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

## FAMOUS ENGINEERS OF THE ALLIED ARMIES.

By COLONEL B. R. WARD.

### KITCHENER.

ONE hundred and fifty years ago the rise of an officer of Artillery or Engineers to a position of high command in any of the European Armies was almost an unheard-of event. These two Corps were known as "Scientific Corps" and were not expected to produce men capable of commanding armies in the field.

It was in the French Army that this tradition was first broken. The rise of Napoleon from a Lieutenant of Artillery to a pinnacle of fame which "made past renown doubtful and future renown impossible"—to quote a contemporary phrase describing his career—marked the commencement of a new era for the various European corps of Artillery and Engineers.

No Engineers of Napoleon's army attained to any high command in the field; but Carnot, the famous "organiser of Victory," was a Captain of Engineers in 1792, when he was appointed a member of the Committee of Public Safety. His great achievement consisted in the organisation of the Republican Armies when France was threatened by invasion on all sides. Carnot was never given a command in the field, but his work as an organiser was strangely prophetic of the work of the great Engineer who forms the subject of this memoir.

The position of the various Engineer Corps in the armies at war to-day may be gauged by the fact that the most prominent soldier in the German, French and British Armies in August, 1914, was in each case an Engineer officer. Von der Goltz, Joffre, and Kitchener were undoubtedly the ablest officers of their respective armies at the date in question.

Of the three men Kitchener undoubtedly had the most astonishing and varied career, and the dramatic circumstances of his death on the 5th June of this year have drawn the attention of the whole world to his character and achievements.

Horatio Herbert Kitchener was born in County Kerry, Ireland, on the 24th June, 1850. He entered the Royal Military Academy, Woolwich, in 1868, and before being commissioned as an officer of Engineers in 1871, he commenced his military career by offering his services to the French authorities and was by them appointed to the

Second Army of the Loire, then commanded by General Chanzy. He joined as a private, enlisting in a Battalion of the Mobile Guard of the Department of Les Côtes du Nord.

Kitchener was not a man who talked much of his adventures and experiences. Beyond the fact that he made a perilous ascent in a war balloon with two French officers, and that he served actively in several engagements, little is known of this opening episode in his career. After Chanzy's failure to relieve Paris and his withdrawal to Le Mans, Kitchener was stricken down with pneumonia and invalided to England. After having been reprimanded for his escapade by the British Commander-in-Chief, Kitchener was duly gazetted to a commission in the Royal Engineers and joined at Chatham for a course of instruction in Military Engineering in 1871. While at Chatham he came under one of the most important influences of his life in the person of Colonel Fitzroy Somerset, who then held the position of Superintendent of Military Discipline at the School of Military Engineering. The lessons he learned in the way of discipline and the management of men from Colonel Fitzroy Somerset influenced his whole future career. "I never forgot what you taught me, Sir," were his words, spoken long afterwards in 1898 on his return from his victorious campaign in the Soudan to his old Chief, then on his deathbed, at Farnborough.

Three years of training at Chatham and Aldershot were followed by appointment to the Royal Engineers Field Telegraph Troop at the latter station. Home service was not, however, what Kitchener wanted, and an opportunity for foreign service presented itself in 1874 when he was offered the appointment of Surveyor in Palestine by the Palestine Exploration Fund.

The Society which calls itself by this curious title was founded in 1865. It was originated by certain English scholars who were engaged on Smith's Bible Dictionary, and who had come to the conclusion that our information on the subject of Biblical sites was singularly inadequate. The Society aimed at a systematic and complete survey of the whole country.

The next four years saw Kitchener with his colleague, Lieut. Conder, R.E., engaged in survey work in Palestine with intervals in London and Chatham, where the results of their observations were plotted. On the 10th September, 1878, he was able formally to hand over to the Committee of the Palestine Exploration Fund what was described in the Annual Report of the Fund as a complete map of Western Palestine on the scale of 1 in. to the mile. Every town, village, ruin, hill and plantation were marked upon it. Kitchener's part in this well-executed piece of work was widely recognized and he was shortly afterwards placed in charge of a similar piece of work, namely, the survey of the Island of Cyprus which had been ceded to Great Britain by the Treaty of Berlin in 1878. Kitchener's keenness

to see, if not to take part, in any military operations that might be on hand is shown by the fact that he took the opportunity during one of his visits to England to return by way of Turkey, where he was present at some of the fighting in the Shipka Pass during the Russo-Turkish War of 1878. His experiences in this campaign were duly reported by him at the War Office and he shortly after joined at Cyprus and commenced a triangulation of the island, preparatory to the construction of a map of the new British possession on the scale of 1 in. to the mile.

For the next four years he was employed on this survey with a junior officer of Engineers as his colleague. He had not yet given any indication of the possession of supreme abilities, for his development was slow rather than brilliant. Already, however, he was beginning to display certain qualities which afterwards made him famous. On several occasions he gave proof of self-confidence to a very high degree and showed that complete absorption in the work in hand which enabled him in after life to carry out to complete success every enterprise which he took in hand. Thus on one occasion the local authorities insisted on a complete village survey on a large scale being undertaken, this detailed survey being pieced together in order to produce a complete map of the island. Kitchener at once sent in his resignation as a surveyor, stating that he belonged to a scientific corps and that a satisfactory map could not be produced by the method indicated. He was at that time engaged on the triangulation of the island which he maintained was absolutely necessary. As a result of his protest the survey was stopped for a short time, but he was again placed in charge of it when at a later date it was decided to restart and to continue the work on the lines insisted upon by him.

It has been stated that Kitchener was not a good rider, but this is not the case. He was at one time whip to the pack of hounds kept up by the English residents on the island. He took an interest in racing and rode himself at many of the race meetings. He was too heavy for flat racing, although he entered his ponies for the events, but he rode himself in races over jumps and on one occasion at least he won a cup for a steeplechase.

In 1882 the bombardment of Alexandria was carried out by the British fleet. Kitchener had no intention of being out of it and proceeded on leave to Alexandria. He managed to get himself taken on in some capacity with the British forces that landed after the bombardment and applied by telegram to the High Commissioner for leave. The leave was, however, refused, and Kitchener was obliged to return to Cyprus. The time for his work in Egypt had not yet come.

In 1883 he was promoted Captain and was definitely attached to the Egyptian Army, then in course of reorganization under British

officers. In the following year he served on the staff of the British Expeditionary Force on the Nile and was promoted successively Major and Lieut.-Colonel by brevet for his services. From 1886 to 1888 he was Commandant at Suakin and was severely wounded in the action at Handub in 1888. In the same year he commanded a brigade in the actions of Gamaizieh and Toski. From 1889 to 1892 he was Adjutant-General of the Egyptian Army. In the same year he was appointed Commander-in-Chief or Sirdar of the Egyptian Army, and for the next three years he was engaged in reorganizing the forces of the Khedive, and had begun the formation of an expeditionary force which was destined to advance the Egyptian frontier far into the Soudan.

During all these years Kitchener displayed brilliant qualities both as an organiser and as an administrator. During the next three years he showed that he also possessed high qualities as a commander in the field. It is impossible within the limits of a short article to give in any detail an account of the brilliant military operations which ended in the re-conquest of the Soudan. Suffice it to say that in 1896 he won the action at Ferket and advanced the frontier and the railway to Dongola. In 1897 his lieutenant, Sir Archibald Hunter, gained at Abu Hamed a victory which carried the Egyptian flag one stage further south; and in 1898 after Kitchener had successfully stormed the Mahdist zareba on the river Atbara on the 8th of April an expedition consisting of 8,200 British and 17,600 native troops with 80 guns and 44 maxims was launched against Khartoum, at that time the headquarters of the Mahdi and his fanatical Arab army.

A striking feature of the Egyptian campaigns was the part played by the railway which Kitchener pushed forward as the army advanced southward. Luck and good fortune had attended Lord Kitchener throughout his various campaigns; but although fortune was on his side nothing had been left to chance. Never has any campaign vindicated more completely the importance of careful and thorough organisation than the campaign which culminated in the Battle of Omdurman and the destruction of the Mahdi's army on the 2nd September, 1898.

After the battle 9,000 Dervish dead whitened the plain, and thousands more were wounded, the remainder having been forced into the desert in utter and irretrievable defeat. The Anglo-Egyptian losses were under 400 killed and wounded. On the following Sunday across the river at Khartoum a memorial service was held which fitly embodied the significance of the whole expedition. The military objective was the destruction of the Dervish power and the winning back of the Soudan from barbarism to civilization. To Englishmen, however, the campaign was a crusade undertaken to avenge Gordon, the Governor-General of the Soudan, who had fallen in



battle as the Lieutenant of the Khedive in 1885 after the memorable siege in which Khartoum—the outpost of Egyptian civilization—had at last fallen before the barbarous hosts of the Mahdi. The ceremony among the ruins of Gordon's palace was one of the most impressive that could be imagined. "There were those who said the gallant Sirdar himself could hardly speak or see as at the close of the service General Hunter and the rest stepped out according to their rank and shook his hand. What wonder? He had trodden this road to Khartoum for fourteen years and he stood at the goal at last."\*

As a reward for his services he was raised to the peerage as Baron Kitchener of Khartoum and received the thanks of Parliament and a grant of £30,000. His labours had been great, but Kitchener has never been long without a call being made upon his services. In 1899, while still Sirdar of the Egyptian Army, he was promoted Lieut.-General and appointed Chief of Staff to Lord Roberts in the South African War. In this capacity he served in the campaign of Paardeberg, the advance to Bloemfontein, the subsequent advance to Pretoria, and on Lord Roberts' return to England in November, 1900, he succeeded him as Commander-in-Chief, receiving at the same time the rank of General. It might have been thought that Kitchener's experiences as Commander-in-Chief in the field would have unfitted him for the duties of Chief of the Staff. This, however, was not the case. On Lord Roberts' return to England he made a speech at Southampton in which the following words occur:—"As Chief of the Staff of the Armies in South Africa, Lord Kitchener has been my right-hand man throughout the campaign, and I am glad to take this opportunity of publicly expressing how much I owe to his wise counsels and ever-ready help. No one could have laboured more incessantly or in a more self-effacing manner than Lord Kitchener has done, and no one could have assisted me more loyally without a thought of self-aggrandisement."

The war in South Africa was destined to drag on until May, 1902. Lord Kitchener tackled the problem of guerilla warfare with no less success than he had attained in solving the problem of the re-conquest of the Soudan. Nor was it only in the system of blockhouses devised by him, nor by the great drives by which he gradually wore down the Boer resistance that Kitchener displayed consummate powers. He was equally successful as a diplomatist, and the peace of Vereeniging is no less a lasting tribute to his skill and tact as a statesman than the Battle of Omdurman is to his ability as a commander in the field. On the 4th June the Secretary of State for

\* Steevens' *With Kitchener to Khartoum*.

War cabled this message to the man who had brought the long and tedious war to a satisfactory conclusion :—

“His Majesty’s Government offer you their most sincere congratulations on the energy, skill and patience with which you have conducted this prolonged campaign, and would wish you to convey to the troops under your command their profound sense of the spirit of endurance with which they have met every call made upon them, of their bravery in action, and the excellent discipline preserved and of the humanity shown by them throughout this trying period.”

Again Kitchener received the thanks of the British Parliament and a grant of £50,000. Before he sailed for England a banquet was given to him on the 17th June, on which occasion he thus addressed his audience—men who had taken part with him in the long struggle. What wonder that again as at Khartoum the stern leader displayed depth of feeling and emotion. “What have you learned during the War?” he said. “Some have learned to ride and shoot ; all of you have learned discipline, to be strong and steadfast in the hour of danger, to attack with vigour, to hold what you have gained. You can never forget the true friends and comrades by whose side you have stood in a hundred fights. Even the hardships which you have so cheerfully endured will in the remembrance be only pleasures. Teach the youths who come after you what you have learned. Keep your rifles and horses ready, and your bodies physically fit so that you may be prepared at any time to take your due part in the great Empire which unites us all.”

No less happy were his references to those who had been so long against him in the field. He dwelt on their willingness to obey implicitly the orders of their leaders ; on their discipline, courage and skill both in attack and in retreat. “Whatever our previous convictions,” he concluded, “we have come to realize that they are a virile race and an asset of considerable importance to the British Empire.”

This soldierly appreciation of the fine qualities of the Boers—an appreciation which Kitchener had clearly shown at the Peace Conference—completely won the hearts of his former opponents. The campaign of General Botha in German South-West Africa in 1915, and that of General Smuts in German East Africa during the present year, form an eloquent tribute to the power of conciliation displayed by Lord Kitchener at the close of his great campaign in South Africa.

On his return to England he was created a Viscount, and received from the hands of King Edward the new and distinguished decoration of the Order of Merit. Again, as after the Egyptian War, Lord Kitchener was left unemployed for a very brief period. Soon after the peace he was sent to India as Commander-in-Chief. On his

journey out he made a point of visiting Khartoum, where he had the gratification of performing the opening ceremony of the Gordon Memorial College of which he was founder and organiser. "There-with another dream of Kitchener's was realized. The smashing of the Mahdi, Gordon's murderer, had been one dream. This, the educating of the conquered and the once oppressed people of the villages round was another. He had appealed on its behalf in the very hour of victory when he had returned home, and the substantial amount subscribed for his pet project—£120,000—was an indication of the nation's delighted admiration of his military achievement."\*

The ceremony at Khartoum took place early in November, 1903, and before the end of the month Kitchener had landed in India. Here he spent the next seven years of his life. Not only did he carry out many far-reaching administrative reforms, but he also effected the complete reorganization and strategical redistribution of the British and Indian forces. An officer who knew him well during those seven years has described the intense energy and concentration with which he carried out his work. Owing to his magnificent physique he was never sick or sorry except when his leg was broken as the result of a riding accident. Even then he was like a caged lion. He worked all day in bed. His staff constantly attended for orders and instructions. He wrote little, but was a wonderful critic of all schemes submitted to him. He was a supreme judge of character, and selected his staff with unerring insight.

On leaving India in 1909 he was promoted Field Marshal, and was appointed Commander-in-Chief and High Commissioner in the Mediterranean. During this period he undertook a tour of inspection of the forces of the Empire, and went to Australia and New Zealand in order to assist in drawing up local schemes of defence. As a consequence of his report compulsory training was introduced, and the deeds of the Anzac Corps in Gallipoli are an eloquent testimony to the soundness of the principles on which Kitchener organised the Australasian forces.

In 1911 he was appointed British Agent in Egypt and thanks to his firmness and decision Egypt was kept neutral in the war that took place in that year between Italy and Turkey. His prestige in Egypt was of the highest, and although the Egyptian Army was burning to render aid to their co-religionists and to help to save Tripoli from Italian occupation, he was able by firmness and decision, backed by his known sympathies with the Moslem population, to keep Egypt free from the complications of the international situation.

