CAPTAIN WILLIAM INNES, R.E., was the eldest son of Colonel Thomas Innes, commanding the Royal Aberdeenshire Highlanders Militia, of Learney, Aberdeenshire, and was born in the year 1841. In 1853 he was placed at the Ordnance School of Carshalton, at that time the Government preparatory school for Woolwich; and in 1855, the entrance to the Ordnance Services, by nomination, being then abolished, he passed into the Royal Military Academy by the first competitive examination. After a three years' course of study, he left the Academy with distinction as First Cadet of the year, and elected to take his commission in the Royal Engineers, obtaining his lieutenancy on the 22nd of June, 1858. From a very early period of life he had shown great aptitude for science, and his character and attainments at the Military Academy led to his being selected, early in 1859, for employment on the works in progress on the fortifications of Dover, for which he designed Fort Burgoyne, under the direction of Colonel Du Cane. He continued there till January 1862, when the alarm of war with the United States on account of the "Trent" affair occasioned the despatch of troops to Canada. The navigation of the St. Lawrence being closed at that season, the route *viâ* St. John's, New Brunswick, had to be adopted, and Lieutenant Innes, being attached to the 4th Company, Royal Engineers, which formed part of the force sent out, on reaching St. John's, was immediately employed in the military survey of the United States frontier, and of the line of communication between St. John's and Lower Canada.

On the settlement of the dispute with the United States, Lieutenant Innes was sent to Halifax, and for five years was occupied in the construction of works for the defence of that harbour at Point Pleasant and George's Island, the fortifications of which he designed, with a prevision as to the future requirements of coast defence very much in advance of the time. During the winter months, when the rigour of the climate necessitated the suspension of the works, he obtained leave of absence, and repeatedly made journeys through the United States and Canada. Being ever on the outlook for opportunities of acquiring professional information from active service, and anxious to observe the operations of the war at that time raging in the United States, he applied to the authorities at Washington for permission to visit the northern army. Meeting with a refusal, and resolved not to be baulked, he cautiously approached the lines of the contending armies, and watched for an opportunity of passing the outposts. At length, favoured by a dark night, by the aid of a guide, he ran through

the pickets and patrols near Harper's Ferry, and succeeded, with much risk of life and at great pecuniary cost, in reaching Richmond. He had provided himself with introductions to officers of rank in the Confederate forces, and was well received in Virginia, enjoying opportunities of seeing their army in the field, visiting Charleston and Fort Sumter, and studying whatever interested him in a professional point of view. His return to the northern side was again attended with considerable hardship, having to cross the Potomac, and make his way on foot to Baltimore through the patrols of the northern army, when he narrowly escaped arrest as a spy. During the Fenian raids in 1866 he accompanied the field force sent from Halifax to observe the New Brunswick frontier. At Halifax he was distinguished as a regimental officer, and as a most able engineer. While here he carried out a series of experiments upon the proper method of ventilating powder-magazines, or other subterranean buildings; and these experiments resulted in a complete revision of the old Ordnance regulations for the proper execution of a duty most important and interesting to all engineers. He returned to England in 1867, and, after a short stay at the Isle of Grain, was employed on the Spithead forts at Portsmouth, then just above high-water mark; from thence, in May 1868, he went to Portland, where he was employed in the construction of a similar work at the head of the breakwater. When, in 1869, his distinguished relative, Colonel Sir J. W. Gordon, K.C.B., R.E., was appointed Inspector-General of Fortifications, he chose Lieutenant Innes as his A.D.C., and was accompanied by him in his inspections of the fortifications throughout Great Britain. He had thus, from his passing the threshold of the profession, on quitting the Royal Military Academy, been for ten years continuously occupied in the highest department of his branch of the service; and when his appointment as A.D.C. to the Inspector-General of Fortifications was sadly terminated by Sir W. Gordon's death, his eager temperament led him to look for larger and more comprehensive work than could then be found for him at home. For some time he filled the appointment of District Engineer Officer at Shoeburyness, where his work was mainly connected with the interesting artillery experiments then in progress, and, as was his invariable habit, interested himself keenly and worked with all his might at whatever he had in hand.

Having in 1871 attained the rank of Captain, he eventually, in 1872, accepted the appointment of Assistant Colonial Engineer of the Straits Settlements, and was given charge of the Penang district. Here his employment was almost entirely of a civil nature,

although he still kept up his interest in matters connected with his military profession.

