside, and close to the line of defence, near the Brigade Mess, as it was believed that the enemy were mining. The sortie was successful. The rebels were driven out of the house, and 15 or 20 of their number were killed. On our side three men were wounded. The daring shown by Lieut. Sam Lawrence on this occasion obtained for him the Victoria Cross.

At midnight on the 20th July, the enemy's fire almost ceased, nor was heavy firing resumed in the early morning. A little after 10 o'clock the rebels sprang a mine inside the Water Gate, about 25 yards from the inner defences, and close to the Redan. Immediately after the explosion they opened a very heavy fire on the defences near which the mine had been sprung. Under cover of

this fire as soon as the smoke and dust had cleared away, they advanced in heavy masses against the Redan. The garrison, however, received them with so heavy a fire that they reeled back sorely smitten; nor, although they made a second attempt, and penetrated to within a very few yards of the English battery, were they able to effect a lodgment. Again they fell back, baffled.

Simultaneously a heavy column advanced against Innes's house. The garrison here consisted of only 12 men of the 32nd Foot; 12 of the 13th Native Infantry; and a few non-military servants of Government. Against this handful of men the rebels pressed in large numbers, and made their way to within 10 yards of the palisades, and were received with a rolling fire which drove them back. They came, however, again, and again, and again, but always with the same result.

The enemy's attack was not confined to these two points. They made also a desperate and very determined attempt on the Cawnpore Battery. But their leader being stopped by a well-directed bullet, they became disheartened and fell back. Very soon afterwards another detachment advanced with scaling ladders against Anderson's and Germon's posts. But their reception at both was so warm that they retreated, not to renew the attack.

These attacks made in great force and with considerable resolution were defeated by the British with a loss of but 4 killed, and 12 wounded. By sharp experience the garrison had learnt the wisdom of keeping themselves as much as possible under cover.

But the day following this inspiring victory the garrison sustained a loss which it could ill afford. Major Banks, who had succeeded Sir Henry Lawrence as Chief Commissioner, was shot through the head. His fearlessness, his courage, and his sympathy with suffering had endeared him greatly to the garrison. His place was not filled up. The Brigadier then issued an order intimating that the office of Chief Commissioner would be held in abeyance until such time as the Government of India could be communicated with.*

From the 20th of July to the 10th of August the rebels contented themselves mainly with keeping up an unrelenting fire upon the garrison, loopholing more houses, and bringing the attack closer and closer. They made no general assault. On their side the defenders were so fully occupied in repairing damages, in countermining, and in replying to the enemy's fire that they could not find sufficient time to remove the carcasses of horses and bullocks. The stench from these carcasses and from others partially buried became almost unbearable, and aided in fomenting the pest of flies, as well as the spread of cholera, of dysentery, of scurvy, and of small-pox. The badness and insufficiency of the food, the want of cooks, and the indifferent cooking, aided greatly the working of these diseases.

* Subsequently entirely approved by the Governor-General.

But in the midst of these trials a spark of hope of aid from outside glimmered in the horizon. Many letters had been despatched by messengers believed to be faithful, but up to the 25th July no reply had been received to any of them. Early on the morning of the 22nd the pensioner Angad came in from Cawnpore, but without a letter. On this occasion he did not carry one with him for fear of being detained by the enemy; but he stated that the English had been victorious, and that he had seen two European regiments at or near Cawnpore.

At 11 o'clock on the night of the 25th, the same pensioner, who had been sent out again on the night of the 22nd to General Havelock's camp, returned with a reply to that letter from that officer's Quartermaster-General, Lieut.-Colonel Fraser-Tytler. The letter stated that "Havelock was advancing with a force sufficient to bear down all opposition and would arrive in five or six days."

And now the occasional sound of firing on the road between Cawnpore and Lucknow continued to confirm the hopes raised by the opening of this communication in the minds of the garrison.

Four days later, on the 10th August, the rebels made their second assault. About 10 o'clock that morning a body numbering perhaps 1,600 was observed by the garrison massed behind their trenches, opposite the southern face of the defences. Very soon after, a large force was noticed approaching the bridge of boats from the Marián cantonments. The word was passed that an assault was impending. Instantly all the occupants of the posts were on the alert. Half an hour later the enemy fired a shell into the Begum-Kóthí, a building in the centre of the intrenchment. This was apparently a signal, for immediately after they sprang a mine between Johannes' house and the Brigade Mess House. The effect of the explosion was terrible. The greater portion of the Martinieré house was blown in, the palisades and defences, for the space of 30 ft., were destroyed. On the smoke and dust clearing away a breach was discovered through which a regiment might have marched in unbroken order. The enemy advanced with great resolution, occupied Johannes' house and garden and the buildings close to the Cawnpore Battery, and made a desperate effort to take that post. But, whilst they were met by a withering fire from its defenders, the garrison of the Brigade Mess House, composed of a large number of officers, many of them excellent shots, and armed with their sporting guns and rifles, poured upon their flank from its roof a well-directed and continuous fusillade. This front and flank fire quite paralyzed the assailants. Some 30 of their number, however, more daring than their comrades, penetrated into the ditch of the battery within a few feet of our guns.

The following extract from Brig. Inglis' official report dated Lucknow, 26th September, 1857, to the Secretary to Government

Military Department, Calcutta, relates the events that occurred between the 10th August and the arrival of the relieving force on the 25th September :—

“ On the 10th August, the enemy made another assault, having previously sprung a mine close to the Brigade Mess which entirely destroyed our defences for the space of 20 ft., and blew in a great portion of the outside wall of the house occupied by Mr. Schilling's garrison. A few of the enemy came on with the utmost determination but were received with such a withering flank fire of musketry from the officers and men holding the top of the Brigade Mess, that they beat a speedy retreat, leaving the more adventurous of their numbers lying on the crest of the breach. While this operation was going on, another large body advanced on the Cawnpore Battery, and succeeded in locating themselves for a few minutes in the ditch. They were however dislodged by hand grenades. At Capt. Anderson's post they also came boldly forward with scaling ladders, which they placed against the wall; but here, as elsewhere, they were met with the most indomitable resolution, and, the leaders being slain, the rest fled, leaving the ladders, and retreated to their batteries and loopholed defences, from whence they kept up for the rest of the day an unusually heavy cannonade and musketry fire. On the 18th August the enemy sprung another mine in front of the Sikh lines with very fatal effect. Capt. Orr, Lieuts. Mecham and Soppit were blown into the air, but providentially returned to earth with no further injury than a severe shaking. The garrison, however, was not so fortunate. No less than 11 men were buried alive under the ruins, from whence it was impossible to extricate them, owing to the tremendous fire kept up by the enemy from the houses situated not 10 yards in front of the breach. The explosion was followed by a general assault of a less determined nature than the two former efforts, and the enemy were consequently repulsed without much difficulty. But they succeeded under cover of the breach, in establishing themselves in one of the houses in our position, from which they were driven in the evening by the bayonets of H.M.'s 32nd and 84th.