During the summer of 1914 Kitchener was on leave in England,

\* Groser's *Lord Kitchener*.

and on the 3rd of June his name appeared in the list of Birthday Honours as the recipient of an Earldom. Within two months of this last mark of Royal favour—on the 4th August, 1914—war was declared by Great Britain on Germany. Lord Kitchener was on his way to resume his duties in Egypt and had reached Dover where he was about to embark. A telegram reached him on the boat and he was recalled to London. On the 5th August his appointment as Secretary of State for War was made public and the news was received with universal acclamation. Great as were the deeds Kitchener had by this time accomplished, the greatest achievement of all remained to be done. No one but a man in whose character and personality the people of Great Britain had the completest confidence could have transformed England and the Empire into a great military power. The new armies that were raised in England were popularly known as Kitchener's Armies, and history will endorse the recent statement of the Prime Minister that the credit for the raising of these armies must absolutely and entirely be given to him. On the 5th June, 1916, after 22 months of such responsibilities and labours as have rarely been undertaken and borne by any human being, he sailed with his staff on board H.M.S. *Hampshire* on a mission to the Emperor of Russia. He had not been three hours at sea before the *Hampshire* was struck by a floating mine and only 12 survivors of the crew landed alive on the Orkneys from a raft. The end was sudden and dramatic, but the work of the great Soldier-Administrator was finished. Five million men had voluntarily enlisted in the land and sea forces of the Empire; the new armies had been trained, and most of them were by this time in the field in France, in Flanders, in Egypt, at Salonika and in Mesopotamia. Others might now carry on the work. The brain and personality of the great organiser were now no longer essential to success. Like Carnot, he had organised victory, and it was for others to complete his task.

His career may be best summed up by the following message from His Majesty the King to the troops, which was issued as an Army Order on the 6th June, 1916:—

“The King has learnt with profound regret of the disaster by which the Secretary of State for War has lost his life while proceeding on a special mission to the Emperor of Russia.

“Field Marshal Lord Kitchener gave 45 years of distinguished service to the State, and it is largely due to his administrative genius and unwearying energy that the country has been able to create and place in the field the Armies which are to-day upholding the traditional glories of our Empire.

“Lord Kitchener will be mourned by the Army as a great soldier who, under conditions of unexampled difficulty, rendered supreme and devoted service both to the Army and the State.”

*DEEDS OF THE ROYAL ENGINEERS.*

## THE ROYAL ENGINEERS AND THE VICTORIA CROSS.

THE Victoria Cross was instituted by Her Majesty the late Queen Victoria on the 29th January, 1856, in recognition of the splendid services rendered by her soldiers and sailors in the Crimean War. Long before the institution of this Cross there was much controversy on the subject, two of the strongest opponents to the innovation being the Duke of Wellington and General Gordon. The former's objection was based on the ground that there were already ample means of rewarding senior officers for meritorious services and that it was unnecessary and unsoldierlike to reward junior officers or the rank and file for bravery or special acts of devotion to duty.

General Gordon's objection was equally strong but on a different plane. He stated that in his opinion any soldier who failed to deserve the proposed decoration was unworthy of wearing the Queen's uniform and that to signalize mere opportunity by awarding a rare and coveted decoration was both illogical and undesirable.

When the details of the Crimean War became known, however, popular opinion was so strongly in favour of recognizing the numerous acts of bravery and self-sacrifice in the face of the enemy that all opposition was withdrawn and the Victoria Cross was duly instituted by Royal Warrant.

In the first Royal Warrant it is set out in the preamble that the decoration is instituted because "there exists no means of adequately rewarding the individual gallant services of either officers in the lower grades in our naval and military services, or of warrant and petty officers, seamen and marines in our Navy, and non-commissioned officers and soldiers in our Army and whereas the third class of our most Honourable Order of the Bath is limited except in very rare cases, to the higher ranks of both services, and the granting of medals both in our Navy and Army, is only awarded for long service and meritorious conduct, rather than for bravery in action or distinction before an enemy . . . We have instituted . . . a new naval and military decoration which we are desirous should be highly prized and eagerly sought after by the officers and men of our naval and military services."

The decoration, which was designed by the Prince Consort who took a keen interest in its institution, consists of a Maltese Cross of bronze with the Royal Crest in the centre, underneath which is an escroll bearing the inscription "For Valour." The Cross is suspended from the left breast by a blue ribbon for the Navy and by a red

ribbon for the Army. A register is kept by the Secretary of State for War of all those who obtain the decoration. The following further details and conditions are quoted from the Royal Warrant instituting the Victoria Cross :—

“ Anyone who after receiving the decoration, again performs an act of bravery which if he had not received such Cross would have entitled him to it shall receive a bar attached to the ribbon by which the Cross is suspended. The Cross shall only be awarded to those officers and men who have served in the presence of the enemy and shall have then performed some signal act of valour or devotion to their country. Neither rank, nor long service, nor wounds, nor any other circumstance or condition whatsoever, save the merit of conspicuous bravery shall be held to establish a sufficient claim to the honour.

“ Every warrant officer, petty officer, seaman or marine or non-commissioned officer or soldier who shall have received the Cross shall be entitled to a special pension of ten pounds a year and each additional Bar shall carry with it an additional pension of five pounds a year.

“ To preserve pure this most honourable distinction it is ordained that if any person on whom such distinction shall be conferred, be convicted of treason, cowardice, felony or of any infamous crime, or if he be accused of any such offence and doth not after a reasonable time surrender himself to be tried for the same, his name shall be forthwith erased from the registry of individuals upon whom the said decoration shall have been conferred.”

Under a Royal Warrant dated 1st January, 1867, the conditions were extended to include local forces serving with regular troops under the orders of a general or other officer, under circumstances which would entitle an officer or soldier of the regular army to be recommended for the decoration.

The Royal Warrant dated 23rd April, 1881, reiterates the condition that the qualification shall be “ conspicuous bravery or devotion to the country in the presence of the enemy ” and extends the scope to include Auxiliary and Reserve Forces both naval and military.

By Royal Warrant dated 6th August, 1881, the conditions were further extended to include members of the Indian Ecclesiastical Establishments who although not receiving military commissions are liable to be attached to an army in the field.

A Royal Warrant dated 21st October, 1911, again extended the conditions and rendered native officers, non-commissioned officers and men of the Indian Army eligible for the decoration but the pension conferred under the original Royal Warrant is in these cases to be 525 rupees a year with 150 rupees a year for each additional Bar for commissioned officers, and 150 rupees a year with 75 rupees a year for each additional Bar for non-commissioned officers or soldiers.

In 1898 the amount of the pension payable to non-commissioned officers and men (not Indian Army) was increased to £50 per annum "in respect of those who from old age, or infirmity not due to their own fault, may be in poor circumstances and unable to earn a living."

The first batch gazetted to the new decoration on 24th February, 1857, numbered 85 of whom 27 belonged to the Navy. The Royal Engineers obtained 5, the Cavalry 4, the Royal Artillery 3, Foot Guards 11 and the Infantry 35.

A short description of this first presentation of the decoration may be of interest. The ceremony of inauguration took place in the presence of representative forces of the Army and Navy, assembled in Hyde Park on Friday, the 26th June, 1857, and was a magnificent spectacle. The Queen, mounted and in a scarlet jacket, accompanied by Prince Albert, Prince Frederick William of Prussia (afterwards German Emperor), with the Prince of Wales and Prince Alfred, afterwards Duke of Edinburgh and Saxe-Coburg-Gotha, and attended by a brilliant suite, personally decorated 62 officers, warrant officers, non-commissioned officers and men with the Cross, with her own hand pinning it on the breast of each recipient. The band of heroes then formed line facing Her Majesty and her suite, and the headquarters staff and the troops marched past between them.

Lieut. Graham, R.E. (afterwards Lieut.-General Sir Gerald Graham, V.C., G.C.B., whose Cross is now in the R.E. Museum), was one of the five R.E.'s in this first batch and his exploit is duly chronicled, with that of the other heroic Royal Engineers, at the end of this chapter. Graham wrote the following letter to his father after it was over:—

"CAMP, ALDERSHOT, 30th June, 1857.

"MY DEAR FATHER,

We were formed in line and then advanced singly to the Queen, who remained on horseback. She pinned on the medal (Cross) with her own hand to our coats. She stuck the pin fairly into me, so that I keenly realized my momentary interview with Royalty. . . .—Ever, etc., G. GRAHAM."

From the date of its institution up to the outbreak of the present War 522 Victoria Crosses had been awarded and the numbers obtained by the various branches of the Services are approximately as follows:—Infantry, 275; Cavalry, 82; Royal Navy, 41; Royal Artillery, 30; Royal Engineers, 27; Staff Corps, 16; Foot Guards, 13; Army Medical Services, 11; Bengal Artillery, 11; Bengal Ordnance, 2; Bengal Veteran Establishment, 2; Bengal Civil Service, 2; Tasmanian Imperial Bushmen, 2; Royal Marine Light Infantry, 2; Royal Marine Artillery, 2; Indian Medical Establishment, 1; Commissariat, 1; Assistant Commissioner for Oudh, 1; total, 522.

It will be seen that the Royal Engineers obtained 27 out of 480 awarded to the Army.

During the present War, however, 90 Victoria Crosses have so far been awarded and of these no less than 10 have been bestowed on

Royal Engineers. An extraordinarily high proportion especially when it is borne in mind what a comparatively small body the Corps presents in the national forces, which now consist of many millions of men who have been engaged for over two years in most desperate fighting on land and sea in all parts of the globe.

The Royal Engineers have up to date won 37 Victoria Crosses and the gallant deeds that secured these coveted decorations are detailed as follows :—

*Crimea, 1854—1856.*

LENNOX, LIEUT. W. O.—“Cool and gallant conduct in establishing a lodgment in Tyron's Rifle Pit, and assisting to repel the assaults of the enemy. This brilliant operation drew forth a special order from General Canrobert.”—*London Gazette*, 24th February, 1857.

LENDRIM, CORPL. W. J. (No. 1078).—“Intrepidity—getting on the top of a magazine and extinguishing sandbags which were burning, and making good the breach under fire, on April 11th, 1855. For courage and praiseworthy example in superintending 150 French Chasseurs on February 14th, 1855, in building No. 9 Battery, Left Attack, and replacing the whole of the capsized gabions under heavy fire. Was one of the four volunteers for destroying the farthest rifle pit, on April 20th.”—*London Gazette*, 24th Feb., 1857.

MCDONALD, COL.-SERGT. H.—“For gallant conduct when engaged in effecting a lodgment in the Enemy's Rifle Pits in front of the Left Advance of the Right Attack on Sebastopol and for subsequent valour when, by the Engineer officers being disabled from wounds, the command devolved upon him, and he determinately persisted in carrying on the sap, notwithstanding the repeated attacks of the enemy. April 19th, 1855.”—*London Gazette*, 2nd June, 1858.

ELPHINSTONE, CAPT. H. C.—“For fearless conduct, in having, on the night after the unsuccessful attack on the Redan, volunteered to command a party of volunteers, who proceeded to search for and bring back the scaling ladders left behind after the repulse; and while successfully performing this task of rescuing trophies from the Russians, conducted a persevering search, close to the enemy, for wounded men, twenty of whom he rescued and brought back to the trenches.”—*London Gazette*, 2nd June, 1858.

GRAHAM, LIEUT. G.—“Determined gallantry at the head of a ladder party, at the assault of the Redan, on the 18th June, 1855. Devoted heroism in sallying out of the trenches on numerous occasions, and bringing in wounded officers and men.”—*London Gazette*, 24th Feb., 1857. (This Cross is now in the R.E. Museum, Chatham).



LEITCH, Col.-Sergt. P.—“For conspicuous gallantry in the assault on the Redan, when, after approaching it with the leading ladders, he formed a caponnière across the ditch, as well as a ramp, by fearlessly tearing down gabions from the parapet, and placing them and filling them until he was disabled from wounds. 18th June, 1855.”—*London Gazette*, 2nd June, 1858.

PERIE, Sapper J. (No. 854).—“Conspicuous valour in leading the sailors with the ladders to the storming of the Redan on June 18th, 1855. He was invaluable on that day. Devoted conduct in rescuing a wounded man from the open, although he himself had just previously been wounded by a bullet in the side.”—*London Gazette*, 24th Feb., 1857.

(This Cross, and the French medal for valour—awarded to Perie—is now in the R.E. Museum).

ROSS, Corpl. John (No. 997).—“Distinguished conduct on July 21st, 1855, in connecting the 4th Parallel Right Attack with an old Russian Rifle Pit in front. Extremely creditable conduct on August 23rd, 1855, in charge of the advance from the 5th Parallel Right Attack on the Redan in placing and filling 25 gabions under a very heavy fire, whilst annoyed by the presence of light balls. Intrepid and devoted conduct in creeping to the Redan in the night of September 8th, 1855, and reporting its evacuation, on which its occupation by the English took place.”—*London Gazette*, 24th Feb., 1857.

*Indian Mutiny, 1857—1859.*

HOME, Lieut. D. C., SALKELD, Lieut. P. (Bengal Engineers). (Upon whom the Victoria Cross was provisionally conferred by Major-General Sir Archdale Wilson, Bart., K.C.B.).—“For their conspicuous bravery in the performance of the desperate duty of blowing in the Cashmere Gate of the Fortress of Delhi, in broad daylight, under a heavy fire of musketry, on the morning of the 14th September, 1857, preparatory to the assault. Would have been recommended to Her Majesty for confirmation in that distinction had they survived.”—*London Gazette*, 18th June, 1858.

SMITH, Sergt. J. (Bengal S. & M.).—“For conspicuous gallantry in conjunction with Lieuts. Home and Salkeld, in the performance of the desperate duty of blowing in the Cashmere Gate of the Fortress of Delhi in broad daylight, under a heavy and destructive fire of musketry, on the morning of the 14th September, 1857, preparatory to the assault.”—*London Gazette*, 24th April, 1858.

THACKERAY, Lieut. E. T. (Bengal Engineers).—“For cool intrepidity and characteristic daring in extinguishing a fire in the Delhi magazine enclosure on September 16th, 1857

under a close and heavy musketry fire from the enemy, at the imminent risk of his life from the explosion of combustible stores in the shed in which the fire occurred."—*London Gazette*, 29th April, 1862.

PRENDERGAST, Lieut. H. N. D. (Madras Engineers).—"For conspicuous bravery on the 21st November, 1857, at Mundisore, in saving the life of Lieut. G. Dew, 14th Light Dragoons, at the risk of his own, by attempting to cut down a Velaitee who covered him (Lieut. Dew) with his piece, from only a few paces to the rear. Lieut. Prendergast was wounded in this affair by the discharge of the piece, and would probably have been cut down had not the rebel been killed by Major Orr.

"He also distinguished himself by his gallantry in the actions at Ratgurh and Betwa, when he was severely wounded.

"Major-General Sir Hugh Rose, in forwarding his recommendation of this officer, states:—

"Lieut. Prendergast, Madras Engineers, was specially mentioned by Brigadier, now Sir Charles, Stuart, for the gallant act at Mundisore, when he was severely wounded; secondly, he was "specially mentioned" by me when acting voluntarily as my A.D.C. in the action before Nesilging, Ratgurh, on the Beena River, for gallant conduct. His horse was killed on that occasion. Thirdly, at the action of the Betwa, he again voluntarily acted as my A.D.C., and distinguished himself by his bravery in the charge which I made with Capt. Need's troop, H.M. 14th Light Dragoons, against the left of the so-called Peishwa's Army under Tantia Topee. He was severely wounded on that occasion."—*London Gazette*, 21st Oct., 1859.

INNES, Lieut. J. J. McL. (Bengal Engineers).—"At the action at Sultanpore, Lieut. Innes, far in advance of the leading skirmishers, was the first to secure a gun which the enemy were abandoning. Retiring from this, they rallied round another gun farther back, from which the shot would in another instant have ploughed through our advancing columns, when Lieut. Innes rode up, unsupported, shot the gunner who was about to apply the match, and remaining undaunted at his post, the mark for a hundred matchlock men who were sheltered in some adjoining huts, kept the artillerymen at bay, until assistance reached him." (Letter from Major-General Thomas Harte Franks, K.C.B., of 12th March, 1858).—*London Gazette*, 24th December, 1858.