The difficulty of carrying out the works necessary for a young and wealthy colonial settlement was enhanced by the utter want of an efficient staff. The population of Penang is well described in a letter from Captain Innes written in 1873, in which he says: "We have the most extraordinary jumble of nationalities here you ever saw; there is pretty well every sort of European amongst the small number of whites, to begin with. The great bulk of the natives are either Malays, who are the real natives, Tamils, or Chinese—a large proportion of these two last being birds of passage only; but there are sprinklings of Jews, Arabs, Abyssinians, and nameless heathen of all sorts from the Red Sea; every kind of Indian, Burmese, and Siamese from the north; and Javanese and outlandish Malay tribes *ad libitum* from the Archipelago generally." From these Captain Innes had to make his own staff; and although he complained of the great difficulty, he seems to have succeeded in the task, in some cases taking Malay and Chinese boys from school to train them himself in his office. The principal works carried out by him while at Penang were, a new prison, at a cost of £20,000, and a bridge over a tidal river 600 feet wide and 15 feet deep at low water; he had designed a town-hall, and was engaged in designing two lighthouses at the time of his death. Besides this work, he had, of course, the carrying out of the roads, drainage, and other engineering works of the settlement. In the course of his duties as Colonial Engineer he had carried out surveys of the settlement, and was fully acquainted with the newly-acquired territory of Perak. As at present much interest is concentrated on this part of the world, some description of the country from the pen of Captain Innes will be interesting. In 1873 he wrote from Penang: "The country is extremely beautiful both here and at Singapore; the Malay peninsula is a rugged, hilly country all the way up the middle, but with low, flat plains chiefly skirting the coast; and where you get one of our settlements, cultivated like a garden, in the low country, with a background of steep hills clothed with dense forest to the top, and occasional bare peaks, the effect is very fine indeed. There are no seasons worth mentioning in the Straits; the weather is always showery, the whole landscape always fresh and green, and the thermometer never below 70°—seldom so low. It is not bracing, and one cannot work without perspiring at every pore." In July 1875 he wrote: "I've done a good deal of exploring into the new territories we have got lately, which I find very enjoyable, and, con-

trary to the preconceived notions of tropical jungle, not unhealthy. There are very few inhabitants indeed outside our old settlements, which are densely populated; $\frac{99}{100}$ths of the country is covered with a dense and lofty forest; there are no roads, and scarcely any footpaths; the natives always stick to the streams, and travel by water, and it is precious hard work when you do not follow their example. I once took a long day and a half in going 12 miles from one river to another."

A few weeks before Mr. Birch's assassination Sir W. Jervois made an official tour, as governor, through the district of Perak, in which Captain Innes attended him. One object of the journey was to assemble the native chiefs, and to attempt to reconcile them to the necessary conditions of a settled government; but they kept aloof, and manifested a suspicious and unfriendly disposition, and Captain Innes, in his last letter, seemed to entertain a presentiment that all was not right.

When the news of Mr. Birch's assassination, on the 2nd of November, arrived at Penang, Colonel Anson, the Lieutenant-Governor, at once ordered Captain Innes to Perak, to temporarily replace him. He arrived, with some small detachments of troops, at the Residency on the 5th, and on Sunday, the 7th, marched out to attack two stockades which the Malays had formed up the river, and from which it was feared they would concentrate a force to attack the Residency. Unfortunately, it appears that for the only gun available no boat, from which to fire it with safety to its stability, could be found; the expedition consequently started with no artillery but a few rockets. After a march of about 1 mile, fire was suddenly opened from a stockade concealed by tall maize and plantain-trees. The rockets were brought up, but proved useless. A retreat being out of the question under the circumstances, an attack was made by the troops in open order, in carrying out which Captain Innes, while accompanying the officer in command of the troops, was shot through the heart, and fell dead without uttering a sound.

Captain Innes has been blamed for the failure of this attack, which was undertaken by his order while acting as Resident at Perak in the place of Mr. Birch. It is easy to be wise after the event. It appears that every officer with him agreed as to the necessity for the attack and its mode of execution. So serious a resistance was evidently not anticipated; and had not the rockets proved useless when tried, it is probable that they would have cleared the stockade of its defenders, as was done under similar circumstances a few days afterwards.