“ On the 5th September the enemy made their last serious assault. Having exploded a large mine, a few feet short of the bastion of the 18-pounder gun, in Major Apthorpe's post, they advanced with large heavy scaling ladders, which they placed against the wall, and mounted, thereby gaining for an instant the embrasure of a gun. They were, however, speedily driven back with loss by hand-grenades and musketry. A few minutes subsequently they sprung another mine close to the Brigade Mess, and advanced boldly, but soon the corpses strewn in the garden in front of the post bore testimony to the accuracy of the rifle and musketry fire of the gallant members of that garrison, and the enemy fled ignominiously,

leaving their leader—a fine-looking old native officer—among the slain. At other posts they made similar attacks, but with less resolution, and everywhere with the same want of success. Their loss upon this day must have been very heavy, as they came on with much determination, and at night they were seen bearing large numbers of their killed and wounded over the bridges in the direction of the cantonments. His Lordship in Council will perceive that the enemy invariably commenced his attacks by the explosion of a mine, a species of offensive warfare, for the exercise of which our position was unfortunately peculiarly situated; and had it not been for the most untiring vigilance on our part in watching and blowing up their mines before they were completed, the assaults would probably have been much more numerous, and might perhaps have ended in the capture of the place. But by countermining in all directions, we succeeded in detecting and destroying no less than four of the enemy's subterraneous advances towards important positions, two of which operations were eminently successful, as on one occasion not less than eight of them were blown into the air, and 20 suffered a similar fate on the second explosion. The labour, however, which devolved upon us in making these countermines in the absence of a body of skilled miners, was very heavy. The Right Honourable the Governor-General in Council will feel that it would be impossible to crowd within the limits of a despatch even the principal events, much more the individual acts of gallantry, which have marked this protracted struggle. But I can conscientiously declare my conviction that few troops have ever undergone greater hardships, exposed as they have been to a never-ceasing musketry fire and cannonade. They have also experienced the alternate vicissitudes of extreme wet and of intense heat, and that too with very insufficient shelter from either, and in many cases without any shelter at all.

“ In addition to having had to repel real attacks, they have been exposed night and day to the hardly less harassing false alarms which the enemy have been constantly raising. The insurgents have frequently fired very heavily, sounded the advance and shouted for several hours together, though not a man could be seen, with the view of course of harassing our small and exhausted force, in which object they succeeded, for no post has been strong enough to allow of a portion only of the garrison being prepared in the event of a false attack being turned into a real one. All, therefore, had to stand to their arms and to remain at their posts until the demonstration had ceased; and such attacks were of almost nightly occurrence. The whole of the officers and men have been on duty night and day during the 87 days which the siege has lasted, up to the arrival of Sir J. Outram, G.C.B. In addition to this incessant military duty, the force has been nightly employed in repairing

defences, in moving guns, in burying dead animals, in conveying ammunition and commissariat stores from one place to another, and in other fatigue duties too numerous and too trivial to enumerate here.

“ I feel, however, that any words of mine will fail to convey any adequate idea of what our fatigues and labours have been—labours in which all ranks and classes, civilians, officers, and soldiers, have all borne an equally noble part. All have together descended into the mines, all have together handled the shovel for the interment of the putrid bullock, and all accoutred with musket and bayonet, and relieved each other on sentry without regard to the distinctions of rank, civil or military. Notwithstanding these hardships, the garrison has made no less than five sorties in which they spiked two of the enemy's heaviest guns, and blew up several of the houses from which they had kept up their most incessant fire. Owing to the extreme paucity of our numbers, each man was taught to feel that on his own individual efforts alone depended in no small measure the safety of the entire position.

“ This consciousness incited every officer, soldier, and man to defend the post assigned to him with such desperate tenacity, and to fight for the lives which Providence had entrusted to his care with such dauntless determination, that the enemy despite their constant attacks, their heavy mines, their overwhelming numbers, and their incessant fire could never succeed in gaining one single inch of ground within the bounds of the straggling position, which was so feebly fortified that had they once obtained a footing in any of the outposts, the whole place must have inevitably fallen.

“ If further proof be wanting of the desperate nature of the struggle which we have, under God's blessing, so long and so successfully waged, I would point to the roofless and ruined houses, to the crumbled walls, to the exploded mines, to the open breaches, to the shattered and disabled guns and defences, and lastly to the long and melancholy list of the brave and devoted men who have fallen.

“ These silent witnesses bear sad and solemn testimony to the way in which this feeble position has been defended. During the early part of these vicissitudes, we were left without any information whatever regarding the posture of affairs outside. An occasional spy did indeed come in with the object of inducing our Sepoys and servants to desert; but the intelligence derived from such source was, of course, entirely untrustworthy. We sent our messengers daily, calling for aid and asking for information, none of whom ever returned until the 26th day of the siege, when a pensioner named Angad came back with a letter from General Havelock's camp, informing us that they were advancing with a force sufficient to bear down all opposition, and would be with us in five or six days. A messenger was immediately despatched, requesting that on the

evening of their arrival on the outskirts of the city two rockets might be sent up, in order that we might take the necessary measures for assisting them while forcing their way in. The sixth day, however, expired and they came not; but for many evenings after officers and men watched for the ascension of the expected rockets, with hopes such as make the heart sick. We knew not then, nor did we know until the 29th August—or 35 days later—that the relieving force after having fought most nobly to effect our deliverance, had been obliged to fall back for reinforcements; and this was the last communication that we received until two days before the arrival of Sir James Outram, on the 25th September.

“ Besides heavy visitations of cholera and small-pox, we have also had to contend against a sickness which had almost universally pervaded the garrison. Commencing with a very painful eruption, it has merged into a low fever, combined with diarrhœa; and although few or no men have died from its effects, it leaves behind a weakness and lassitude which in the absence of all material sustenance save coarse beef and still coarser flour, none have been able entirely to get over. The mortality among the women and children, and especially among the latter, from these diseases, and from other causes, has been perhaps, the most painful characteristic of the siege. The want of native servants has also been a source of much privation. Owing to the suddenness with which we were besieged, many of these people who might, perhaps, have proved otherwise faithful to their employers, but who were outside the defences at the time, were altogether excluded. Very many more deserted, and several families were consequently left without the services of a single domestic. Several ladies have had to tend their children, and even to wash their own clothes, as well as to cook their scanty meals entirely unaided. Combined with the absence of servants, the want of proper accommodation has probably been the cause of much of the disease with which we have been afflicted. I cannot refrain from bringing to the prominent notice of His Lordship in Council the patient endurance and the Christian resignation which have been evinced by the women of this garrison. They have animated us by their example. Many, alas, have been made widows, and their children fatherless, in this cruel struggle. But all such seem resigned to the will of Providence, and many among whom may be mentioned the honoured names of Birch, of Polehampton, of Barbor, and of Gall, have, after the manner of Miss Nightingale, constituted themselves the tender and solicitous nurses of the wounded and dying soldiers in the hospital.”