SLEAVON, Corpl. M. (21st Co.).—"For determined bravery at the attack of the Fort at Jhansi, on April 3rd, 1858, in main-

taining his position at the head of a sap, and continuing the work under a heavy fire with a cool and steady determination worthy of the highest praise."—*London Gazette*, 11th November, 1859.

GOODFELLOW, Lieut. C. A. (Bombay Engineers).—"For gallant conduct at the attack on the Fort at Beyt, on 6th October, 1859; on that occasion a soldier of the 28th Regiment was shot under the walls of the Fort; Lieut. Goodfellow rushed under the walls under a sharp fire of matchlocks, and bore off the body of the soldier, who was then dead, but whom he at first supposed to be wounded only."—*London Gazette*, 16th April, 1863.

*Bhootan, 1865.*

TREVOR, Major W. S., DUNDAS, Lieut. J.—"For their gallant conduct at the attack on the Blockhouse at Dewangiri, in Bhootan, on 30th April, 1865. Major-General Tombs, C.B., V.C., the officer in command at the time, reports that a party of the enemy, from 180 to 200 in number, had barricaded themselves in the Blockhouse in question, which they continued to defend after the rest of the position had been carried, and the main body was in retreat. The Blockhouse which was loopholed, was the key of the enemy's position.

"Seeing no officer of the storming party near him, and being anxious that the place should be taken immediately, as any protracted resistance might have caused the main body of the Bhootas to rally, the British force having been fighting in a boiling sun on very steep and difficult ground, for upwards of three hours, the General in command ordered these two officers to show the way into the Blockhouse. They had to climb up a wall which was 14 ft. high, then to enter a house occupied by some 200 desperate men, head foremost, through an opening not more than 2 ft. wide between the top of the wall and the roof of the Blockhouse. Major-General Tombs states that, on speaking to the Sikh soldiers round him, and telling them in Hindostani to swarm up the wall, none of them responded to the call, until these two officers had shown them the way, when they followed with the greatest alacrity. Both of them were wounded."—*London Gazette*, 31st December, 1867.

*Ashanti, 1873—1874.*

BELL, Lieut. M. S.—"For his distinguished bravery and zealous, resolute, and self-devoted conduct at the Battle of Ordahsu, on the 4th February, 1874, whilst serving under the immediate orders of Colonel Sir John Chetham McLeod, K.C.B., of the 42nd Regiment, who commanded the advanced

guard. Sir John McLeod was an eyewitness of his gallant and distinguished conduct on the occasion, and considers that this officer's fearless and resolute bearing, being always in the front, urging on and encouraging an unarmed working party of Fantee labourers, who were exposed not only to the fire of the enemy, but to the wild and irregular fire of the native troops in the rear, contributed very materially to the success of the day. By his example, he made these men do what no European party was ever required to do in warfare, namely, to work under fire in the face of the enemy without a covering party."—*London Gazette*, 20th November, 1874.

*Zululand*, 1878—1880.

CHARD, Lieut. J. R. M. \* \* \* —“For their gallant conduct at the Defence of Rorke's Drift, on the occasion of the attack by the Zulus, on the 22nd and 23rd January, 1879. The Lieut.-General commanding the troops reports that, had it not been for the fine example and excellent behaviour of these two officers under the most trying circumstances, the Defence of Rorke's Drift post would not have been conducted with that intelligence and tenacity which so essentially characterized it. The Lieut.-General adds that its success must in a great degree be attributable to the two young officers who exercised the chief command on the occasion in question.”—*London Gazette*, 2nd May, 1879.

*Afghanistan*, 1878—1880.

HART, Lieut. R. C.—“For his gallant conduct in risking his own life in endeavouring to save the life of a private soldier.

“The Divisional General commanding the 2nd Division Peshawar Field Force, reports that when on convoy duty with that force on the 31st January, 1879, Lieut. Hart, of the Royal Engineers, took the initiative in running some 1,200 yards to the rescue of a wounded Sowar of the 13th Bengal Lancers in a river bed exposed to the fire of the enemy, of unknown strength, from both flanks, and also from a party in the river-bed. Lieut. Hart reached the wounded Sowar, drove off the enemy, and brought him under cover with the aid of some soldiers who accompanied him on the way.”—*London Gazette*, 10th June, 1879.

LEACH, Capt. E. P.—“For having in action with the Shinwarris, near Maidanah, Afghanistan, on the 17th March, 1879, when covering the retirement of the survey escort who were carrying Lieut. Barclay, 45th Sikhs, mortally wounded, behaved with the utmost gallantry in charging, with some men of the 45th Sikhs, a very much larger number of the enemy. In this encounter Capt. Leach killed two or three of

the enemy himself, and he received a severe wound from an Afghan knife in the left arm. Capt. Leach's determination and gallantry in this affair, in attacking and driving back the enemy from the last position, saved the whole party from annihilation."—*London Gazette*, 6th Dec., 1879.

*Hunza-Nagar, 1891.*

AYLMER, Capt. F. J.—“ For his conspicuous bravery in the assault and capture of the Nilt Fort, on 2nd December, 1891. This officer accompanied the storming party, burst open the inner gate with guncotton, which he placed and ignited, and though severely wounded, once in the leg and twice in the right hand, fired nineteen shots with his revolver, killing several of the enemy, and remained fighting, until, fainting from loss of blood, he was carried out of action.”—*London Gazette*, 12th July, 1892.

*North-West Frontier, 1897—1898.*

WATSON, Lieut. T. C.—“ This officer, on the 16th September, 1897, at the village of Bilot, in the Mamund Valley, collected a few men of the Buffs (East Kent Regt.) and of No. 4 Co., Bengal S. & M., and led them into the dark and burning village to dislodge some of the enemy who were inflicting loss on our troops. After being wounded and driven back, he made a second attempt to clear the village, and only desisted after a second repulse and being again hit and severely wounded.”—*London Gazette*, 20th May, 1898.

COLVIN, Lieut. J. M. C.—“ On the same occasion, after Lieut. Watson had been incapacitated by his wounds from further effort, Lieut. Colvin continued the fight and persisted in two more attempts to clear the enemy out of the dark and still burning village. He was conspicuous during the whole night for his devotion to his men in the most exposed positions under a heavy fire from the enemy.”—*London Gazette*, 20th May, 1898.

*South Africa, 1899—1902.*

JONES, Lieut. R. J. T. D.—“ Would have been recommended for the Victoria Cross had he survived, on account of his having, during the attack on Waggon Hill (Ladysmith) of the 6th January, 1900, displayed conspicuous bravery and gallant conduct in leading the force which reoccupied the top of the hill at a critical moment just as the three foremost attacking Boers reached it, the leader being shot by Lieut. Jones and the two others by Trooper Albrecht.”—*London Gazette*, 8th August, 1902.

KIRBY, Corpl. F. H.—“ On the morning of 2nd June, 1900, a party sent to try and cut the Delagoa Bay Railway were retiring,

hotly pressed by very superior numbers. During one of the successive retirements of the rear guard, a man whose horse had been shot was seen running after his comrades. He was a long way behind the rest of his troop, and was under a brisk fire. From among the retiring troop, Corpl. Kirby turned and rode back to the man's assistance. Although by the time he reached him they were under a heavy fire at close range, Corpl. Kirby managed to get the dismounted man up behind him, and to take him clear over the next rise held by our rear guard. This is the third occasion on which Corpl. Kirby has displayed gallantry in the face of the enemy."—*London Gazette*, 5th October, 1900.

*European War, 1914—*

- WRIGHT, Capt. T.—“Gallantry at Mons on 23rd August, 1914, in attempting to connect up the lead to demolish a bridge under heavy fire; although wounded in the head he made a second attempt. At Vailly on 14th September, he assisted the passage of the 5th Cavalry Brigade over the pontoon bridge, and was mortally wounded while assisting wounded men into shelter.”—*London Gazette*, 16th Nov., 1914.
- JARVIS, Lce.-Corpl. C. A. (No. 3976), 57th Field Co.—“For great gallantry at Jemappes on 23rd August, in working for 1½ hours under heavy fire in full view of the enemy, and in successfully firing charges for the demolition of a bridge.”—*London Gazette*, 16th Nov., 1914.
- JOHNSTON, Capt. W. H.—“At Missey, on 14th Sept., under a heavy fire all day until 7 p.m. worked with his own hand two rafts, bringing back wounded and returning with ammunition, thus enabling advanced brigade to maintain its position across the river.”—*London Gazette*, 25th Nov., 1914.
- NEAME, Lieut. P.—“For conspicuous bravery on 19th Dec., near Neuve Chapelle, when, notwithstanding the very heavy rifle fire and bomb throwing by the enemy, he succeeded in holding them back, and rescuing all the wounded men whom it was possible to move.”—*London Gazette*, 18th Feb., 1915.
- MARTIN, Lieut. C. G., D.S.O.—“For most conspicuous bravery at Spanbroek Molen on 12th March, 1915, when in command of a grenade-throwing party of six rank and file. Although wounded early in the action, he led his party into the enemy's trenches and held back their reinforcements for nearly 2½ hours, until the evacuation of the captured trench was ordered.”—*London Gazette*, 19th April, 1915.
- JOHNSON, Temp. Sec. Lieut. F. H.—“For most conspicuous bravery and devotion to duty in the attack on Hill 70, on 25th Sept., 1915. Sec.-Lieut. Johnson was with a section of his company of the R.E. Although wounded in the leg, he stuck to his duty

throughout the attack, led several charges on the German redoubt, and at a very critical time, under very heavy fire, repeatedly rallied the men who were near him. By his splendid example and cool courage, he was mainly instrumental in saving the situation and in establishing firmly his part of the position which had been taken. He remained at his post until relieved in the evening."—*London Gazette*, 18th Nov., 1915.

DAWSON, Corpl. J. L. (No. 91608), 187th Co.—"For most conspicuous bravery and devotion to duty on 13th October, 1915, at Hohenzollern Redoubt. During a gas attack, when the trenches were full of men, he walked backwards and forwards along the parados, fully exposed to a very heavy fire, in order to be the better able to give directions to his own Sappers, and to clear the infantry out of the sections of the trench that were full of gas. Finding three leaking gas cylinders, he rolled them some 16 yards away from the trench again under very heavy fire, and then fired rifle bullets into them to let the gas escape. There is no doubt that the cool gallantry of Corpl. Dawson on this occasion saved many men from being gassed."—*London Gazette*, 7th Dec., 1915.

HAWKER, Capt. L. G., D.S.O. (R.E. and R.F.C.).—"For most conspicuous bravery and very great ability on 25th July, 1915. When flying alone he attacked three German aeroplanes in succession. The first managed eventually to escape, the second was driven to ground damaged, and the third, which he attacked at a height of about 10,000 ft., was driven to earth in our lines, the pilot and observer being killed. The personal bravery shown by this officer was of the very highest order, as the enemy's aircraft were armed with machine guns, and all carried a passenger as well as a pilot."—*London Gazette*, 24th Aug., 1915.

BASSETT, Corpl. C. R. G. (No. 4/515), New Zealand Divisional Signal Co.—"For most conspicuous bravery and devotion to duty on the Chunuk Bair Ridge in the Gallipoli Peninsula on 7th August, 1915.

"After the New Zealand Infantry Brigade had attacked and established itself on the ridge, Corpl. Bassett, in full daylight and under a continuous and heavy fire, succeeded in laying a telephone line from the old position to the new one on Chunuk Bair. He has subsequently been brought to notice for further excellent and most gallant work connected with the repair of telephone lines by day and night under heavy fire."—*London Gazette*, 15th October, 1915.

HACKETT, Sapper W. (No. 136414).—"For most conspicuous bravery when entombed with four others in a gallery owing to the explosion of an enemy mine. After working 20 hours, a hole was made through fallen earth and broken timber and the outside party was met. Sapper Hackett helped three of the men through the hole and could easily have followed, but refused to leave the fourth, who had been seriously injured, saying, 'I am a tunneller; I must look after the others first.' Meantime the hole was getting smaller yet he still refused to leave his injured comrade. Finally the gallery collapsed and though the rescue party worked desperately for four days the attempt to reach the two men failed. Sapper Hackett well knowing the nature of sliding earth, the chances against him, deliberately gave his life for his comrade."—*London Gazette*, 5th August, 1916.

In concluding this chapter it is only right to remember—to quote the words of Gray's *Elegy*—that

“Full many a gem, of purest ray serene,  
The dark unfathom'd caves of ocean bear:  
Full many a flower is born to blush unseen,  
And waste its sweetness on the desert air.”

Not all the gallant deeds of the Royal Engineers are chronicled in this brief story of the Victoria Cross. It is a commonplace saying that for every Victoria Cross awarded at least a hundred are deserved. The history of the Corps is replete with acts of heroism and extraordinary devotion to duty, but the recorded instances do not represent a tithe of the full list of the gallant achievements of our comrades and predecessors in the Royal Engineers.



## THE FUTURE OF FORTS.

By GENERAL BERTHAUT.\*

*Engineering* publishes the following :—In several Paris papers a somewhat animated discussion has taken place as to the value of permanent fortifications. Certain writers have dwelt on the fact that in the present War, many fortresses have offered an inadequate resistance or none at all, in order to prove that permanent fortification is a thing of the past, being no longer suited to play any useful part. The logical outcome of this view would be to insist on the abandonment and demolition of all fortresses. The question is important enough to deserve careful investigation, and doubtless this investigation will be made at the end of the War when we have the time and the freedom from preoccupation which are necessary for prolonged research. It may, however, be interesting even at the present stage to submit some thoughts on this subject.

We may begin with the obvious remark that when an instrument is inadequate for its purpose, the remedy is not to destroy it, but to make it better. It is well, therefore, to consider whether improvement and modifications can be made which will give permanent fortifications that solidity which they now seem to lack. It is only when this has been proved to be impossible that we shall be justified in proceeding to their destruction.

Those who do not favour fortresses point out that, in spite of vaulted chambers, casemates and cupolas, the forts around Liège

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resisted only a very short time and only slightly checked the German invasion ; that those of Namur were even less effective ; that the entrenched camp of Antwerp, with its double line of works, was equally wanting in strength. So much for Belgium—although the fortifications had all been constructed by Colonel Brialmont, one of the most distinguished military engineers of our times.

In France, Maubeuge was reduced to silence in a few days ; Lille was not even defended. As for the entrenched camps of Rheims and Laon, they were simply ignored. The Germans passed through them unchecked, after our retreat from Charleroi ; they returned to them after their defeat on the Marne.

The same critics of the fortress further remark that not a single cannon has been fired from Belfort, Epinal, and Toul since the beginning of the War, and that these are indeed protected by our troops, whose present lines are considerably in advance of them.

Turning to the theatre of war in Russia, the same writers emphasize the rapid fall of such fortresses as Novo-Georgiewsk, Brest-Litovsk, and Kovno. They seem, however, to overlook that Ossowietz held up the Germans for many months, that Dwinsk offered an energetic resistance to their most furious attacks, and that Przemyśl, though completely invested, only capitulated because there was no food left for the garrison and the inhabitants of that town.

There are, then, some fortresses which resist for a long time, and play a very important part in war, while others seem to disappoint all the hopes that have been set on them. How can this be explained ?