The "Papers on Subjects connected with the Duties of the Corps of Royal Engineers" have been enriched by several communications from Captain Innes of interest to engineers generally. These include "Notes on the Exterior Slopes of Fortifications at Dover;"[1] "Notes on the Defences of Charleston, South Carolina;"[2] "On Damp in Powder Magazines as affected by Ventilation;"[3] and "Notes on Supply, Storage, and Testing of Portland Cement;"[4] and in 1871 he joined in a discussion at the Institution on the Strength of Cement.[5] In 1874, a somewhat one-sided advocacy of casemated as opposed to open batteries for coast defences having appeared in the "Royal Engineer Journal," he wrote two letters to that paper, in which he ably upheld the superior advantages of well-laid-out earthen batteries in positions suitable for their use, at the same time combating the idea of the alleged practical invulnerability of the present type of casemated batteries. He also sent home from Singapore, for publication in the "Royal Engineer Journal," an interesting series of papers on Coast Defences.

During his training at the Royal Engineer establishment at Chatham, and indeed throughout the whole of his service, Captain Innes was remarkable for an assiduity and conscientious attention to his duties, which, added to his natural talents, marked him out, in the opinion of his brother officers, as destined to the highest distinction in the corps. Indeed, his immediate contemporaries regarded him as one of the most promising officers among the Captains of Royal Engineers. The thoroughness of his investigations into any subject under consideration, his experience, the logical precision of his reasoning, and the modesty of his language, attached the greatest weight to any opinions he might give on professional questions, such as were frequently discussed at the War Office among the officers of the Royal Engineers. In all the posts which he held he retained the reputation for excessive devotion to duty, and of intelligence combined with extraordinary clearness of decision and purpose. Of a shy, retiring manner, with the utmost zeal and ardour in his work as a soldier and as an engineer, with perfect self-suppression in the execution of all work intrusted to him, having naturally a gentle and amiable disposition, but the greatest fearlessness in the performance of his duty, even when against the interests of his immediate associates, Captain Innes always upheld nobly the character of a conscientious "officer and gentleman."

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[1] New Series, vol. x., p. 128. [2] New Series, vol. xiii., p. 16.
[3] „ vol. xvi., p. 69. [4] „ vol. xxi., p. 1.
[5] *Vide* Minutes of Proceedings Inst. C.E., vol. xxxii., p. 319.

During his Staff employment in London he was elected an Associate of the Institution, on the 7th of December, 1869; and there was no more regular attendant in the library or theatre of the Institution of Civil Engineers than Captain Innes; and nothing there pleased him more than the well-known speech of his chief, Sir William Gordon,[1] in reply to the complimentary remarks by the President, Mr. Vignoles, upon the military engineers of this country. In the death of Captain Innes the Civil Engineers of Great Britain have lost a most ardent friend and a most promising Associate; the Royal Engineers must lament the loss of a brave and accomplished comrade; the country is deprived of the services of a scientific soldier who devoted his whole life to her interests, and died gallantly in action, to her honour.

MR. FREDERICK PECK was the seventh son of the late Mr. William Peck, of Cambridge, who for many years carried on an extensive business as a builder in that town, and was born on the 26th of April, 1828. He learned the practical part of the profession of an architect in his father's works, and was subsequently articled to Mr. Giles, an architect, at Taunton. For a time he was in practice as an architect at Maidstone, but for the greater part of his professional career he resided in London.

Among the public works erected by him, mostly taken in competition, were the Agricultural Hall at Islington, the new Town Hall at Cambridge, the Cemetery at Bury St. Edmunds, the Albert Memorial College at Framlingham; also the Trent and the Bedford Colleges, Lincoln Gaol, Whittlesea Workhouse, Maldon Workhouse, Beddington Orphanage, the School House and Works Hall at Leiston, besides several churches and private residences. His was also the accepted design for the intended International Exhibition building at Madrid, which, however, has not yet been erected.

Mr. Peck was a man of great energy and resource. He had unusual capacity for work, and had attained a considerable degree of eminence in his profession; but in the early part of 1874 an overworked brain obliged him to seek perfect relaxation for a time, and, with this view, he retired to Yoxford, in Cambridgeshire, where he died very suddenly on the 23rd of March, 1875.

Mr. Peck was elected an Associate of the Institution on the 11th of May, 1869.

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[1] *Vide* Minutes of Proceedings Inst. C.E., vol. xxix., p. 319.