General Inglis concludes by bringing to favourable notice the names of those officers who had distinguished themselves, and had afforded him the most valuable assistance during the operations.

REVIEW.

PAGES D'HISTOIRE, 1914.

(Librairie Militaire Berger-Levrault, Paris : 5, Rue des Beaux-Arts).

THE Librairie Militaire Berger-Levrault has recently issued further numbers of the above series in which the events connected with the present war have been brought down to the end of last year—abstracts from the earlier numbers have appeared in the *R.E. Journal*, February and April.

The 22nd number of the series contains a reproduction of the Serbian Blue Book, 52 despatches are published therein, the first of them dated 29th June, 1914, and the last of them 16th August, 1914 (new style). Many of the above despatches relate to the newspaper campaign against Serbia conducted in Austro-Hungary and Germany after the commission of the Crime of Serajevo and the efforts made by the Foreign Office at Belgrade to combat the charge of complicity in the murder of the Austrian Crown Prince and his consort on the part of official Serbia. The despatches disclose that the Serbian ambassador at Vienna warned his Government on the 7th July, 1914 (N.S.), that one thing was clear to him, namely ;—With or without proof of complicity on the part of Belgrade in the inspiration of the Crime of Serajevo, the occasion would be seized by the Austro-Hungarian authorities for obtaining the solution desired in Vienna in relation to every question arising out of the alleged Panserb agitation on foot within the limits of the Hapsburg Monarchy. The Serbian Ambassador, in a later despatch dated Vienna, 15th July, 1914, states that, in his opinion, even at the Ballplatz no clear and precise answer could be given, at that date, to a question enquiring as to the nature of the demands which Austro-Hungary proposed to formulate against Serbia. He thought, however, that the Dual Monarchy would present a long memorandum detailing all its grievances against Serbia in relation to events occurring between April, 1909, and the date of the despatch, and that Serbia would be called upon to comply with the demands made in this memorandum without being afforded an opportunity of entering into any discussion into the merits of the question. This forecast proved to be remarkably accurate as will be seen by an examination of the contents of the now famous Austrian Note to Serbia, which forms No. 32 of the series in the Serbian Blue Book, and is dated 23rd July. Among the other despatches published are those containing the appeal of Prince Alexander of Serbia to the Czar and the latter's reply thereto, Serbia's Note of the 25th July, in which the Austrian demands were accepted practically *in toto*, and the announcement addressed on the 25th July by the Austro-Hungarian Ambassador

at Belgrade to the Serbian Foreign Office that the Ballplatz had decided on a rupture of friendly relations with Servia. In view of what is now known, the penultimate despatch of the series is noteworthy. In it the Serbian diplomatic representative in Berlin reported to his Government that when taking leave of the German Under-Secretary of State for Foreign Affairs, prior to his departure from the Imperial Capital, the latter declared that Germany had always been animated by friendly feelings towards Servia and he therefore regretted that owing to political intrigues friendly relations between Servia and Germany had ceased. The Under-Secretary of State at the same time put the whole blame for the present war on Russia. The final despatch, which is dated Nish, 6th August, contains a report of the late Serbian Ambassador at Vienna to his Government with reference to the experiences of the Serbian Legation and summarizes the situation of affairs in the Dual Monarchy between the 30th June, 1914, and the date of his departure from the Austrian Capital. In this report it is stated that on the 30th June the Serbian Legation at Vienna was put under police supervision, and from this date considerable difficulties were placed in the way of his corresponding with Belgrade by telegraph. Attention is drawn to the fact that many people held the opinion that the German Ambassador in Vienna was largely responsible for the present disturbance of the peace of Europe, and also that a rumour was widely current in the Austrian Capital that a war against Russia had been projected for the spring of 1917, in order to crush her before her most recently authorized military measures could be brought to fruition. The report also states that, according to reliable information, the Wilhelmstrasse did not approve the actions of Austro-Hungary, and that the German Ambassador was considered to have exceeded his instructions. In an annexe to this number is published the statement made by Signor Giollitti in the Italian Chamber on the 5th December, 1914, when he disclosed the fact that Germany and Austria intended aggressive action against Servia in August, 1913, at the time of the Balkan War, and that Germany approached Italy on the subject as a member of the Triple Alliance. Italy pointed out at that time, that this Alliance was formed for defensive purposes alone, and as the measures proposed were essentially aggressive a *casus fœderis* did not exist.

The 23rd number contains the proceedings of the meeting of the Institute of France held in Paris on the 26th October, 1914. In an introduction M. Henri Welschinger reviews in outline the addresses presented to the meeting by some of the *élite* amongst the *savants* and distinguished men of France. The chair at this meeting was taken by M. Paul Emile Appell, of Strassburg. In his address the chairman alluded to the sufferings of Alsace, borne in silence during the past 44 years, under the German yoke. M. Appell contrasted the attitude of Germany with that of her adversary. The former he declared to be a people possessed of a vaulting ambition, holding themselves to be the nation *par excellence*, which was destined to become the Mistress of the Universe, exercising imperious rule over subject nations reduced to a state of abject servility. The latter, he held, had expended her energies to secure liberty and justice; France had in the past stood

for the rights of man, and this nation and her young soldiers were now fighting for the rights of humanity.

The address of the chairman was followed by that of M. René Doumic, who speaking in the name of the "Académie Française" dealt with the subject of "The Soldier of 1914." In eloquent terms he drew an appreciative and moving picture of the soldiers who are, at the present time, engaged in the gigantic task of securing the safety and liberty of France, and expressed the gratitude and admiration of their fellow men for all that these soldiers had done, the hardships suffered, and the glorious sacrifices made on the field of battle.

M. Doumic was succeeded by M. Th. Homolle, a delegate of the "Académie des Beaux-Arts," who took for his subject "The Virgins of Acropolis." His thoughts had carried him, as in a dream, to the mutilated statues at Rheims, to that glorious line of kings, martyrs and saints which until recently had adorned the famous cathedral of that city, but had now been reduced to unrecognizable heaps of stones by barbarians. Severe words of denunciation are employed by M. Homolle against the instigators of this work of destruction.