In the first place, we must realize that the science of fortification has not reached finality any more than other sciences. At any particular time it conforms with certain conditions, and these keep on changing. A fortification must be so devised that it will resist, as fully as possible, the means employed in attack ; and if these are changed it must undergo a corresponding change. Its evolution is determined by the progress in the instruments of attack. The old-time fortified castles with their lofty walls, dominating the district and visible from afar, served their purpose very well until cannons succeeded in shattering them. Then it became necessary to seek fresh means of defence.

Lofty walls gave place to walls that were invisible, protected by thick embankments of earth. Instead of towers there were bastions, as designed by Vauban and his school. When, owing to further improvements in artillery, bastions were no longer found to be effective, another system was adopted, known as the polygonal, which again underwent numerous modifications, between 1815 and 1859, the date of the first appearance of rifled guns. Since the war of 1870 the nature of permanent fortifications has changed again, owing to the invention of high-explosive shells of ever-increasing power. So rapid have been the advances in the construction of cannons and

in the force of explosives, in the most recent period, that the science of fortification has necessarily been outdistanced.

Fortified works betray the date of their construction. Doubtless they can be strengthened and improved up to a certain point ; still, their general design is of definite type, and if that type no longer corresponds to what is required, nothing remains but to demolish the fortress and build another.

Some years after the war of 1870 I took part in a staff journey on our frontier for purposes of study, conducted by the Chief of the General Staff. One day we were visiting a fort that had been quite recently built. The captain of Engineers who had superintended its construction was explaining it to us ; he remained by the side of the Chief of the General Staff in order to supply such information as might be desired. On reaching the edge of a stonework ditch, the General stopped and, turning to the Engineer officer, asked : " How deep do you make your ditch ? " " Eight metres ; that is the regulation depth. " " But are you sure that the storming ladders of the Germans are not more than eight metres long ? " The officer replied with a smile : " I venture to suggest that it will always remain easier for the Germans to lengthen their ladders than for me to deepen my ditch. "

This simple remark gives the whole matter in a nutshell. A time comes when all the devices of the engineer to improve his constructions become vain. The rivalry between the means of attack and those of defence is here the same as in the domain of naval construction. When an armoured vessel has been built to resist a certain means of attack, there is no way in which it can be adapted to resist other more powerful means of attack, the result of fresh inventions. The designs of warships are continually changing ; although in the case of both the underlying principles remain the same.

It is, however, not merely the actual fortification of a fortress that has to be considered. In order to estimate its value at any particular moment, we must also know how it is armed and provisioned ; and lastly, we must understand what part it may usefully play in the plan of operations, in which after all it is only a detail. This plan of operations is not indeed confined to the defence of any one particular point. To be sure, fortresses are erected at points of strategic importance, such as the crossing of a big river, a place where rivers meet, railway junctions, etc. They occupy positions where it is necessary or at least important for the enemy to be checked ; that is the very purpose of their construction. Nevertheless, the fact remains that the part they play and the use to which they are put depend on considerations quite apart from them, which determine the degree of their importance at any particular stage of the war.

Liège at first made a very good stand against the German attacks. But its cupolas and the concrete work of its forts were not substan-

tial enough to withstand for long the formidable projectiles of the heavy guns or the new explosives, far more powerful than anything that was known at the time when these forts were constructed. Moreover, Liège was not supplied with artillery heavy enough to oppose that of the enemy ; and the town itself was not protected by enclosing walls. It was occupied by the Germans while the forts were still holding out but could no longer hinder the passage of the Meuse, which was carried out by way of the town.

The Liège forts offered an heroic resistance, and General Leman covered himself with glory. It was different with the forts of Namur, the reason being that Namur was attacked after Liège, and that the example of Liège had shown resistance to be useless, under identical conditions. Besides, as the obstacle of the Meuse had already been overcome at Liège, there was no useful part that Namur could play. Antwerp yielded very soon, and for the same reasons. The fact is that Belgium as a neutral state and relying on the sanctity of treaties, had not deemed it necessary to pay any attention to the old-fashioned character of its fortress and the inadequacy of their artillery. Belgium had not mobilized her army, and possessed only a small supply of ammunition for her guns.

To some extent this also applies to our fortresses in the north of France. Our northern frontier was sheltered by the neutrality of Belgium. Maubeuge, at the beginning of the War, was not properly supplied with guns. As for Lille, it was not capable of defence, owing to the considerable growth of its population and the consequent building over of its environs. The industrial towns of Roubaix and Tourcoing, with all the villages lying between, now form an uninterrupted whole, in which country roads have become streets and the forts of Lille have been submerged in a sea of houses.

Most generals would have defended Rheims and Laon after the retreat from Charleroi. To abandon them was a brilliant stroke of genius on the part of General Joffre ; by withdrawing yet more, as far as the Seine, he made possible the turning movement of the Paris and Verdun armies on the two flanks of the German Army. At this point, it was manifest that, although the entrenched camps of Paris and Verdun were not called upon to fire a single shot, by their very existence these camps played a part of the first importance and contributed very effectively to the victory. That alone would demonstrate that fortifications still have their use.

The Russian fortresses have also done useful work whenever they have been included in the line of battle, even though the artillery was less powerful than that of the enemy and less well supplied with shells. But when the Russians withdrew, to prolong the resistance of these fortresses, left in isolation, would have meant uselessly sacrificing the garrisons of these fortresses, since the enemy had passed round them.

Since September, 1914, we have been facing the Germans all along the immense line extending from Nieuport to Switzerland. We occupy trenches, as they do opposite us, which are being constantly strengthened as far as possible on both sides. These entrenchments, though much less solid than permanent fortifications, offer resistance until they are demolished, or rendered useless by an enormous mass of projectiles. How could anyone assume that works constructed in peace time, with all the resources at the disposal of the engineer's industry and science, would have less power to resist? Would the suggestion not have seemed absurd?

If fortresses have not proved to be as strong as is essential, that is not the real reason why some of them have offered so brief a resistance; it is rather because, as compared with the attacking forces, their artillery was insufficient and they had an inadequate supply of shells. Make the defending batteries as strong as those that attack, make the conditions equally favourable, and they will certainly prove superior, since they have the advantage of being able to choose the most favourable positions for the guns, and of being much better and more solidly constructed.

The objection may be raised that the attacking force is fully aware in advance of the exact place occupied by the object to be attained, while the defence has to ascertain where the attacking batteries are before being able to counter-attack. That is so; but it has always been the case, and it is of less importance now than formerly, since aviation affords very rapid means of locating an attacking battery; and the possibilities of aviation are far from being exhausted.

There is another consideration which is very important to bear in mind. Hitherto, fortresses have been towns, often large towns, just because towns are built at points where natural roads converge and because the junctions of railway lines are the stations of these large towns. When a town occupies a strategic point, the fortress has the double duty of guarding this strategic point and of securing the town from the attack of the enemy. But it may happen that, instead of affording protection, it becomes a source of danger for the town and may lead to its loss. It attracts the lightning. In view of the terrible effects now caused by long-distance bombardment, it is certainly preferable to erect fortresses away from towns, and to make them serve exclusively military purposes.

I do not presume to indicate here how fortresses should be constructed, to sketch their elevations and their ground plan. That requires long and elaborate study and will be worked out after the War by the most competent military engineers. I content myself with expressing the following opinion, which I do not believe to be open to contradiction:—

It has been shown to be possible, in active warfare, to construct

effective shelters for the troops and solid batteries, with firm platforms for very heavy guns of great calibre, which fire projectiles of enormous weight and shake the substructure very powerfully. It has been shown by experience, both on our side and on the enemy's, that these formidable machines, in spite of their weight and bulk, can be moved about, being transported either on rails or even on ordinary roads by means of traction engines. All that can be done in this way in the course of operations on ground not specially selected and not prepared, can be still better done on foundations chosen and prepared in peace time, on roads and lines laid for this purpose, by employing all such resources as are not available on the field of battle and without exposing oneself to danger or running any risks. It is therefore possible to render the defence at least as strong as the attack, if not superior to it, by furnishing it with artillery at least equally formidable and by perfecting the installation and the mobility of this material.

I come to this conclusion : permanent fortification is by no means doomed. It has done great service, it does so now, and will continue to do so. It must be transformed, not abolished. It must keep on developing, as it has been developing since ancient times ; and probably its coming development will not be final. As long as there is progress in the means of attack, the means of defence will likewise progress ; it must come about, and it can be achieved.

### *THE DESIGN OF CONTINUOUS BEAMS.*

MR. EWART S. ANDREWS, B.SC. (Engineering), Lond., recently read a paper on the above subject before the Society of Engineers, and the following is an abstract :—

A continuous beam is one which rests on more than two supports and is classified as “ a statically indeterminate structure because the stresses in it cannot be obtained by an application of the laws of graphic statics only ; a consideration of the deflected form of the beam is also necessary. The disadvantages which have been urged against continuous beams by practical engineers in the past will probably disappear as further experience is obtained in their design.

The Theorem of Three Moments gives a relation between the negative bending moments at three successive supports of a continuous beam, from which, in any given case, these bending moments can be obtained ; by combining the free bending moment diagrams and the support bending moment diagrams the bending moment at any point can be found, and the reaction can be readily computed.

A numerical example of the calculations for a continuous beam of three spans is given, together with an explanation of the treatment to be adopted when one of the ends of the beam is fixed.

Tables are given of bending moment and reaction coefficients for uniformly loaded continuous beams of equal spans varying in number from two to nine.

Winkler's diagrams for two, three, and four equal spans carrying live and dead loads are given, from which the maximum positive and negative bending moments at any point of the span may be readily computed. Turneare and Maurer's coefficients for the maximum positive and negative bending moments at mid-spans and supports for equal spans from two to seven are given, together with approximate results which are sufficiently accurate in many cases for practical design.

Isolated loads on continuous beams of two equal spans are then considered and explained by the aid of a numerical example.

The paper concludes with the full calculations of the bending

moments and shears for a warehouse floor framed with continuous beams. The external secondary beams carry greater loads than the internal ones on account of the continuous construction of the floor slabs, and diagrams of maximum positive and negative bending moments for loaded and unloaded conditions are given. The maximum and minimum reactions from the secondary beams form point loads upon the main beams for the loaded and unloaded conditions respectively ; the resulting bending moments, combined with those due to the weight of the beam itself are plotted upon a diagram from which the detail design of the beam can be completed.



## REVIEWS.

### PAGES D'HISTOIRE, 1914—1915.

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

The first notice of the volumes of the *Pages d'Histoire*, 1914, series appeared in the *R.E. Journal* for February, 1915 ; in that and in subsequent numbers of the *Journal* reviews have already been published of the first 55 volumes belonging to this series, the last of them in the number for December, 1916.

A very large number of volumes of this series have recently come to hand ; it is not possible to deal with the whole of them in a single notice, and they will therefore be dealt with in suitable batches.

The 56th, 59th, 60th, and 70th numbers deal with the Mentions in Despatches, and the Awards of the Legion of Honour and the Médaille Militaire, being the XI. to XIV. Volumes (inclusive) of the series relating to these matters. The 56th number covers the period 8th to 11th December, 1914 ; the 59th number the period 11th to 13th December, 1914 ; the 60th number the period 14th to 28th December, 1914 ; whilst the 70th number deals with the awards notified on the 29th December, 1914, and also contains an alphabetic list of all names which have appeared in the French Honours Lists published between the 1st August and 31st December, 1914.

The 57th number of the volume contains a short account of contingents raised in France, for service with the French Army, by foreigners resident in that country. The whole-hearted support thus offered to France by foreigners of all nationalities sojourning within her borders, as soon as the dangers of the German aggression became apparent in July, 1914, has naturally been much appreciated and affords at least some evidence of the view taken by them of the justice of the Great Republic's cause. It may be said with truth that it was not merely the patriotism of the early historians of the present colossal conflict which led them to refer to the present struggle as the " War of Right." In an introduction to the volume it is pointed out that the great contest in progress to-day is not one in which the decision sought concerns alone the question as to which of two groups of States shall be supreme in and dominate Europe, but that on this decision depends also the answer to the question as to which of two distinctive types of conscience shall in future guide the destinies of the world. At the present time, on the one side, there is the conscience imbued with ancient instincts of conquest, of spoliation and of hegemony, whilst on the other, there is the conscience born of a new code of morality, and guided by a philosophy more enlightened, more logical and more humane than that opposed to it, a conscience which seeks acceptance of principles having for their object respect for the rights and liberties of other peoples, the substitution of arbitration in an International Court of Supreme Judicature for the arbitrament of the sword as a means of settling international disputes, and a strict compliance with the provisions of conventions framed

with the object of alleviating the sufferings of the victims of a war, in cases in which a resort to the arbitrament of the sword cannot be avoided.

The spontaneous and touching sympathy of foreigners which manifested itself towards France, in the autumn of 1914, may be attributed to the fact that the ultimate designs of Germany were seen through by them, and it was recognized by them that all those who took up arms to defend France would, at the same time, be striking a blow on behalf of the liberty of the peoples of this world and for the purpose of freeing them from the outrageous aggression and domination of the Teuton.

One of the most striking incidents in connection with the present War lies, perhaps, in the fact that Italy, a partner in the Triple Alliance, abstained from entering into the lists against her western neighbour; indeed, she sympathised strongly with France, whilst, at the same time, many of her sons exhibited a most enthusiastic Francophil spirit. So strong was the sympathy felt towards France that very cordial demonstrations were made during the last days of July, 1914, by the Italians in Paris; they paraded the streets of the French capital shouting "Viva la Francia." Events moved quickly; on the 31st July, 1914, a notice was published in the French Press by prominent Italians calling on their compatriots to raise a contingent for service with the French Army. Three thousand Italians immediately responded to this appeal.

Appeals of a similar nature were also made, about the same time, to those of other nationalities resident in France, and within a few days many recruiting offices were specially opened for the enrolment of those desiring to serve in the several Foreign Legions then being raised in France. The text of many of these appeals are framed in stirring language and appear in the volume under review.

Certain difficulties had to be overcome in connection with the formation of these Foreign Legions as, according to French Law, foreigners could, at the beginning of the War, alone be enlisted to serve *for a period of five years*, and then only in special regiments. Early in August, 1914, the French Government passed a law permitting foreigners to enlist for service in the Foreign Legions for the duration of the War. The numbers of foreigners serving in these Foreign Legions on the 1st January, 1915, were, according to official returns, as follows:—

Belgians .. .. .	1,462
British .. .. .	379
Russians .. .. .	3,393
Italians .. .. .	4,913
Greeks .. .. .	300
Luxemburgers .. .. .	541
Spaniards .. .. .	969
Swiss .. .. .	1,467
Austro-Hungarians .. .. .	1,369
Germans .. .. .	1,072
Turks .. .. .	592
Americans (from both Continents) .. .. .	200
Other foreigners (including Alsatians and Lorrainers) .. .. .	11,854
<b>Total .. .. .</b>	<b>28,511</b>

The Garibaldians had raised a special corps (included in the numbers of Italians given above), but at the end of March, 1915, this corps was disbanded, in order to allow Italians serving in it to repair to their own country to join the Italian Army; this drew away so many members of the corps that the numbers remaining were insufficient to provide the *personnel* for a special Garibaldian regiment.

By June, 1915, the numbers serving in the Foreign Legions in France rose to 32,000 men.

A short account is given in this number of the death of Bruno Garibaldi whilst leading his company to the attack and the manner in which his brothers recovered the body by digging a tunnel to the spot where it lay. A copy is also published of the letter of condolence addressed by the President of the French Republic to General Ricciotti Garibaldi sympathizing with him on the loss of his son, and the General's acknowledgment of the same.

The volume concludes with an expression of thanks to those friends, doubly dear to France, who came to her aid in her hour of need and have, in many cases, given up their lives fighting under the tri-colour of the Republic, in order that France may remain a free country and the seat of a true civilization.

The 58th number is entitled *L'Organisation du Crédit en Allemagne et en France*, and deals with the mechanism of finance, a highly-technical subject of very great interest, one, however, which requires to be specially studied for its proper understanding. In this little volume are reproduced five lectures on the Organization of Credit in Germany and in France given by Monsieur André Liesse during the winter of 1914—1915 at the Conservatoire National des Arts et Métiers in Paris.

In the preface to this volume it is pointed out that, in war, the credit of a belligerent nation is one of the most important factors so far as the ability of a belligerent to continue a struggle is concerned: hence the phrase "money forms the nerves of war."

In her preparations for the sudden and violent attack which she intended to deliver against her neighbours, at the hour of her own choosing, Germany naturally gave consideration to the financial problems having a bearing on the situation which was likely to arise once war was declared. However, in the measures Germany adopted to safeguard her financial position she made a serious miscalculation; she did not anticipate that a war provoked by her would last so long as the one being waged at the present time.

It is pointed out in the preface to this number that Germany had not only developed her industrial and commercial enterprises on a huge scale within her own territories, but had, at the same time, deeply invaded foreign countries, establishing therein very considerable commercial, industrial and banking establishments. Not satisfied with her commercial and industrial imperialism, she began to prepare for a military imperialism intended to secure for her the conquest of Europe. In the blindness of her folly she failed to realize that she could not with safety invest all her capital in national and foreign enterprises of a commercial nature, and, at the same time, apply considerable sums, raised by way of loan, and by the imposition of ordinary and extraordinary

taxation, in the development of the *industry of war*. The adoption of such a course was bound to render it difficult for her to effect a mobilization of her capital just at the time when she might order a military mobilization. It ought to have been evident to her leaders that under such circumstances an immense amount of liquid capital would be absolutely necessary for the prosecution of the world-wide war Germany intended to provoke.

"Germans seem," says Monsieur Liesse, "to have overlooked the fact that the world-wide expansion of German commerce and industries could not fail to become a source of weakness, and would, in such a crisis, adversely affect the economic situation of the Empire and also prove extremely injurious to her vast interests."

Owing to the blockade of the coasts of Germany, questions affecting exchange are, for the time being, in abeyance as she is compelled to live on her own fat, but the day of reckoning is at hand! As soon as her military and naval forces are defeated, the real extent of the depreciation of her assets will be brought home to her; it seems hardly possible that she will be able to escape from bankruptcy.

The first of the lectures was delivered on the 14th December, 1914, and dealt in outline with the history of the establishment of land banks in Germany; the introduction of paper money; the establishment of German banks in foreign lands since 1871; the Reichsbank, ~~which has~~ <sup>which has</sup> some extent holds, in Germany, a position somewhat similar to that of the Bank of England in this country; military imperialism and commercial imperialism. Monsieur Liesse draws attention to the manner in which the banking business has, in Germany, been utilized for espionage purposes, and for the political as well as commercial conquest of South America, and to the fact that certain measures taken by the Reichsbank, in 1912 and 1913, indicate that preparations had already, at that time, been put in hand to meet the contingency of the present War breaking out at an early date. He concludes this lecture by pointing out that an early victory was essential to Germany in the interests of her economic situation. Germany still awaits this victory. "We hope and firmly believe," says Monsieur Liesse, "that no victory will be hers. From this point of view she has abused her Credit. She has drawn a Bill of Exchange at sight on Destiny, but on this Bill Destiny will endorse no acceptance."

The second lecture was delivered on the 14th January, 1915, and deals with German banks; their methods of working; the nature of the risks taken in German banking business, and the dangers thus incurred. Much valuable information is contained in this lecture concerning the mineral wealth of Germany and her commerce. Some of the causes which have brought about financial crises are referred to, and an explanation is given as to how a financial crisis may react on a banking business and lead to its failure.

Monsieur Liesse is not altogether satisfied that German banking methods are sound, but in concluding his second lecture he readily admits that they have done much for German trade. "The German banks have," he says, "it would be useless to deny, rendered an immense service to German industries. They have contributed to the

development of a bold spirit of enterprise in Germany. But they have shown no moderation in their methods."

The third lecture was delivered on the 4th February, 1915, and deals with the military preparations of Prussia, the work of William I. and of Von Roon; the Prussianization of entire Germany; German expenditure in connection with the War; State borrowings and credit; War taxation.

The political and financial crises through which Germany has passed in recent times have made it necessary for her leaders in finance to effect a rapid mobilization of securities, and her loan banks and other similar institutions have thus become familiar with proceedings of this nature, which are no novelty to the general public beyond the Rhine.

Monsieur Liesse points out that War has been treated by Germany as a veritable industry, and the same attention has been devoted to details of organization and economics in the preparations for a military campaign by the Governmental Authorities, as that which an astute business man of the highest calibre devotes to the details of any commercial or industrial campaign he may be engaged upon. William I., King of Prussia and the first German Emperor of modern times, is credited with having taken the first steps towards bringing about the effective organization of the financial resources of the States, which now form the German empire. Monsieur Liesse says of him: "William only saw realities and those the realities of force. He held the opinion that war was an invigorating exercise for his people and he complained that Prussia had for too long remained inactive. . . . He possessed a sort of military mysticism which, on the one hand, rendered him a man full of faith, yet, on the other hand, made of him a dialectician full of duplicity, and one who was ever safeguarding the interests of Prussia by deceiving, without any scruple, his allies."

It was Von Roon who had the acumen to recognize the weaknesses in the Prussian armour, as shown during the mobilization ordered in 1859, when France was about to assist Italy in her struggle against Austria. In spite of the opposition of the liberal group of the middle classes, he persuaded the Prussian Parliament provisionally to vote nine million thalers (about £1,332,000) for the reorganization of the Prussian Army. It was by his skill that the weapon was forged which enabled Prussia to strike down her rivals and thus to obtain the ascendant position occupied by her in Central Europe since 1871.

The expenditure on the army and navy in Germany and in France during certain years, since 1895, is given in the volume under review; they may prove of interest and have in consequence been extracted.

Year.	Expenditure on Army and Navy.					
	Germany.			France.		
1895	..	..	£32,384,000	..	..	£38,000,000
1900	..	..	£41,056,000	..	..	£47,829,000
1905	..	..	£46,160,000	..	..	£45,748,000
1910	..	..	£63,292,000	..	..	£53,700,000
1912	..	..	£70,968,000	..	..	£56,704,000
1913	..	..	£100,124,000	..	..	£58,008,000
1914	..	..	£92,244,000	..	..	£71,000,000

The cost of pensions is not included in any of the above figures.

It will be observed that the German expenditure increased slowly from 1895 to 1905, but jumped up suddenly in 1910; it was at this time that Germany began seriously to increase her armaments. Monsieur Liesse states that the total expenditure of Germany on her army and navy, during the 20 years covered by the period in the above table, has amounted to 1064 millions sterling, whereas the similar expenditure incurred by France, during the same period, has been 964 millions sterling, *i.e.*, 100 millions sterling less than the German expenditure, although during the first ten years of this period the French expenditure was greater than that of Germany.

In a modern war the factor of most importance is that the equipment, arms, ammunition and other apparatus in the hands of the troops shall be of the very latest types, and those embodying the newest inventions. With her greater expenditure in the last decade of the period under review the German Army ought logically to have been better provided than the French Army, but on this point no information is available. However, in spite of the huge expenditure incurred on armaments by Germany, her army was, at the end of the first three weeks of the present War, short of artillery ammunition; she had provided for a consumption of from 20,000 to 30,000 shells per diem, whereas the actual number of rounds fired was from three to four times as great.

In this lecture Monsieur Liesse also deals with the question of the French and German public funds and the fluctuations in their market value in recent years. The total National Debt of the German Empire and Prussia together amounts to about 760 millions sterling; in addition the other States, *e.g.*, Bavaria, Wurtemberg, Saxony, etc., have each their own debt. The total public debt of the German Empire, including that of the important municipalities amounts approximately to 1,500 millions sterling; it is estimated that not more than 80 millions sterling in value of the securities representing this public debt are held outside Germany. The deliberate policy appears to have been followed in Germany of restricting the sale of Imperial Exchequer issues outside the Fatherland, with a view to prevent, as far as possible, a fall in the market value of the Imperial and Prussian National Securities during periods of political and other crises.

In recent times considerable difficulty is said to have been experienced in Germany to get Exchequer issues taken up by the German public; the explanation given being that the German capitalist foresaw that war was coming and in consequence became apprehensive.

In 1913 Germany resorted to a novel method of raising money for public purposes, and thus gave an indication to those who could read between the lines that she was intensifying her efforts to push on her preparations for the coming war. By a law which came into force on 3rd July, 1913, a special tax was levied on the capital value of all estates exceeding a certain sum; this tax had to be paid in three instalments, the first instalment three months after the date of the passing of the law in question; the second, on the 15th February, 1915, and the third, on the 15th February, 1916. The yield of this tax was estimated at 60 millions sterling. During the present war attempts have been made in Germany to raise funds by yet another novel method. German merchants having relations with clients resident in neutral countries have

calmly notified the latter that if they wished to continue business relations after the War they must allow the sums owing to them to be invested in German Loans. It does not appear probable that many foreigners have accepted these very promising offers! Nevertheless, it is quite possible that debtor merchants have placed the needs of their own country before those of their trade creditors.

Germany, it is pointed out by Monsieur Liesse, still possesses certain advantages. She still holds intact all her workshops and if she cannot manufacture, on any scale, for export, nevertheless she can devote the whole of the plant in these workshops to the production of munitions and other warlike stores.

The fourth lecture of the series was delivered on the 18th February, 1915, and deals with the financial preparations for war made in Germany; the means employed to obviate a monetary crisis; the rôle of the Reichsbank and the Clearing Houses; process of mobilizing capital; Loan Banks.

In order to reduce the amount of the specie in circulation in Germany, and thus to render it available for governmental purposes, much pressure has been brought to bear on business and trading firms to open banking accounts and to allow banks to run the accounting departments of such firms. To assist in this direction the Government, by a law of 1909, introduced the Postal Cheque system; thus in addition to its other duties the German Imperial Post Office acts, with the aid of the Reichsbank, to a great extent as an ordinary banker. Germany has also borrowed one of our own institutions, the Bank Clearing House; an institution of this kind having been established in recent years under the auspices of the Reichsbank. In 1913, the Berlin Clearing House dealt with over 15½ million transactions by merely adjusting differences which, without such an institution, would have involved the handling of over six times the amount of specie represented by the differences in question, *i.e.* a total of 22,640 millions sterling would have had to be handled instead of the differences amounting to 3,680 millions sterling. Since the beginning of the War Germany has organized a regular "Hunt for gold"; and every possible means, persuasion, favours and compulsion have been employed to extract the yellow metal from the keeping of private individuals; no one is allowed openly to take the precious metal out of Germany. Moreover, more and more paper money, without an adequate metallic reserve, has been issued in Germany. The notes in circulation represent 5, 10, 20 and 50 marks. But since the confidence of the German public is no longer so firm as it was at the beginning of the War, the Government has had recently to relax their efforts in relation to the "Hunt for gold."

Among other matters referred to in this lecture are those relating to the maximum prices fixed by Government for the necessities of life and the Moratorium which was decreed on the 4th August, 1914.

The fifth lecture was delivered on the 4th March, 1915, and deals with the financial policy of France before the War; the difficulties experienced at the beginning of the War; the recovery; the rôle of the Banque de France; Loan Societies; reasons for confidence in the future.

Monsieur Liesse states that during the past 15 years, at least, French

finance has been conducted in a somewhat reckless manner. The public expenditure had been increasing most disproportionately to the requirements of the situation. In a decade some 80 millions had been added to the annual expenditure for which provision had to be made in the Budget. In no other country in Europe has the increase been proportionately so great. The fiscal menace had most adversely affected the French Rentes, which had, in consequence, dropped considerably in value. When war was declared a crisis supervened; the Government at once decreed a Moratorium, which was unfortunately framed, and also took other steps to prevent a catastrophe. Things were by no means going well in France; fortunately, the victory on the Marne was won in the nick of time and saved the situation.

In this lecture the position of the Banque de France and its relations with the Government are discussed. This Bank possesses the exclusive privilege of issuing bank notes in France. So far as the military situation was concerned, the increase of the German expenditure in armaments was a warning that war must be near at hand; a warning of which the Directors of the Banque de France took due notice. Some 18 months prior to the declaration of war these Directors had a stock of 20 and 5-franc notes specially printed to meet the emergency when it should arise; they realized that on the outbreak of hostilities gold and silver coinage would have, as far as possible, to be withdrawn from circulation. The issue of these notes and the reserve paper currency in hand began on the 31st July, 1914, and six days later, 400 million 20-franc and 200 million 5-franc notes were already in circulation.

At the outbreak of war, a shortage of 1-franc and 2-franc pieces made itself felt in certain towns; in these cases the Chambers of Commerce issued certificates representing the value of coins of these denominations and lodged with the Banque de France the Bank's own notes to cover the face value of the 1-franc and 2-franc certificates put into circulation.

The policy of the Banque de France has for many years been based on conservative principles, and every effort has been made by the Directors to increase its reserve of bullion; in 1913, the average amount of this reserve was 3,343 million francs, and on the 18th February, 1915, this reserve amounted to 4,237 million francs.

One of the earliest measures adopted by the French Government was to issue "Bons de la Défense Nationale." These Bons were issued in three denominations, having face values of 100, 500 and 1,000 francs respectively, and were put on the market on the 15th September, 1914. They were repayable at the end of 3, 6 or 12 calendar months and at once caught the fancy of the public. In the month of September the face value of the Bons taken up amounted to over 152 million francs; and on the 15th February, 1915, including the renewals, the amount repayable to the public in respect of these Bons amounted to no less a sum than 3,244 million francs (*i.e.* approximately 129½ millions sterling at the normal rate of exchange). The French Government are also issuing Exchequer Bonds for a term of 10 years; they carry 5½ per cent. interest per annum, and the Government has the right to redeem them any time



after five years from date of issue. The financial position of France is, according to Monsieur Liesse, eminently satisfactory. So far the War has not disturbed the economic situation in France to anything like the same extent that the economic situation has been disturbed in Germany. The French have every reason to be confident concerning the future.

The 61st and 69th numbers contain the text of the official communiqués addressed by the Central Government to the Provincial Civil Authorities in France and are the XII. and XIII. Volumes of the series dealing with such matters. The 61st number covers the period 1st—30th June, 1915, and the 69th number the period 1st—31st July, 1915; each number contains appendices giving details of the principal engagements, which have taken place during the same month as the communiqués contained therein.

The 62nd number is entitled *La Vie Économique en France pendant la Guerre Actuelle*, being the text of a lecture given by Monsieur P. Beauregard at the Conservatoire National des Arts et Métiers, Paris, on the 15th February, 1915. The lecture deals with the situation which arose in France on the outbreak of war. At this time, the manhood of the nation having been enrolled in the army, the transport and communication services having been either taken over by the military or seriously dislocated by the movements of troops, the question arose: "What is to become of our industries?" In this little volume will be found an interesting picture of the situation in France in the early days of the War, the problems which presented themselves for solution, and the manner in which the hundred and one difficulties met with were surmounted. Thanks to the conciliatory attitude of the military authorities, and the spirit shown by all classes to make the best of an inconvenient situation, matters soon began to resume something approaching normal conditions; France can, to-day, truly be said to be prosperous, in spite of the fact that the War has inflicted deep wounds on her.