M. Lacour-Gazet, a delegate of the "Académie des Sciences Morales et Politiques," next occupied the attention of the meeting. He selected "The Days of Barfleur and la Hougue" (29th May—3rd June, 1692) for the subject of his address. The incidents dealt with by him relate to an encounter, during the War of the Revolution, between a French fleet commanded by Admiral Tourville, flying his flag on the *Soleil Royal*, and an Anglo-Dutch Squadron under Admirals Russell and Allemande. The various accounts concerning the issue of the fight do not agree; it is, however, admitted that the Allied Squadron was in superior force to its adversary, and also that both sides suffered heavy loss. In some accounts of the encounter it is alleged that the French fleet was dispersed, in other accounts it is claimed that, although the French fleet lost 15 sail of the line, nevertheless it succeeded in putting the Allied Squadron to flight. M. Lacour-Gazet gives a spirited account of the doings of the French fleet in those far distant days; the sailors of our near neighbour and present ally unquestionably fought with great gallantry and well deserved the eulogy of the British Admiral, who congratulated Tourville for the high courage and nerve shown by him in accepting battle in spite of the fact that his fleet was outnumbered in ships.

The eminent lawyer, M. Louis Renault, next addressed the meeting on behalf of the whole Institute. The subject of his address was "The War and International Law in the 20th Century"; it is a very important one at the present time, especially in view of the attitude so recently shown by a nation, ranking amongst the civilized powers of the world, towards treaty obligations. M. Renault deals in his paper with the efforts made during the past 50 years by the Governments in the Old and the New World, aided by public opinion, lawyers and learned societies, to establish some precise code, having the sanction of a treaty, for the regulation of the conduct of belligerents. The subject is introduced with a historical retrospect, covering the period since the date of the Geneva Convention of August, 1864, to that of the Second

Hague Conference of 1907. It goes without saying that the gross violation by Germany of recognized rules and customs of war, as well as of the provisions contained in the articles of the Conventions to which the German Government has been a party, have proved a serious shock to international lawyers, and they have been profoundly disturbed by the spirit of absolute lawlessness shown.

The proceedings terminated with an address by M. Henri Cordier, a delegate of the "Académie des Inscriptions et Belles-lettres," who dealt with "The Mongul Invasion in the Middle Ages and its Consequences." He recalled the terror with which Western Europe witnessed the arrival on her borders of the savage hordes which wiped out Christianity in this part of the world. France has seen many invasions by savage tribes, and at the present time the Germans, direct descendants of the Teutons and more barbarous than the undisciplined hordes of the 5th century which overran Western Europe, have descended within her northern borders with the determination absolutely to wipe her out. It is for this last reason, says M. Cordier, that nations, which are truly civilized, have risen unitedly to oppose to a modern barbarian a resistance which will not weaken until the power of the invader is utterly destroyed.

The 24th number is in continuation of the 9th and 10th numbers of the series and contains extracts from the *Bulletin des Armées de la République*. Among the articles reproduced is one from the pen of M. Henri Bergson who, under the title "La Force qui s'use et celle qui ne s'use pas" examines the material and moral forces of the belligerents. He expresses the opinion that there is no doubt as to the final issue of the present contest: Germany must ultimately be defeated. All the resources necessary to sustain her fighting powers will eventually fail her, since she developed her material and moral forces to the utmost at the commencement of the war: therefore, once these have been used up, she will not be able to renew them. On the other hand, according to M. Bergson, France is in a happier position; her credit is undisturbed and her seaports open. In consequence, France is still able to import all she requires to replace the wastage of material caused by the war. Again, the spirit to conquer with which her soldiers are so thoroughly imbued is a powerful reserve on the moral side, and furthermore, in her ideals of justice and of liberty, she possesses a something which is not subject to attrition by the wearing processes of war. In another of the extracts M. Henri Lavedan gives a forceful sketch of the now famous Generalissimo of the Allied Forces in the Western theatre of operations. The author expresses the opinion: General Joffre once seen face to face, in the flash of a second, convincing proof is obtained that he is "*prepared*," and not only "*prepared*" but also "*ready*." The General has inspired his countrymen with illimitable confidence in his powers, and has, at the same time, won their affection by the charm of his manners.

The French official account of the efforts made by the German armies in October and November last to pierce the Allied lines in Flanders, in the attempt made to reach Calais and Boulogne, is also republished in this number, which concludes with an article from the pen of Lieut.-

Colonel Vesnitch, Serbian diplomatic representative in France, conveying the salutations of the Serbians to the French Army.

The 25th number contains a translation of the German White Book. The despatches which passed between the European capitals during the period immediately prior to the outbreak of war form an appendix to the White Book, and are preceded by a memorandum dated 2nd August, 1914, in which the Imperial Chancellor reviews the events preceding the rupture of friendly relations between the Powers now at war. The memorandum makes reference to the Crime of Serajevo, and then touches upon the formation of the Confederation of Balkan States under Russian protection after the Turkish Revolution of 1908, and the Expulsion of Turkey from the greater part of her former European dominions in 1911. The political ambitions of Servia are examined and it is stated that the situation created by the activities of this little nation was such that it could not be tolerated by Austria. The latter Power, in consequence, communicated information to her northern neighbour regarding the machinations on foot against her, and sought the advice of her ally. The memorandum puts on record the fact that the views of the Wilhelmstrasse coincided with those of the Ballplatz, and, in consequence, assurances were forthcoming that Germany would stand by the Dual Monarchy in whatever action the latter might deem it necessary to take in order to bring Servia to book. The Austrian Note to Servia and its reply are dealt with, the text of both documents being included in the Appendix, together with the observations of the Austrian Foreign Office on the latter. The Imperial Chancellor alleges that Servia commenced to mobilize the day after the Austrian Note was delivered at Belgrade and argues that the attitude of Servia left no other course open to Austria than the declaration of war. The subsequent progress of the diplomatic measures taken by the Powers involved in the present conflict are touched upon; many of the despatches appearing in the diplomatic correspondence relating to the war published by the Entente Powers reappear in the German White Book. The Wilhelmstrasse sum up the foregoing review of the events leading to the present conflagration in the statement: "Thus, it is Russia which has commenced war against us." In the closing paragraphs, reference is made to the fact that on the 31st July last, the German Ambassador at Paris had been directed to ascertain from the French Government whether France would remain neutral in the event of a Russo-German War: 18 hours were to be allowed for a reply. The German Ambassador complied with his instructions at 7 p.m. on the date last mentioned; and at 1.5 p.m. on the following day, he informed the Imperial Chancellor by telegraph that in reply to reiterated requests for an answer to his question, the French Premier had merely replied that France would take whatever steps she deemed necessary in order to protect her interests. The final paragraph of the memorandum declares: "On the following morning, France commenced hostilities."

The 26th number is in continuation of the 18th number of the series and contains the official communiqués relating to the events of the war, etc., issued by the Central Government to the provincial authorities during the month of December, 1914.

The 27th number is entitled *Germany and the War*. It contains the copy of a letter addressed by M. Emile Boutroux to the editor of the *Revue des Deux Mondes*, and published in the issue of that periodical which appeared on the 15th October, 1914; an extract from the *Petit Parisien*, of the 1st December, 1914, entitled "1870 and 1914"; and a translation of an article headed "French Patriotism and the War" published in the *Daily News* of the 7th December, 1914.

In his letter to the *Revue des Deux Mondes*, M. Boutroux, who is a deep student of German philosophy and literature, probes the sources of the doctrines which have permeated into the life of the German nation, and exposes the detestable sophisms which have perverted the soul of that people, so that it has come to pass that a nation which had been admired and beloved by the grandparents of the present generation has now degenerated into a veritable monster whose implacable egoism has led to a most serious disturbance of the peace of the world.

In the extract taken from the *Petit Parisien* attention is drawn to the fact that a marked difference exists between 1870 and 1914; between Bismarck and William II. It is declared that Bismarck was at all times a diplomat of the old type, and was prepared to recognize that there existed in this world great powers other than Germany; that there remained room for other forms of civilization as well as for Teuton culture. The Iron Chancellor had no thought of establishing German hegemony, neither on the seas nor beyond the borders of Europe. In Bismarck's time although the Germans were guilty of acts of brutality, and were also totally wanting in the sense of chivalry, nevertheless they aimed in the war of 1870 rather at the military forces of their adversary than at the civil elements of the nation. The present war differs essentially in its characteristics. The subjects of William II. have got it into their heads that in all things they are a people infinitely superior to all others, in addition to being the most powerful nation on the face of the earth; in consequence, they are entitled to take whatsoever their fancy wills, and to do with what remains that which may seem most profitable in their interests. The comparison of the two epochs is summed up in a sentence: "The war of 1870 was pitiless, the present one is diabolical."

The article reproduced from the *Daily News* discusses the various aspects in which French patriotism has revealed itself at different epochs in the history of the nation. The provocative attitude of Germany in 1905 in relation to Morocco disclosed to the French people that the hostile acts of her powerful neighbour were not mere bluff, but studied conduct persisted in with the object of securing the ends prompted by her ambition, if necessary, by the employment of force of arms. As soon as the true character of the situation was realized, there arose in France a spirit of deep patriotism, differing considerably from the patriotism of preceding generations. An abstract or historical patriotism gave place to one which was essentially matter-of-fact and a living inspiration; young men and old accepted the possibility of a war with a calm resolution, courage devoid of brag, and a fervent hope that "la patrie," freed from the humiliation inflicted long years

ago on her by the Treaty of Frankfort, would again rise up with renewed prestige and reassume her rôle of defender of justice and liberty in this world.

The 28th number is entitled *German Madness* and contains three articles. The first of them is headed "The German Appetite" and calls attention to German publications in which the extent of Germany's ambitions in relation to territorial aggrandisement stands revealed.

The second article is headed "The German War" and contains a reproduction in French of a long article contributed to *Politiken*, an important Copenhagen newspaper, and published in its issue of the 16th August last. In this letter a Dane recounts the unanimous sentiments of the German people in relation to the present war. It is stated that ecstasies of delight went up throughout the German Empire on the declaration of war; the latter event unchained a sentiment, long pent up in Teuton breasts, of unbounded self-confidence, admiration for the prowess of the army, and of devotion to the Emperor and the Empire.

The third article consists of an abridged reproduction of one entitled "German Intellectuals," which appeared in the *Excelsior* of the 27th November, 1914. In this article an attempt is made to throw light on the mental attitude of some of those German philosophers whose tenets and views have been disclosed in the public press.

The 29th number contains an account of the proceedings in connection with the reassembly of the French Legislature in Paris on the 22nd December last. In a preface, M. Henri Welschinger describes the significance of this memorable meeting of the French Parliament in the recognized capital of the country after the temporary sojourn of the Government at its provisional headquarters in Bordeaux. References are made to the important pronouncements contained in the speeches on this occasion; and these are printed in a subsequent part of this number *in extenso*. On this occasion, M. Antonin Dubost presided at the meeting of the Senate and M. Paul Deschanel at that of the Chamber of Deputies. These two Presidents opened the proceedings of their respective Houses with speeches, in which each of them rendered eloquent tribute to the memory of the members of the Senate and the Chamber of Deputies who had fallen on the stricken field; and in dealing with the present situation, they succeeded admirably in interpreting the thoughts of the representatives of the nation in well-chosen language which clearly brought out the stern resolve of the nation to see things through to a finish. The speeches were accentuated by frequent acclamations, and eventually resolutions were unanimously passed that the speeches delivered at the Palais Bourbon and the Luxemburg Palace by the Presidents of the Chamber and the Senate on this occasion be posted in public places.

This number concludes with the Press notices—home and foreign—relating to the above proceedings in the Senate and the Chamber.

The 30th number of the series is a diary of the war covering the period 31st July to 31st December, 1914.

W. A. J. O'MEARA.

NOTICE OF MAGAZINE.

REVUE MILITAIRE SUISSE.

60th year. Nos. 1, 2 and 3 (January, February and March, 1915) with Supplement.

No. 1.—January, 1915.

ONE OF THE CAUSES OF THE PRESENT WAR.

Correspondence on the subject of the Franco-German War took place between David Strauss and Ernest Renan in the columns of the *Gazette d'Augsburg* and the *Journal des Débats* during the course of the two eventful years 1870 and 1871, which saw the commencement and cessation of hostilities between Germany and her western neighbour. This correspondence, consisting of four letters, was reproduced recently in the numbers of the *Semaine Littéraire*, published on the 5th, 12th and 19th December, 1914. One of the letters of this series, first published five months after the conclusion of the war of 1870–71, connects the events of that period with those of to-day, and for this reason has been selected for republication in the January number of the *Revue Militaire Suisse* for the current year. Ernest Renan, the writer of the letter in question, belonged to that band of publicists which had counselled Germany to exercise moderation in relation to the nature and extent of the compensation to be demanded from her then recently vanquished adversary. In the letter under review the writer thereof reproaches Germany for the excessive nature of the penalty exacted from her defeated neighbour, and points out that, in the same way that France had cause to regret the course adopted by her in 1792, so also would Germany, at some future date, have cause similarly to rue the severity of the treatment meted out by her to France in 1871. In this letter Renan points out the marked difference between French and German polity; in his view, the former is founded on the rights of nations, whilst the latter rests on the privileges of a caste. He, naturally enough, claims the former to be the superior of the two, and regards the compulsory transfer of the inhabitants of the conquered provinces to the rule of a prince in the choice of whom these people had had no voice, and the imposition of German polity upon them as an unforgivable blunder on the part of the conqueror, and a wrong, moreover, which demanded reparation.