The 63rd number is entitled *L'Œuvre de la France* and contains a French translation of articles dealing with the War which appeared in the London *Times* in July, 1915. These articles relate to the invasion of France and the fighting which took place subsequently down to the end of the spring of last year. The last of the articles in the series discusses the relations of France and Great Britain and therein is shown the reason why the peoples of these two countries should understand one another thoroughly.

The 64th number is entitled *La Guerre et les Monuments* and contains process reproductions of photographic views of Rheims Cathedral, of some of the more interesting sculptural details of the Cathedral, views of the Hôtel-Dieu at Beaune, of the Clothworkers' Hall, Ypres, of the Town Hall of Arras, etc. The text consists of two lectures given by Monsieur Lucien Magne, Inspector-General of Historical Monuments, on the 13th February, 1915, and on the 6th March, 1915, at the Conservatoire National des Arts et Métiers, Paris; the first lecture dealt with the architectural features, etc., of Rheims Cathedral, and the second with points of interest in connection with historical interest at Ypres, Louvain and Arras. The conduct of the German Army in destroying buildings of considerable beauty and of great historical interest,

which can never be properly replaced, is stigmatized in the strongest language. Works of art are, Monsieur Magne points out, the patrimony of the whole human race and therefore the acts of destruction committed by the Germans are nothing less than *lèse-humanité*.

The 65th number is entitled *Les Origines Historiques de la Guerre*; the text is illustrated by four sketch-maps showing the political boundaries of Europe in 1815, Germany as it was in 1866 and 1871, the Balkan States after the Treaty of Berlin and the Balkan States in 1914. The author of this little volume is Monsieur G. Arnoult, a French barrister. He points out that the diplomats attending the Congress of Vienna parcelled out Europe in 1815 in a very arbitrary manner without taking into account the aspirations of the peoples most concerned.

The object of the framers of the Treaty of 1815 was clearly that of circumscribing France, preventing her expansion northward and providing a powerful counterweight beyond her eastern frontiers. Nevertheless, France still remained the most important among the States of Europe. The conquerors had entered into a solemn pact to maintain and protect the State boundaries and organization set up by them; however, during the course of the next few decades the edifice erected on the labours of the Congress of Vienna was rased to the ground. The Revolution of 1830 dissolved the Union of Holland and Belgium, and the subsequent steps by which the political boundaries of Europe, as laid down by the Treaties of 1815, have been wholly altered is told by Monsieur Arnoult in a series of short sketches (to which explanatory notes are appended) dealing with the causes, etc., of the Crimean War, the Italian War (of 1859), the Danish War (of 1864), the War of 1866, and the War of 1870-71. This series of sketches concludes with a reference to the aims of Germany. It is pointed out that by the Treaty of Frankfort (10th May, 1871), Bismarck brought about an unstable state of peace founded, on the one hand, on the isolation and abasement of France, and, on the other, on the effort to secure German hegemony, with, as a corollary, the expansion of Austria towards the east and also in the direction of the Balkans. It was not to be expected that proud France would meekly acquiesce in this attempt to humble her for all time. Four years after the Treaty of Frankfort was signed, Bismarck himself realized that he could not prevent the recovery of France to her former status in the world; for he was snubbed both by Great Britain and by Russia in connection with his attempts further to humiliate France. Monsieur Arnoult next deals with the question of the Balkan States after the Treaty of Berlin; he points out, under the heading *Guerre d'Orient*, that Bismarck thought that he would now be able to put into execution another part of his programme, namely, that relating to the enlargement of Austrian influence in the Balkans; he hoped thereby, at the same time, to pay off his scores against Russia. Having set alight the fires in the east, Bismarck managed to prevent their extinguishment by depriving Russia of the fruits of her victory in her campaign against Turkey. Russia and her *protégés*, Bulgaria, Serbia and Montenegro, were deprived by Bismarck's manœuvres of the conquests which had been made at a great cost. Thanks to Bismarck the peace secured at the Congress of Berlin was as unstable as that obtained by the

Treaty of Frankfort. Macedonia under the Sultan of Turkey created a situation as vexatious as that of Alsace-Lorraine under the German Emperor. Russia did not forgive Germany for her betrayal in 1878, and began to arm. Indeed, the distrust created among the nations, great and small, now became so acute that they all began to arm and to prepare for the mighty conflict which Germany was to provoke in 1914.

As long as Bismarck remained in power his policy remained the same; he strengthened the Alliance, entered into in 1879, between Germany and Austria by persuading Italy to come into partnership with these countries. In consequence, the Triple Alliance was formed in 1883. Bismarck did his best to create friction between Great Britain and France, and also between Italy and France in relation to their Colonial policy; he further worked to prevent a Franco-Russian Alliance. He nearly brought about a war in 1887; the firmness of Russia alone prevented this catastrophe. Finally, Bismarck was dismissed by his young master in 1890, and in 1891 the Franco-Russian Alliance became an accomplished fact. From 1891 to 1904, German hegemony had opposed to it the Franco-Russian Alliance. During this period Edward VII. had come to the throne, and by a masterly stroke established the Entente Cordiale. Germany now found herself surrounded by a group of Powers having identical interests as regards the Pan-German menace. Something had to be done to weaken this group; Russia was egged on to undertake her unfortunate military campaign against Japan. As a result, Russia being rendered, for the time, powerless, it was now France's turn to be humiliated; she had to dismiss Delcassé, then followed a series of vexatious incidents, Algeçiras, Casablanca, Agadir, and Europe was all this time kept in a state of perpetual tension. France now acquired Morocco; the price paid being the cession of a part of the French Congo. But matters were not going altogether well with the Triple Alliance; indeed, in 1911 Austria and Italy nearly came to blows in connection with the difficulties thrown by the former in Italy's way during the Tripoli War, especially in relation to the naval warfare against Turkey. The attitude of Italy towards the Triple Alliance in the autumn of 1914 can, to some extent, be explained by the experience she suffered at the hands of her Allies in 1911; the seeds of distrust were sown at that time. However, in 1909, before the incident last referred to occurred, Austria had already stretched out her hand and had annexed Bosnia and Herzegovina. This annexation raised, in relation to Serbia, a question analogous to that of Alsace-Lorraine in the case of France. It was only due to the intervention of France that Russia was persuaded to hold her hand on this occasion. The Balkan War followed, Turkey meeting the fate she well deserved, and the face of Eastern Europe was once more changed. The pretensions of Austria, supported by Germany, were, at this time, such that it was only by a miracle that a conflagration was avoided.

However the two Germanic Empires were bent on war and the crime of Serajevo (28th June, 1914) afforded to them as good an excuse as any other on which to provoke hostilities. All Bismarck's methods were invoked in setting the ball a-rolling; fortunately, those to whom the handling of the situation, on behalf of the Teutonic Powers, was

left did not possess the genius of the Iron Chancellor, and this, probably, accounts for things having, from their point of view, miscarried.

The 66th number contains the text of two lectures delivered by Monsieur J. Violle at the Conservatoire des Arts et Métiers, Paris; the first of them entitled *Du Rôle de la Physique à la Guerre*, on the 10th December, 1914, and the second entitled *De l'Avenir de nos Industries Physiques après la Guerre*, on the 11th February, 1915. Both the lectures are illustrated with reproductions from photographs and engravings. In the first of these lectures is given the history of the development of submarine craft and aircraft; some reference is also made to the uses to which electricity is put for military purposes.

In the second lecture Monsieur Violle deals with questions relating to weights and measures; he has also something to say on the subject of optics, the manufacture of optical glass; and the electrical industry in France. The War has been a great eye-opener and has brought home to the most supine citizen how completely Germany had succeeded in monopolizing many fields of industry in France, as in other countries, with the output of her factories, and the serious risks run by France, owing to the fact that Germany had been permitted to kill many French industries.

The 67th number is a reproduction of the French Yellow Book, and contains 159 despatches covering the period 17th March, 1913, to 14th September, 1914. As some of the despatches comprising this diplomatic correspondence have already been published, in connection with other matters, in the earlier numbers of the *Pages d'Histoire* series, their text is not reproduced, but an appropriate reference to them is given instead.

The contents of this number are arranged in chapters. The first six despatches form the first chapter; they bear various dates between 17th March, 1913, and 22nd November, 1913. In these despatches is contained the warning sent by Monsieur Jules Cambon, French Ambassador at Berlin, concerning the preparations for war Germany was then making. To the first despatch are attached reports (dated 15th March, 1913) from the French military and naval attachés at Berlin, in which they make a close examination of the situation and show clearly enough that the war fever was being openly worked up in Germany. The second chapter contains the despatches bearing date 28th June, 1914, to 23rd July, 1914; they relate to the Serajevo crime, and the Austrian ultimatum sent to Serbia. The third chapter deals with correspondence relating to the Austrian ultimatum and the Serbian reply thereto; this correspondence covers the period 24th to 25th July, 1914. The fourth chapter contains the despatches bearing date 25th to 28th July, 1914; they deal with the rupture of diplomatic relations between Austria and Serbia.

The last despatch in this chapter, dated 28th July, 1914, is one from the French ambassador at Vienna to his Government, containing the information that he had learnt that Austria had officially declared war on Serbia from noon that day. The fifth chapter contains despatches, dated 29th to 31st July, 1914, relating to the declaration of war by Austria and to the ultimatum sent by Germany to Russia. In a despatch, dated 29th July, 1914, from the Quai d'Orsay to the French ambassadors

at St. Petersburg, London, Berlin, Rome, Vienna, Constantinople and Belgrade, the European situation is briefly reviewed. At this date no doubt remained as to Austro-German intentions. The despatch in question states that Austria, disturbed by the Slav propaganda, had decided to punish Serbia, and that Germany was interposing herself between her ally and the other Powers, claiming that the dispute between Austria and Serbia was merely a matter of local importance. The German Government, at the same time, expressed the opinion that Russia should be satisfied with Austria's assurance that no territorial aggrandisement was intended and that the latter would respect the integrity of Serbia. Germany, on the one hand, refused to put the curb on Austria, yet, on the other, she desired pressure to be brought to bear on Russia to restrain her from protecting her own interests in the Balkans. The attitude both at the Wilhelmstrasse and at the Ballplatz appeared to the French Government most inconsistent and unsatisfactory. The Berlin Foreign Office, whilst it urged that common action should be taken by the four Great Powers concerned, at the same time, rejected all proposals regarding the assembly of a Conference to attain this end. On the other hand, the Vienna Foreign Office deceived itself by thinking that St. Petersburg would be induced to enter into a direct discussion with it on the matters in dispute, whilst it could at the same time pursue against Serbia the course already decided upon.

Other despatches in this chapter convey information regarding the military activities in Germany and Austria.

The situation had already become exceedingly critical; German patrols were reported to have violated the French frontier on the 29th July, 1914. France had been assured of British support in the event of a war, but the question which weighed heavily on the minds of French statesmen was: "Will Great Britain wait to act until France is invaded?" The despatches show that on the 31st July, 1914, the British Foreign Minister was still unable to give a definite reply to this question.

The last despatch in this chapter is dated 31st July, 1914; in it the French ambassador at Brussels reported to his Government that the Havas agency had announced that the German Government had issued orders for the precautionary measures, known as *Kriegsgefahrzustand* (war imminent), to be taken.

The sixth chapter contains despatches bearing date 1st to 3rd August, 1914; they deal with the declaration of war by Germany against Russia and also against France.

In a despatch, dated 1st August, 1914, addressed by the French Prime Minister to the French ambassadors in London, St. Petersburg, Berlin, Vienna and Rome, the information is given them that Germany had sent an ultimatum to Russia and that it was evident she desired war with France also. It is stated that the German ambassador in Paris had called at the Quai d'Orsay to pay his respects to the President of the French Republic and had asked that steps should be taken for his personal safety. This despatch concludes as follows:—"We know that he has already taken steps for the safety of the Archives of the Embassy. This rupture of diplomatic relations without direct conflict, and although no definite reply in the negative has been given to him, is characteristic

of the wish held in Germany to make war on France. The absence of sincerity in his declaration of pacific intentions is shown by this rupture, at a time when proposals regarding negotiations had been accepted by Austria in agreement with Russia."

On the date last mentioned the French ambassador in London was able to telegraph to his Government that the British fleet was mobilized and that the question of preventing the German fleet from making a demonstration against the French coasts was under the consideration of the British Government. At this time, both Germany and Austria were still attempting to secure the neutrality of Great Britain, and did not hesitate to misrepresent the situation in order to gain their ends.

Germany, having already violated French territory at several points along the Eastern frontier of France, now recalled her ambassador at Paris; he called at the Quai d'Orsay on the 3rd August, 1914, to leave the formal declaration of war by Germany against France. This document is reproduced in the volume under review and contains the absurd accusations against France regarding the violation by her of Belgian neutrality, the bombing, by French airmen, of buildings near Wesel, of the railway at Carlsruhe and Nuremberg, of which allegations so much was heard in the early days of the War.

This chapter also contains a despatch from the French ambassador at Copenhagen to the French Foreign Minister forwarding reports from Monsieur Jules Cambon describing his final experiences at Berlin, and the abominable treatment to which he was subjected at the hands of the German Government. The seventh chapter deals with the declaration of the Triple Entente (dated 4th September, 1914), in which Great Britain, France and Russia solemnly bind themselves jointly and severally not to make a separate peace.

The 68th number contains a diary of the War covering the period 1st January to 30th June, 1915, and forms a very handy book of reference regarding the events which have occurred during this period.

W. A. J. O'MEARA.

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#### THE YEAR-BOOK OF WIRELESS TELEGRAPHY AND TELEPHONY, 1916.

Colonel Maude in his article "The Allies' Strategy in 1915" points out that the disclosure of official information, early last year, has made it possible to publish the plan of campaign agreed upon in December, 1914, by the Military Headquarters of the Allied Armies. "The quintessence of the whole plan," he tells us, "consisted in maintaining, and if possible increasing, the rate of wastage of the German armies, for in this way only was it possible to form an approximate estimate of the time the War must last, and hence the financial effort to carry on that it would involve." Information was, it is stated, in possession of the Intelligence Offices which indicated that during the first five months of the War the wastage in the German Army

alone was at the rate of a quarter of a million a month, and it was expected that if this rate of wastage could be maintained, then so far as Germany was concerned "the supply of men fit for the field would be exhausted within eighteen months." Further, it was felt that "if the enemy could be induced to *extend his frontiers*, the inevitable end would but come the sooner, always provided that a plan could be devised which would compel him to keep on attacking, under unfavourable conditions, at points of our own choice."

To bring about the results aimed at, a different scheme was, Colonel Maude points out, needed in each theatre of operations. "The Russians had room to manœuvre, and could afford to retreat far enough to constitute a serious danger to the Germans. *We* in the West had to *hold our ground*, and, being hemmed in by the sea on one side and the Rhine on the other, were denied all manœuvring possibilities." In the Western Theatre General Joffre's plan of campaign consisted in "threatening, by the methods of fortress warfare, vital points in the lateral communications along the enemy's front which he could not afford to surrender without endangering the stability of his whole line."

In dealing with the Eastern Theatre Colonel Maude states: "The first move in the Russian design was a request to the Western Allies to attack the Dardanelles, ostensibly to open out communications from the Black Sea, and to relieve pressure in the Caucasus; really, it was in order to paralyze the Austro-German, Bulgarian, Greek, and Roumanian intrigues, which every Foreign Office knew to be in full activity."