BELGIAN NEUTRALITY AND THE GERMAN INVASION.

The review of a work by Maxime Lecomte and Lieut.-Colonel Camille Levi entitled *Neutralité belge et Invasion allemande*, published by Lavan-zelle, of Paris, and Lebègne et Cie, of Brussels, last year, and only a few

weeks prior to the outbreak of the present war. The work contains prophetic references to the events which took place in Western Europe in August last. The reasons which would prompt Germany to strike at France through Belgian territory are set out, and the measures to meet this German offensive open to the French are examined. The possibility of a double attack on France, that is to say one launched through the gap of the Vosges *via* the Grand Duchy of Luxembourg simultaneously with the march of the German armies through Belgium is touched upon; and in the latter case, the question is discussed whether the execution of the main German effort would be assigned to the right or to the left wing of the forces detailed to carry out the attack. The strategic surprise on Germany's side fortunately failed, although she had herself chosen the propitious moment for her aggressive actions in July last. This failure is attributed, in the review, to want of success in effecting a proper combination of the various arms on the field of battle, the method of attack adopted, as also to the neglect of the supreme German Command to ensure numerical superiority at the decisive centre.

AN EPISODE IN THE RETREAT OF THE FRENCH ARMY OF THE EAST ON LES VERRIÈRES IN 1871.

It will be remembered that in 1871 the French Army of the East had the misfortune to be interned in Switzerland. The story is here told of the experiences of a lieutenant-colonel of artillery who was with the Army of the East, and who had assigned to him the double duty of organizing the defence of the Fort de Joux and of making arrangements for the passage of an enormous convoy through Les Verrières-Suisses as quickly as possible, in order to free the route for combatant troops. Only a few hours were available and restricted facilities alone existed for the performance of the double task. A vivid pen picture is given of the march of the long column of waggons during an intensely cold night through country in which snow was lying deeply on the ground. Although matters appeared to the lieutenant-colonel to be going badly, owing to lack of discipline on the part of the escort, which had apparently disappeared during the hours of darkness, nevertheless, at daybreak, when the general and his staff passed the column, the escort, which had mysteriously reappeared on the scene, showed such extreme alertness as to cause the general to compliment the lieutenant-colonel in highly laudatory terms. The immediate command of the Fort de Joux had been handed over to a captain of the Bridging Train. The lieutenant-colonel had some misgivings as to the latter's capacity; however, when the Prussians appeared on the scene, the captain unexpectedly dealt with the situation in a most creditable manner and covered himself with glory.

A FEW WORDS ON THE TEETH OF OUR RECRUITS.

An article from the pen of Dr. Alfred Matthey, Surgeon-Lieutenant, 3rd Regiment of Field Artillery, based on data accumulated from an examination of recruits at various centres in Switzerland.

NOTES AND NEWS.

United States of America.—A communiqué from a special correspondent of the *Revue*, in which attention is drawn to the strong current of public opinion in the United States in favour of the introduction of a better system for defensive purposes than exists at present. The weak points of the existing system are recapitulated, and a scheme of reorganization is discussed by means of which it is proposed to double the Regular Army; at the same time, under the scheme 1st and 2nd Reserves would be created and the State Militia quintupled.

Portugal.—Another special correspondent deals with the question of Portugal and the British Alliance; the advantages of such an alliance are discussed at some length.

This number of the *Revue* concludes with a short bibliography, relating to works of military interest.

No. 2.—February, 1915.

THE GERMAN OFFENSIVE AGAINST FRANCE

(Forecasts of the best known French military writers).

Remarkably accurate forecasts in relation to the present war are contained in the works of several well-known French officers, amongst whom may be specially mentioned Generals Langlois and Maitrot, Colonels Boucher and Mordacq, Capt. Felix and Charles Malo. The pronouncements contained in their works have now proved to be prophetic in their inspiration. Since the annexation of Bosnia-Herzegovina (1909), and the days of the Agadir affair (1911), the views of the authors named above have been reproduced in several French periodicals and have been widely discussed. The *Revue des Deux Mondes* of 15th April, 1913, contained a notable article on the subject from the pen of Commandant Patrice Mahon entitled "Three Years' Service and German Armaments." The author there points out that the forecasts of the best-informed military writers on the strategical relations of France and Germany are based generally on the following considerations:—

(a). The traditional German plan of operations, as applied in 1870; modifications naturally being necessary to make allowance for the possibility of Russian intervention, the incorporation of Alsace and Lorraine into the German Empire, and the existence of the strong lines of defence created in Eastern France since 1871.

(b). The development of the German railway network and the creation of important entraining and detraining centres along the military frontier; the latter naturally indicate the concentration zones.

The development of the German plan of campaign against her western neighbour can be traced from the first scheme for the invasion of France sketched out by Clausewitz which, with some modifications, was incorporated in the memoir drawn up by Moltke in 1869. The latter's plan of campaign, as is known, was based on a single concentration zone—the Rhenish Palatinate—and the assumption of a vigorous offensive in order that the French should not have time to repair the mischief arising from their numerical inferiority at the point where the first German blow would be struck. It is interesting to note that, in the

opinion of Von der Goltz, if, at the commencement of the present war, France had been able to gain three days on Germany in connection with the mobilization of her army, Metz and Thionville could have been invested by French troops without the necessity of striking a single blow and these troops could then have advanced to the line of the Saar and cut the German communications with Strassburg. Had France been able thus to forestall her adversary, the German armies would have been obliged to effect their preliminary concentration in the same region as that actually selected by Moltke in 1870 for his preliminary concentration.

The writers named above had urged the desirability of providing the French Field Army with guns of large calibre, and had foreseen the possibility of the Germans bringing siege and fortress guns into the field, in order to compensate for the inferiority of the 77-m.m. gun as compared with the now famous French '75' gun. They further prophesied that battles would last long, and might eventually resolve themselves into underground warfare, in which mining would play a large part.

EXPLOSIVE BULLETS USED BY THE AUSTRIANS.

Explosive bullets have been found by Serbian soldiers on Austrians taken prisoners during the present war, and ammunition waggons containing explosive bullet cartridges—the so-called "Einschusspatronen"—have also fallen into the hands of the Serbian Army. The above article contains a description of these cartridges, with illustrations, and also a summary of statements made by Austrian prisoners belonging to various units regarding the issue of explosive bullet cartridges to their units. The first issue appears to have been made in September last, when the good shots of certain regiments had from 5 to 30 of these cartridges served out to them. Photographic reproductions of the cartridges, the nature of the wounds inflicted by the bullets in question, and the character of the perforation produced in a plank of wood experimented upon are given.

NOTES AND NEWS.

Switzerland.—In these notes the question of Swiss neutrality is discussed, and it is stated that both politically and morally Switzerland is, at the present time, in too unsound a position to carry out its obligations as a neutral. The situation appears to have caused perturbations in some quarters and steps have, in consequence, been taken by the Swiss press to educate public opinion on the subject. Two articles, one entitled "The Public Conscience," and the other "A Neutral People but not a Contemptible One," which have appeared recently in the *Gazette de Lausanne*, are referred to. The latter deals with the recent violation of Belgian neutrality, and asks the question as to what course Switzerland should adopt in the event of an attempt being made to violate her neutrality also.

Canada.—A special correspondent of the *Revue* gives an account of the raising of the Canadian Contingent during the autumn of 1914.

The remarkable nature of the response made to the call to arms in Canada is dealt with, references being also made to the Concentration Camp at Valcartier; the sanitary services; horses; the training of recruits in the use of the new entrenching implement invented by Colonel Sam Hughes; the transportation of the First Contingent to England; and the raising of the Second Contingent.

This number of the *Revue* concludes with a bibliography relating to works of military interest.

No. 3.—*March, 1915.*

THE PRELIMINARY PHASES OF THE INFANTRY FIGHT

(*Advance in the Zone subject to Search by Artillery Fire*).

The subject is divided into four main heads. The first of these heads contains a brief review of the outlines of the general principles on the subject laid down in the Training Manuals in use in the Swiss, German, French, Austrian, Italian and Japanese Armies. In the case of these armies, the formations in which troops should advance in the zone subject to search by artillery fire are left entirely in the discretion of the responsible commanders; the general directions laid down for the guidance of these commanders remind them that their chief care should be to keep their commands screened from the enemy's view, and to avoid ground likely to be subjected to the enemy's artillery fire. The Japanese attach considerable importance to the maintenance of efficient connection between the several units, and particularly that between the leading units and those in the rear of them.

The second head treats of general principles under two main sub-heads. The first of these sub-heads deals with the experience of former wars. Extracts are given from a work by Capt. Soloviev, of the Russian Army—"Impressions of a Company Commander"—in which the author relates his experiences in the Russo-Japanese War. It is stated that at distances between 5 and 3 kilometres from the enemy's position, the Russian infantry had been trained ordinarily to advance in column of route, in column of sections or in échelon: however, in the Manchurian Campaign, at ranges of 3 kilometres and less, the Japanese artillery fire was so accurate and effective that it was found impossible to continue the advance in the formations referred to. It became necessary, in consequence, to make the utmost use of the features of the terrain to screen the troops, which advanced to the attack over the intervening space within the range last mentioned at the double in Indian file, the men being 10 paces apart. Experience showed that troops utilizing this formation suffered less loss than those which advanced in double ranks, even when at a considerable distance from the enemy. In the present war, not only has the use of aeroplanes endowed the artillery with what amounts, for all practical purposes, to curved rays of vision exposing what was formerly unseen ground to view, thus enabling the gunners to obtain every conceivable advantage from the fact that the trajectory of projectiles is a parabolic curve, but the aeroplanes, by using darts and bombs, have themselves become engines of destruction against advancing troops. The second of the sub-heads referred to

entitled "Study of the Subject" is further subdivided. In an introductory section thereto, it is pointed out that during the preliminary period of the advance to the attack, where opposing armies on the march come into collision, losses cannot be wholly avoided, and that the two points which continue to exercise the most considerable influence in war are :—

(a). The morale of the troops ; and therefore a commander should not overlook any measures calculated to create or maintain a superiority in morale on the part of his own troops over those of his opponent at the moment of collision, and

(b). The advantages to be derived from surprising an enemy. The progress of aviation has naturally increased the difficulties in this matter which formerly existed.

The next section of this subhead deals with the deployment for attack from the column formation in which troops may be advancing. Attention is drawn to the fact that in the Swiss Training Manual it is strongly recommended that preparatory to deployment for attack (from the deep column formation adopted for the advance) a line of shallow columns should be formed. In the case of the Italian, Japanese and German Armies it is laid down that the preliminary deployment for attack should take place at the halt, whereas in the case of the Swiss Army it is prescribed that this manœuvre should be executed on the march, in order that time may not be lost.

Other sections of this subhead are devoted to the advance across the zone at distances just beyond 3,500 to 4,000 metres from the enemy's position, referred to as the "zone suspecte" ; the advance across the zone within 3,500 to 4,000 metres from the enemy's position in the case where the march can be screened, as also in the case where it cannot be screened.

The final section of this subhead deals with the preparations necessary to ensure that the attack shall be delivered simultaneously along the whole line. This desirable result can best be brought about by an efficient organization of the connecting links between the several units to be employed in the attack.

In the third main head the application of the above-mentioned principles to the company and the section is discussed ; special attention being drawn to details connected with night marches and marches through wooded country.

In the fourth main head the question of the attack on entrenched positions is dealt with. It is held that in this case rapidity of advance is of secondary importance, and also that it is practically impossible to take an entrenched enemy by surprise.

In conclusion, it is stated that in Germany, France and Italy, a special preliminary phase preceding the delivery of an attack, referred to as the "*Marche d'approche*," is recognized, involving attention to certain rules. It is claimed that unless these rules are strictly adhered to risk is run of engaging the opponents' infantry with troops whose morale is likely to be lower or, at all events, whose ranks have been reduced to hopeless disorder. On the other hand, adherence to the rules at least affords considerable prospect of the "zone suspecte" being traversed

without serious inconvenience, and thus the encounter with the enemy's infantry can take place with ranks in good order and with a strong feeling of confidence, both of which are factors of good augury promising victory.

MILITARY TRAINING OF THE YOUTH OF THE UNITED STATES OF AMERICA.

The article deals with the military instruction given in the "State Land Grant Colleges" and the "Agricultural Colleges" established in the United States of America under the Morrill Act of 1862. The institutions taking advantage of the provisions of this Act are grouped in four classes, according to the powers conferred upon them with regard to the grant of degrees or diplomas. The military instruction is given by officers of the Regular Army under the direction of the War Department. The military training of the youth of the great American Republic is still in an embryonic stage; the population of the United States of America is 91 millions, and yet only some 5,000 to 6,000 of the young fellows who leave the Colleges annually are amongst those who have taken advantage of the military instruction referred to.

NOTES AND NEWS.