The Russian invasion into Bukhovina, the immediate despatch of four German Army Corps to the assistance of Austria, and the consequent retreat of the Russians towards Cernowitz are touched upon, as well as the Russian operations in Galicia which resulted in the occupation of the Passes in the Carpathians by the Russian Army towards the end of March, 1915, when Buda Pest and Vienna were threatened "more imminently even than before." The great General Staff in Berlin, as is well known, met this danger by a concentration about Cracow, and the Russians, in consequence, fell back before the German advance, the Grand Duke Nicholas drawing his forces together in South Poland.

The campaign in Poland is next dealt with, and attention is drawn to the difficulties of ammunition supply which so embarrassed the Grand Duke Nicholas at this period.

Colonel Maude points out that the Germans, having met with disappointment in the hopes they had cherished of "raising an insurrection behind the Russian armies, turned their attention to the overrunning of as much territory as possible with the object of acquiring 'material guarantees' with which to barter when the time for peace negotiations should arrive; and as the possession of the Balkan peninsula could threaten British interests both in India and Egypt in a most vital manner, whereas neither France nor Russia would be adversely affected by such a move, it seemed that the seizure of Salonica and the occupation of Turkish territory might drive a wedge into the mighty tree of the Grand Alliance, set it tottering, and afford an opportunity for a separate treaty of peace which should leave Great Britain out." The Allied attacks in

Champagne and the Loos region just when the Germans and Austrians were completely committed in their Balkan adventure resulted in a complete derangement in the plans of the Central Powers; whilst the resistance of the Serbian Army gained the time necessary to permit the French and British to land in sufficient force at Salonica to be in a position to check the extension eastward of the German invasion. The Russians in their turn now created a sudden diversion by rapidly transferring their troops, massing them in the angle of Bessarabia, and, at the same time, attacking in force all along their southern front, from the Marshes in the north of Cernowitz. The Germans realizing the peril in which their troops in the Balkans were placed by these Russian operations began immediately to withdraw from Bulgaria in January, 1916, with the result that the Bulgarians, being left without support from German artillery, were unable to attack the Salonica position with any prospect of success.

The opinion is expressed in the original article that "our operations have inflicted on the enemy a wastage well in excess of the quarter of million a month on which French calculations of the duration of the war were primarily based, and that the reservoirs of valid human material have now run dry in both empires."

The one thing which stands out clearly above others is the incalculable advantages which the Allies have derived hitherto by possessing command of the sea.

W. A. J. O'MEARA.



## NOTICES OF MAGAZINES.

REVUE MILITAIRE SUISSE.

No. 10.—October, 1916.

IMPRESSIONS FROM THE AUSTRO-HUNGARIAN FRONT.

*In Serbia with General Kövess's Army.*

The article begun in the number of the *Revue* for August, 1916, is continued in the number of this publication now under review.

The writer of the *Revue* article was with the VIII. Austro-Hungarian Army Corps during the advance on Arangelovatz and briefly describes the engagement fought on the 26th October, 1915, in the neighbourhood of that place. A sketch map of the locality accompanies the descriptive matter.

The VIII. Austro-Hungarian Army Corps reached Mladenovatz on the morning of the 25th October, 1915, and pushed forward its 59th Division towards Marcovatz and its 58th Division between the road to Topola and the Belgrade-Nish Railway: the Serbians retiring, at the same time, southwards to the Orasacko-Kopljari Heights.

The writer of the *Revue* article accompanied the 9th Mountain Brigade (forming part of the 59th Division) on the 26th October, 1916. He tells us that the first objective assigned to this brigade on the date in question was the capture of the village of Kopljari; this brigade was supported on its left by another Austro-Hungarian Brigade, which advanced along the road to Topola, whilst a German Division, on its right, was directed against Arangelovatz. Incidentally, it is pointed out that the Austro-Hungarian Brigades are not organized on a regimental basis, but consist of five infantry battalions, with machine-gun detachments, a brigade of mountain artillery, a company of Engineers and a Sanitary Detachment. It is also stated that the 9th Mountain Brigade had been withdrawn from the Alps to reinforce the 59th Division, as this division had suffered casualties, amounting to 1,800 men, before Belgrade.

The Austro-Hungarian advance commenced at 9 a.m. on the 26th October, 1915, and at 10 a.m. the 9th Mountain Brigade deployed for the attack. The firing line of this brigade was soon seen ascending the slopes of the Orasacko Heights; at the same time the patrols sent out on its flanks reported that they had established contact

with the brigades on the right and left of it. Almost simultaneously dense lines of German troops appeared on the scene near the Qrasacko Heights.

The Germans threatened to turn the left flank of the Serbians near Bukovic, who in consequence withdrew from their first line of defences ; the Serbians were a little later also driven out of Kopljari by the 9th Mountain Brigade. By 2.30 p.m., the Germans were in possession of Arangjelovatz, having driven back the Serbian left flank towards Topola. On the same evening the 9th Mountain Brigade occupied Kopljari and halted there for the night.

The writer of the *Revue* article states that the *rucksack* which has recently been introduced into the Austro-Hungarian Army to do duty as a knapsack has proved a failure. The following are said to be its chief drawbacks :—

1. The most impermeable canvas has been found not to be sufficiently waterproof for army purposes.

2. The soldier tries to cram too much into the sack, and thus overloads himself, reducing his marching efficiency.

3. It is impossible to pack a *rucksack* tidily, everything is thrown in pell-mell ; this tends to develop slovenly habits in the soldier.

The Austrian Landsturm are still equipped with raw-hide knapsacks ; and the men of the field army are already abandoning the *rucksack* for the old pattern knapsack. Whenever Regulars come into contact with Landsturm troops and can effect an exchange with them of their sack for the old pack, they do so.

#### ON DISCIPLINE.

An officer of the Belgian Army craves permission to say a few words on the oft-discussed subject of discipline.

He points out that discipline consists in nothing more than obedience to a collection of regulations and laws ; military discipline, being the submission to a special code of regulations and laws framed for the governance of an army. Although there is no reason why the regulations of various nations should have any similarity between, yet as a matter of fact the points of difference in the texts of the military codes of the various nations are exceeding small and unimportant.

Dealing next with the question of the observance of the forms by which discipline is judged, the author of the *Revue* article points out that were it possible for the French and the German armies to be governed by regulations drawn up in identically equivalent language, nevertheless the outward forms observed by the two armies in matters of discipline would never be the same. Differences would always be apparent, due mainly to the racial qualities of the two nations. It is well known to students of psychology and pedagogy that to obtain the best results the methods of education and instruction should be based on the intellectual and moral dispositions of those to be taught. Owing to the short time available for the training of the recruits of an army, the idiosyncrasies of each individual man cannot be studied and catered

for even were it possible to have as instructors men of the most highly-developed psychological perspicacity. Admitting that ideal methods for inculcating discipline in an army cannot be attained, resort should nevertheless be had, he urges, to those means which will induce obedience in the soldier owing to the recognition of the necessity and a reasoned respect for discipline, rather than on account of the fear inspired in him by his superiors. He is no believer in incessant drill.

### THREE CASES OF USURPATION OF POLITICAL POWER BY THE MILITARY.

The article in the *Revue* dealing with the above subject is contributed by Colonel Feyler. The adventures of the IV. Greek Army Corps, he tells us, will occupy a most interesting place in the chapter of history which deals with *military policy*. According to German reports, these Greek troops, *faithful to the decision of their Sovereign to remain neutral*, continued at their posts on the Macedonian frontier, with arms grounded, at the time that the Germano-Bulgarian forces entered Greece during their advance on Kavalla. When the communications of the IV. Greek Army Corps with its base were cut, General Hadjopoulos, their Commander, arranged with the German Commander, not that he should be allowed to rejoin the Greek Army, but that his command should be transported to Berlin. The incident in question is merely a case of history repeating itself, and, at the time that General Hadjopoulos entered into his agreement with the Germans, Press references were made to the somewhat similar treaty entered into between the Prussian General Count von York von Wartenburg and the Russian General Diebitch on the 30th December, 1812.

Colonel Feyler deals in some detail with the last-mentioned incident, based on Clausewitz's account relating thereto in his work on the Campaign of 1812 in Russia.

The principal actors in the incident in question were all Prussians by birth and education.

Clausewitz began his career in the Prussian Army, but in 1806 transferred his services to Russia; he was, in 1812, on General Diebitch's Staff, being then a lieutenant-colonel.

Diebitch, on leaving the Cadets' School in Prussia, at once joined the Russian Army. In 1812, being then only 27 years of age, he was promoted to the rank of major-general.

Von York had served in the Prussian Army all his life and is one of the heroes of Prussian military history, but he has come in for some criticism at the hands of Prussian idealists whose views on the loyalty due from a soldier are so strict as to lead them to censure a line of conduct in a military man which is only permissible, in their opinion, to those whose calling compels them to tread the tortuous paths of diplomacy. His age in 1812 was 53.

In February, 1812, Napoleon, when organizing his campaign against Russia, entered into a treaty with the King of Prussia, in which provision was made for the latter to furnish a contingent of 20,000 men and

60 guns for service with the French Army about to take the field in Russia. This contingent composed the 27th Prussian Division and with the 7th French Division under Grandjean formed the X. Army Corps under the French Marshal Macdonald.

Von York took over command of this 27th Prussian Division at the beginning of the autumn of 1812, about the time that things commenced to go ill with Napoleon's Grand Army. On the 19th December, 1812, the French commenced to retire across the Niemen into East Prussia. Macdonald was, at this time, with Grandjean's Division; a part of the Prussian troops under General Massenbach were co-operating with the last mentioned Division. Macdonald's immediate objective was Tilsit. Von York's command was at this time at Mittau, two marches in rear of Grandjean's.

The Russian General Wittgenstein, who was pursuing Macdonald, was gaining ground on him, so much so indeed that some Russian troops had succeeded in barring the approaches to Tilsit when Macdonald's advanced guard arrived in the neighbourhood of this town. However, Macdonald was able to force his way through the Russians and entered Tilsit on the 28th December, 1812. The commander of the X. French Army Corps had been disturbed since the 25th December regarding the safety of Von York's column with which he had lost touch. On the date last mentioned Von York was himself at Tauroggen, whilst his troops were near Koltiniani, two marches in rear of Macdonald's main body, but a small Russian force under Diebitch had succeeded in getting between the two parts of the X. French Army Corps. The Russian force numbered 1,400 men only, mainly cavalry, whilst Von York had 10,000 men under him. Although Diebitch was able to hold up Macdonald's patrols, he could not have hoped to make headway against Von York. In this situation, Diebitch had apparently made up his mind to gain his ends otherwise than by fighting. He sent an orderly officer to Von York to inform him that a considerable force had cut the communications of the 27th Prussian Division and to suggest that in order that useless bloodshed might be avoided the two commanders should come to an understanding as to the best way of meeting the situation.

Von York agreed to meet Diebitch, and an interview between these two generals was held between the outpost lines of the two forces at dusk. Diebitch naturally tried to make the most of his little force, but Von York does not seem to have been taken in. Diebitch's game was to detach Prussia from the French Alliance and with this object in view he desired to enter into a Treaty of Neutrality with Von York. The latter, whilst not committing himself definitely on the subject, showed himself ready to enter into such a treaty, if he could satisfy himself that the military situation was such as to justify him in taking this step. The way was opened for a further discussion on the subject and Diebitch, taking advantage of the opportunity, entrusted the further negotiations to Clausewitz, who not without difficulty succeeded in winning over Von York. The latter, not willing to do things by halves, brought over Massenbach also with him. The Prussian and Russian

commanders met by the Mill of Poscherum at 8 a.m. on the 30th December, 1812, and solemnly entered into the Treaty of Tauroggen, whereby the neutrality of the Prussian contingent was secured. Von York in this matter substituted then his own policy for that of the Prussian Government of the day. Colonel Feyler expresses the opinion that the usurpation of political powers, outside the range of their proper authority, by military commanders, as on the occasion referred to, cannot be regarded as creditable to the principal actors even where the action taken is not prejudicial to the interests of their country and of the army to which they belong. Details of a part of the negotiations which led to the signing of the Treaty are to be found in the *Revue* article.

Colonel Feyler next deals with the "kidnapping" by Germany of the IV. Greek Army Corps. He asks: "Did the Greek General Hadjopoulos carry on negotiations for as long a time as General Von York before he surrendered himself as a neutral prisoner to Germany?" Very little light has been thrown on the subject; what information there is comes from Berlin and is of an equivocal nature. In the first despatches from the German capital it was represented that the Greek troops desired to remain faithful to the declared policy of neutrality of their Chief, King Constantine. Nevertheless, they have, says Colonel Feyler, been put or have put themselves into a most humiliating position; a position which does not redound to the reputation of their nation nor of their Government.

The conduct of Greece in relation to the non-fulfilment of Treaty obligations towards Serbia and the half-hearted measures adopted for the maintenance of her neutrality, measures which have resulted in the occupation of her territory by troops of both belligerent groups, are severely criticized. Under the pretext of holding an even balance, she has not only ceded a part of her soil to the belligerents, but also a part of her army and a great part of her Sovereignty. For these things neither Germany nor the Quadruple Entente Powers are responsible but Greece alone.

As General Von York did, so has King Constantine, Chief of the Hellenic Army, done; he has caused his army to take part in a political manœuvre dictated by a personal policy and one which is in conflict with the aspirations of his people.

Finally, Colonel Feyler states that Switzerland herself, in 1914, furnished the third example of the danger arising from the usurpation of political power by the military. He points out that the international policy of the Swiss Confederation was governed at the beginning of the War and is still governed by a Treaty, which intimately affects its honour, as did the Greco-Serb Treaty that of the Hellenic Government. Switzerland has entered into an obligation to observe the strictest neutrality in all international conflicts which do not affect her own sovereign rights.

These are the considerations on which the control of the Federal Army and the conduct of its members should be based; that is to say, the army chiefs, in the exercise of their military functions, should be

careful not to commit any act which could raise the smallest suspicion, on just grounds, regarding their attitude towards the belligerent Powers. Colonel Feyler states that, owing to want of such circumspection, distrust of the Swiss Army has unfortunately arisen among the Powers of the Quadruple Entente, though probably not of so deep a nature as to involve the adoption of precautionary measures by their armies.

Colonel Feyler next draws attention to a publication which has recently been published in Paris, namely a volume entitled *La Philosophie Sociale et la Guerre Actuelle*, published by Félix Alcan, Paris, at 3 fr. 50 c. The volume, he says, is written in a tone of moderation. Its author is Monsieur J. Maxwell, a French barrister. In one of the chapters of this work, its author deals with the statement, so often made, that the Germans are poor students of psychology, because they have expected to inspire fear from the display of force. Monsieur Maxwell, however, does not agree that the German campaign of "frightfulness" has failed and, in support of his views, refers to the fact that neither the invasion of Belgium and Luxemburg nor the most outrageous violations of International Law has brought about any protest of a practical nature at the hands of neutrals. With regard to Switzerland particularly he says: "Do not let the Swiss run away with the idea that, when the hour strikes, we shall forget betrayals and wrongs we have suffered, any more than we shall forget the consoling sympathy shown us."