Switzerland.—The question of neutrality is further discussed in this number; some definite conclusions appear to have been formed on the subject. In an article entitled "The Other Anxiety," which appeared in the *Gazette de Lausanne* of 28th February, 1915, the dangers encountered by the large non-belligerent states were touched upon and the position of small nations in relation to such dangers was examined; particularly the danger of absorption by a state which defeats its adversary very completely. It is stated that confusion still exists in the minds of some Swiss people as to the distinction between neutrality and sovereignty or independence. The position of Switzerland in the event of a war between Austria and Italy is examined in relation to the question of the violation of Swiss territory. It is stated that one power alone—Germany—might consider that advantages of a strategical order were to be derived by the violation of Swiss neutrality.

France.—An occasional correspondent of the *Revue* describes a railway journey recently made by him in France. The war measures to prevent the destruction of the permanent way, etc., and the changed conditions of life in Paris brought about by the war are described. Attention is drawn to the differences in the demeanour of soldiers in the firing line and those doing duty in the Provincial Garrisons containing the reserves of the French Army.

Portugal.—A special correspondent of the *Revue* deals with the collisions between the Portuguese and German troops which took place in Angola in October and December last.

This number concludes with a bibliography of works relating to the war which have been recently published.

SUPPLEMENT.

The *Revue Militaire Suisse* is issuing a Supplement (in parts) entitled "The European War" (being a study of strategical considerations)

from the pen of Colonel F. Feyler. The first part was issued with the February number of the *Revue* and deals with the opening phases of the present war leading up to the Battle of the Marne ; the second part came out with the March number of the *Revue* and contains an account of the Battle of the Marne. The author points out in the Preface to this work that history cannot be written without documentary evidence, and so far as the present war is concerned the communiqués issued are not only brief, but their contents have often been written for purposes other than the communication to the public of precise and accurate details of the events which just now are making history.

The opening chapter is entitled " La Manœuvre Morale " ; its contents are arranged in sections under various headings—in the first of them " The Official Communiqués " are dealt with. The difficulties of the newspaper correspondent are referred to, and it is pointed out that whilst in Germany the correspondents attached to Army Headquarters are part of a methodical organization specially created for disseminating information, the paternity of which the government officials do not desire to have fastened upon themselves ; on the other hand, in France correspondents are not, as a rule, allowed at the front at all. It is suggested that the contents of the communiqués issued by the belligerents have been edited with a view to create, or maintain in the public mind a favourable opinion on the operations of their own armies, and, therefore, constitute a " manœuvre morale," and this keeps in step with the " manœuvre stratégique." The object sought to be attained is not only the strengthening of the will of the army to conquer and the inspiration of confidence in the army on the part of the public, but also the creation of international opinion in favour of the national cause.

The second section is entitled " Attack on Liège." A critical analysis is made of the announcements made in Germany by Wolff's Bureau, and also officially on the 7th August last. On the date in question, it was claimed that German troops had captured the " fortress of Liège." It is shown conclusively that although some German troops had penetrated into the town of Liège on this date, nevertheless not one of the Belgian forts had been reduced or captured. As a matter of fact, it was not till the 13th August that the first of the Liège forts fell into German hands. There appears to be little doubt that the General Staff intended deliberately to deceive the German public as to the situation on the Meuse.

The third section is entitled " The First Franco-German Encounters." The author comments on the difference in the tone of the French and German announcements relating to the early engagements of the war. He points out that whilst in the former a discreet reserve has at all times been maintained ; on the other hand, in the latter, a spirit of invincibility has shown itself, decisive successes have been claimed for which there has been no warrant, and a studious silence has been maintained in relation to setbacks met by German troops.

The fifth section is entitled " The Defeats of the Allies in August, 1914." The events which took place in Lorraine, and on the banks of the Meuse in August are dealt with in the light of the telegrams from.

French and German sources made public at the time, and these accounts are compared. The author is of opinion that whilst the French telegrams appear to have been framed with a view to give the public an insight into the true nature of the movements of the Allied troops in Belgium and on the German Western frontier; on the other hand, in his view, the German telegrams create an impression that the German authorities have been guilty of exaggeration in the accounts given of the operations in which their troops were engaged.

The second part of the Supplement as already stated deals with "The Battle of the Marne." The account of this battle is given under three subheads; the first of these subheads is entitled "The True Version"; it contains a summarized account of the lines of advance of the German armies, and the positions of the German and French forces during the critical dates—these positions are marked on a sketch map printed with the text. Next follows a subhead entitled "The French Version"; the text of the more important telegrams and communiqués issued from the French Headquarters between the 7th and 11th September are reproduced, and a reference is made to the communiqués issued on the subsequent days—12th to 15th September. The French announcements report the main features of the engagement and the German retreat in language which is restrained and accurate. Finally "The German Version" is given; the German communiqués are carefully analyzed by the author, who points out that language of the same equivocal nature as that employed to announce the progress of events at Liège is also used in connection with the accounts of the Battle of the Marne issued by the authorities. Furthermore, successes are claimed therein which had no existence except in the imagination of the compilers of the communiqués.

Under the next section headed "The German 'Manœuvre Morale' relating to the Battle of the Marne" attention is directed to a broad sheet (reproduced in this number of the *Revue*) entitled "*Schematische Darstellung der vom grossen Generalstab Amtlich bekannt gegebenen Kriegsergebnissen*" (Diary of Events relating to the War communicated officially by the German Headquarter General Staff). The importance of this document is considerable, as it was intended for use by soldiers at the front for their letters to their friends and relatives; ruled lines have been provided on these sheets for any information which letter writers might desire to add to the printed matter, as well as a prepared space for the address of the addressee.

On one side of this sheet the Western theatre of war is depicted, and on the other the Eastern and Colonial theatres of war; each side also contains a diary of events between the 1st August and 5th November. In the case of the diary relating to events in the Western theatre some 90 German victories are recorded, and not one single defeat in the land campaign is admitted. The map of this theatre is also remarkable for the pictorial version of the German advance. According to the markings on the map the main German advance did not proceed further southwards than the line of the Aisne. A dotted line is shown south of this river, passing approximately through Senlis—Montmirail—Vitry-le-François, and against this line a statement appears stating that it

represents the limits of the *Advanced Guard Actions* fought by the pursuing German hosts between 9th and 11th September. The information contained on the map is no doubt intended to coincide with the contents of the official telegrams sent out by the German Headquarters between the 14th and 16th September.

This part of the Supplement concludes with a short analysis, under the heading "The Legend of the Marne," of the value of the official documents relating to the battle of that name. The author summarizes therein his views on the subject. In his opinion, the French telegrams record with accuracy the main facts of the war as they have actually occurred—an admission of the defeats in August being clearly discernible—whilst the German accounts are, like those of Napoleon I. concerning his own wars of a century ago, largely legendary. The German communiqués issued at the end of August and beginning of September announced definitely that the enemy's forces had been *destroyed* and that an energetic pursuit was alone necessary to complete their discomfiture. Having once made this announcement in precise terms officially, the authorities now find it impossible to withdraw the same.

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