In commenting on the views expressed by Monsieur Maxwell in his work Colonel Feyler states that similar views are extensively held both by the Swiss and also by belligerents and that "if opinion is unanimous that the Swiss people deserve thanks for their humanitarian efforts, yet the Federal Government is suspect and categorical reproaches are levelled at our highest military chiefs for having practised a neutrality as well malevolent as hostile."

He points out that the series of *affaires militaires* which have occurred in Switzerland are responsible for the unfortunate opinions formed on the subject of Swiss neutrality. In Von York's case success attended wrongful conduct; in the case of the Greek General Staff success has not been achieved by wrongful conduct; on the contrary, Greece and her soldiers have suffered humiliation. In the case of Switzerland, the tendency on the part of the military chiefs to follow a personal policy, contrary to the obligations undertaken by the Republic, apparently still continues, and the results which will follow are uncertain. Colonel Feyler in summing up the three cases of usurpation of political power by the military remarks that in the case of General Von York, although his intentions were patriotic, nevertheless from the point of view of the *military conscience*, his action tarnished the reputation for loyalty which the public like to associate with the conduct of a soldier. A soldier should never lend himself to acts which would result in deceiving his chief, in negotiations for the surrender of his troops and, in a general way, in any equivocal or base proceedings.

The incident connected with the IV. Greek Army Corps does not appear to have gained even any political advantage for Greece. Whether

the transport of these troops was negotiated in accordance with the intentions of the Chief of the Army, or whether it was an act of violence against the Greek troops, the cause of the incident arose from the personal and time-serving policy of the Chief of the State. The incident has strained the military mechanism ; dispersion of the army and abasement of the nation have followed in its train. The wrongful acts of the Swiss General Staff, rendered possible by want of resolution on the part of the Government, have provoked dissensions which have weakened national defence and have, at the same time, awakened suspicions, which have put and still put Switzerland in danger, and of which Switzerland will for a long time yet feel the bitter taste.

#### NOTES AND NEWS.

*Switzerland.*—A special correspondent contributes an article in which he states that in the last session of the Federal Parliament, which closed on the 4th October last, debates on matters connected with the Swiss Army occupied an important place. There have been many complaints recently regarding abuses which are alleged to have crept into the Swiss Army ; the Federal Council have agreed to carry out an investigation into these matters and have promised to take remedial measures, if the complaints should prove to be well founded. The fact that it was a German-Swiss who tabled the motion calling on the Government to institute an enquiry into the alleged abuses has given considerable satisfaction in Switzerland.

Another *affaire militaire* appears to require the attention of the Federal Council ; this time the alleged offender is a staff-surgeon.

Whilst the motion relating to the alleged abuses in the army was under discussion in the Council of State, another motion, signed by all the French-Swiss Deputies, was hotly discussed ; by its terms the Federal Council was called upon to define more exactly the relations between the civil and military authorities. The motion aimed more particularly at securing the supremacy of the civil power over the military ; it was negatived by 89 to 55 votes. The majority consisted of the German Swiss radical and catholic compact, whilst the minority was composed of the French Swiss and the Socialists.

It is pointed out in this article that although the Swiss Militia has made much progress during the past two years in most matters, it has not done so where discipline is concerned. It is suggested that the way to bring about an improvement in this respect is not only by taking severe measures in all cases of infractions of rules and regulations, but also by reforming the system of instruction of young officers and by improving the national education of the Swiss people.

#### INFORMATION.

*L'Union Fédérale.*—The *Revue* publishes a letter addressed by Monsieur J. B. Rusch, the Editor of the *Aargauer Volks Blatt*, to the *Gazette de Lausanne* ; it is dated Baden, 12th October, 1916. In an editorial

note it is stated that this letter has a considerable value. Since the beginning of the War many people have been of opinion that the present hostilities cannot come to an end until the German element in Switzerland thoroughly understands that there must be a return to the liberal and democratic traditions, which were the origin and *raison d'être* of the Swiss Confederation. It is stated that the letter in question has the proper ring about it; it shows the direction in which things must move to re-create a proper national spirit in Switzerland. The editorial note continues: "The false *Kriegstimmung* of the early days of the War is dying out; good sense is coming by its own; Swiss sovereignty, lost sight of by some, has come to light again; the conception of Swiss neutrality will emerge revived, and strengthened by the breath of independence and pride."

This number of the *Revue* concludes with a bibliography, in which the publication is announced of a number of works dealing with the present War.

W. A. J. O'MEARA.

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RIVISTA DI ARTIGLIERIA E GENIO.

May—June, 1916.

RESUMPTION OF ITALIAN MILITARY OPERATIONS FROM THE 10TH MARCH  
TO THE END OF APRIL, 1916.

Up to the 10th of March when the German attacks on Verdun became intensified, the Supreme Italian Command for consolidation with its Allies, desired in its turn to exercise a strong offensive pressure on the theatre of operations in order to impede the enemy, especially his artillery, by eventual diminution of his forces against the French front. So after the long winter calm, the Italian activity was again begun but with renewed vigour, although seriously impeded by a period of bad weather.

The first successful attacks were made on the 6th March on Tofana, on the 7th on the Zagora centre; on the 13th on Rombou and on the heights of Lucinico (Gorizia). On the latter day there was obstinate fighting along all the front of the Lower Isonzo and the Carso, on the side of Sabotino, on the positions east of Montfalcone, with particularly good results in the zone of San Martino del Carso. Strong redoubts were stormed and one of the principal places of the enemy's defences called Dente del Groviglio was captured. On the 14th new progress was made on the heights of Lucinico, on the 15th in Tofana; the 17th on the height Sabotino, where the Bosco Quadrato (square wood) was occupied. The same day the Alpine troops captured the formidable positions of Gelbwand north-east of Joi de Montasio. On the 21st the enemy suffered loss at Mezli and on Siene (Monte Nero);



on the 22nd possession was taken of the Cordevole Height north-east of Sasso di Mezzodi.

Surprised by an unexpected offensive, the enemy, while calling up reinforcements in haste from other fronts, attempted violent counter-attacks with the idea of recapturing the ground that we had taken from time to time, and especially of paralyzing our forward attacks on these positions. Obstinate combats took place south-west of S. Martino del Carso on the 14th and 16th March; on the heights of S. Maria di Tolmine on the 17th and 18th March; in Valle Sugana against the front of Marter-Tesobbo on the 22nd March. Everywhere the Italian troops resisted strongly the enemy's attacks, rectifying the front in those parts which were much exposed to the enemy's artillery.

\* \* \*

The Austrian Command having successively received large reinforcements from the Balkans and Russian fronts, attacked on the 26th March with the assistance of intense artillery action and thrust forward a violent attack against important positions on the height But (Carnia) causing at the moment the abandonment of Pal Piccolo. The Italian counter-attack was promptly made and extended along all the front from Monte Croce to Pal Grande, and after a violent combat lasting 30 hours the strong positions of Solletta Freikhofel and of the Passo del Cavallo were stormed and the Pal Piccolo regained. On the same day, the 26th, the Austrians again attacked the heights of Podgora and Peuma to the north-west of Gorizia. Here the enemy had a slight initial success which was transformed on the 27th into a magnificent victory for the Italian arms. The fighting lasted 40 hours during which the Austrians made a strong and obstinate defence, but at sunset after vigorous endeavours the enemy was repulsed, all the contested trenches being stormed. Collecting fresh reinforcements the enemy on the 29th recovered ground on the heights Padora to Sabotino to the north-west of Gorizia, but being several times repulsed and counter-attacked was eventually placed in flight leaving many dead on the ground.

From that day, the Austrian Command gave up further offensive endeavours, and instead, in the southern zone of the Trentino made large concentrations of troops, especially artillery. During this first period of the operations the Italians captured about 800 prisoners (including 30 officers), four mitrailleuses, a great quantity of arms and ammunition, and war material of every kind.

\* \* \*

Again taking the offensive the Italians were not content with the few brilliant successes which followed for there succeeded a new phase of increasing activity. The operations developed in a greater manner along the frontier of Trentino-alto Adige, in the Upper Isonzo and on the southern margin of the Carso.

In the bitter and icy zone of Adamello (Valcamonica) on the days of

April 11th and 12th in tempestuous weather the Alpine troops stormed the enemy's positions on the slopes of Lobbia Alta and along the crest of Dosson di Genova at a height of beyond 3,300 metres. On the 17th detachments occupied the pass of Monte Fumo (3,402 m.). On the 20th they captured the difficult outposts of Lobbia and of Fumo and the steep precipices of the high Chiese, after two days of obstinate fighting on the glaciers, and stormed the positions of Crozzon di Fargorida (3,082 m.), of Crozzon di Lares (3,354 m.), of the Lares Pass (3,255 m.) and of Cavento (3,195 m.).

On the 5th in the valley of Daone and in Giudicare possession was taken of an enemy's position north-west of Pracul in the Plaz country and of a height strongly fortified by the enemy between the bridges of Plubega and Cima Palone.

In the Valle di Ledro on the 5th April there were methodical offensives aiming at assuring the possession of the deep valley with the capture of the heights that form the southern slopes, and these, together with a strong line of enemy's entrenchments along the southern slopes of Monte Pari and of Cima d'Oro and on the steep rocks of Monte Speroni, were captured on the 10th.

\* \* \*

In Valle Sugnana the first skirmishes took place on the days of the 4th, 5th and 6th of April; reconnoitring detachments assaulted and dispersed the enemy's troops on the front of the torrent Larganza. On the 12th the terraces of S. Osvaldo and half of the formidable position of Panarotta were captured. The enemy on the 16th launched a very violent attack with strong infantry columns—14 battalions. Repulsed with heavy losses, he concentrated a heavy fire on our positions with guns of every calibre.

On the 17th, 18th, and 21st, new attacks were repulsed by the solid resistance of the Italians, but the intense and uninterrupted fire of the enemy's artillery caused them to abandon the more advanced positions which there had not been time to reinforce against the artillery fire. The retirement was effected in a most orderly manner, and without pressure by the enemy.

On the Cordevole Height on the night of the 18th a heavy mine was exploded under the crest of Col di Lana, the infantry detachments of the Calabrian Brigade overcoming with the bayonet the last of the enemy's remaining positions. On the 19th April the enemy's artillery concentrated a very violent fire on the Italian trenches interrupted only by a short rest, during which impetuous attacks were always repulsed by our troops.

At the head of the valley of Sexten on the night of the 16th Italian detachments gained the Passo della Sentinella at a height of 2,717 m.

\* \* \*

On the Upper Isonzo on the 8th April the enemy made a surprise assault on a lunette at Vodil—Monte Nero—and succeeded in partly breaking through, but was promptly counter-attacked and repulsed with heavy losses. Other enemy's attacks against positions in

Ravniglaz and on Iavorek in Conca di Piezzo were also repulsed on the 12th and 13th.

More violent action took place on Mezli (Monte Nero) on the 13th. The attack commenced at night and was protracted with intense vigour and alternating results. In the evening the enemy was counter-attacked and repulsed leaving many dead on the ground.

The enemy made fresh endeavours against positions on Cukla and Iavorek on the night of the 27th, and against Ravniglaz on the 28th, which failed owing to vigilance and firm resistance.

\* \* \*

Brilliant offensive operations were carried out by the Acqui Brigade in the sector east of Selz. Commencing on the 27th March, by the 29th complete possession was taken of a well-fortified trench 150 metres in length. On the night of the 1st April the Italian infantry captured another trench, and retained possession against violent counter-attacks.

Operations were suspended up to the 22nd, in order to reinforce the captured positions. On the night of the 22nd with a new impetuous attack the Acqui Brigade stormed another and more strongly fortified entrenchment, extending for 350 mètres north and south of the valley of Selz. Again, here, as at Col di Lana, the enemy opened fire with batteries of every calibre with short intermittance during which there were always new infantry attacks.

Altogether in the actions of this second period the Italians captured 1,300 prisoners, including 40 officers, besides 2 guns, 12 mitrailleuses, some thousands of rifles, a great quantity of ammunition, bombs, and all kinds of war material.

\* \* \*

During this period aerial warfare regained a development similar to that at the commencement of hostilities, with a constant tendency on the enemy's part to destroy buildings and inhabitants. The first attack took place on the 26th March. Three squadrons, two of 6 aeroplanes and one of 12 hydroplanes, with actions converging on Trento, Pergine, Gorizia, and Pola, attempted to shower bombs on the barracks and huts of the Italian army. But owing to the admirable organization of the aerial defences, the operations with which they sought to sow ruin and death on the barracks, etc., were completely unsuccessful. The enemy's aeroplanes exposed to the fire of artillery and rifles, and attacked by pursuing air squadrons, were everywhere dispersed and put to flight and four were beaten down causing death or the capture of the aviators.

On the following days the enemy's attempts at aerial incursions were also repulsed and dispersed; an Austrian aeroplane was beaten down near the island Morosini (Lower Isonzo); on the 4th two others, struck by our anti-aerial artillery, were seen to fall in enemy's lines.

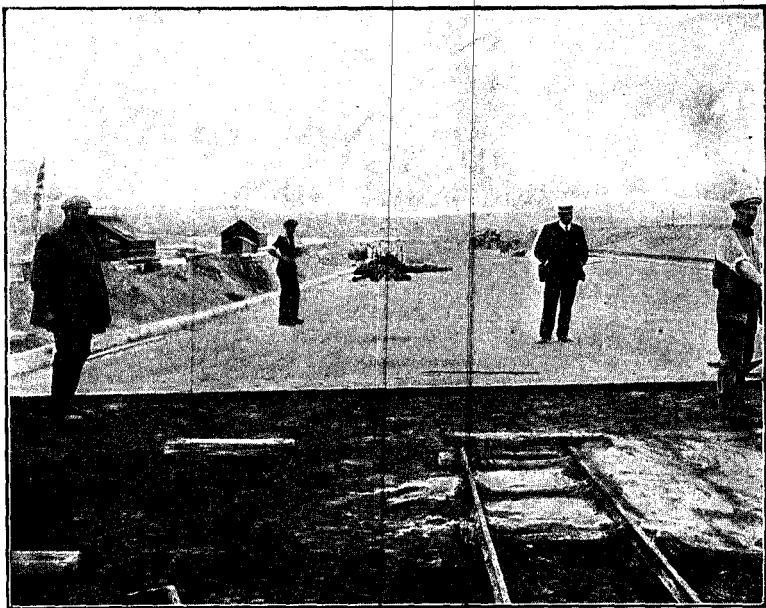
The Italian aviators also passed to the attack. On the night of the 2nd during a strong wind, an Italian dirigible passed over Opcina, an im-

portant railway junction on the railway line of Trieste, and destroyed 800 kilogrammes of explosives, and causing fires in the great depôts of provisions. Many other aerial attacks were carried out successfully. On the other hand the enemy attempted two incursions at night with hydroplanes, the first on the night of the 11th against Grado which were quite unsuccessful; the second on the night of the 18th against Treviso, and other small localities on the Venetian plain on which they threw 30 bombs killing 10 persons and wounding 20. On their return one of the enemy's hydroplanes was beaten down at Grado and the aviators were made prisoners.

On the afternoon of the 20th a squadron of aeroplanes attacked in the port of Trieste, the arsenal of the Austrian Lloyd's, bombarding it and causing great destruction. Only two of the enemy's hydroplanes succeeded in escaping the ruin by taking refuge at sea. From this day the enemy's aerial activity was limited to timid incursions of aeroplanes flying rapidly before fire aimed at them and threatened by aviators. Altogether in this brilliant period of aerial warfare the enemy lost 13 aeroplanes, besides the hydroplanes destroyed at Trieste. On the Italian side there were no losses.

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