This article was downloaded by: [University Of Maryland]

On: 13 October 2014, At: 23:43

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954

Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK

Royal United Services Institution. Journal

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rusi19>

The Use of Pigeons as Messengers in War and the Military Pigeon Systems of Europe

Captain H. T.W. Allatt

Published online: 11 Sep 2009.

To cite this article: Captain H. T.W. Allatt (1886) The Use of Pigeons as Messengers in War and the Military Pigeon Systems of Europe, Royal United Services Institution. Journal, 30:133, 107-148, DOI: [10.1080/03071848609416366](https://doi.org/10.1080/03071848609416366)

To link to this article: <http://dx.doi.org/10.1080/03071848609416366>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan,

sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Friday, January 29, 1886.

GENERAL SIR C. P. BEAUCHAMP WALKER, K.C.B., Vice-President, in the Chair.

THE USE OF PIGEONS AS MESSENGERS IN WAR AND THE MILITARY PIGEON SYSTEMS OF EUROPE.

By Captain H. T. W. ALLATT, Duke of Cornwall's Light Infantry, &c.

THE maintenance of communications in war is of paramount importance. A reliable and rapid system of communication may be said to be an essential element of success. The methods employed will vary with the many different conditions under which the military operations are conducted. Mounted messengers, railways, and telegraphs may be classed as the ordinary means by which intelligence is conveyed, the value of each depending upon the rapidity of transit.

Of these the electric telegraph is obviously the most valuable and the most satisfactory, but it is at the same time the most delicate and the most liable to interruption or destruction. It is therefore imperative to consider in what manner messages can be safely and expeditiously transmitted to their destination when telegraphs fail, and railways and human messengers are too slow to be of any value or cannot be used. We in England are apparently somewhat behind-hand in the solution of this problem, although many of our recent wars have afforded favourable opportunities of studying it.

On several occasions we have put up with the interruption of our communications for more or less lengthened periods. We all remember the isolation of General Roberts and his troops in Cabul. In the Zulu and Boer Wars several of our posts were cut off. In General Graham's campaign of 1883 our telegraphic communication between Suakin and Berber was constantly interrupted, sometimes for several consecutive days. In the expedition of the unfortunate Hicks Pasha, no attempt was made to maintain communications. In 1885, when Sir Herbert Stewart led his little force across the desert to save Khartoum, no communication was received from him for a full week after the news of the fight at Abu-Klea. And, lastly, in the recent Burmah War no news was received from the front between the 21st and 27th November, 1885.

The application of other and extraordinary methods of corresponding becomes necessary under any of the following circumstances:¹—

¹ See "Kriegs-Telegraphie," by R. von Fischer-Truenfeld, Berlin, 1879.

1. When the necessary supply of materials for the construction of the telegraph is not forthcoming.
2. In communicating to and from an invested place.
3. In countries where the establishment of the telegraph is the work of much time and labour, as in mountainous or swampy districts, &c., or where the telegraph cannot be efficiently guarded.
4. In combined operations between a moving fleet and coast fortresses or land forces.

All these cases, except the second, can usually be met by the application of signalling. The excellent work done by our signallers in Afghanistan, in South Africa, and in the Soudan is known to most of us. There are, nevertheless, conditions under which the establishment of signal stations becomes a work of difficulty owing to the presence and activity of the enemy, to the topographical peculiarities of the country, or to atmospheric causes. In such cases long-distance signalling cannot always be established, and if established, it might not be a desirable method to employ. The prominent points chosen as transmitting stations would be precisely the ones that would be first seized by an enemy, and even if such points were occupied and guarded, a civilized enemy might be able to read every message that was signalled.

Another case is the absence of suitable points on which to establish stations. This difficulty was encountered by the signallers with Sir Charles Warren's force in Bechuanaland, and is thus recorded:¹ "The country between Maritzani and Mafeking consists of long rolling plateaux, covered with thick bush and thorn trees, rendering signalling without artificial aid impossible. A series of mounds had therefore to be constructed as rapidly as possible, and lanes cut through the bush and thorn trees, which of necessity occupied so much time, that through communication was not established until a week after General Warren's arrival at Mafeking." Lastly, any means of communication which depends upon the deciphering of signals exhibited at a distant station is necessarily dependent upon contingencies of weather. Thus we find that the interesting series of military signalling operations which were carried out between Richmond and Portsmouth in August, 1884, were very much interfered with by the atmospheric surroundings, "which on two successive days prevented the use of the heliograph except at rare intervals, and then only for a minute or two at a time." In 1885 better results were obtained, but it was found that "the drift of the smoke from London made it impossible for the signal party at the station on the Epsom Downs to discern more than the barest outline of the next point of observation some 14 miles distant."²

Having regard to these and similar cases in which we cannot look to the signalling staff readily to establish communication, it becomes

¹ See "The Military Telegraph Bulletin," p. 153, 15th October, 1885.

² Pigeon races with young birds took place in the South of England on each of these days in 1884 and 1885.

necessary to investigate the merits of other methods which suggest themselves for consideration.

The application of balloons is confined to very narrow limits. Despite the great improvements both in speed and steering power lately effected by French *aéronauts*, they are not yet in a condition to undertake so important and delicate a task.¹ During the siege of Paris sixty-four balloons left the capital. Two, of which no tidings were ever received, were probably lost at sea; five were taken by the Germans, viz., three of them in the occupied parts of France, one in Bavaria, and one in Prussia; six were carried into Belgium, five into Holland, and one landed in Norway. The remaining forty-five descended, more or less successfully, in French territory not in occupation of the enemy.² An attempt was made by Monsieur Tissandier, the well-known *aéronaut*, to reach Paris in a balloon, but without success. What the future may bring forth in the way of improvements in *aéronautics* cannot even be estimated at the present time, but until some radical change takes place it is evident that balloons are too much at the mercy of the winds to be depended on either for accuracy or speed.

The only remaining medium for carrying information is the intelligent, hardy, incorruptible, and home-loving messenger pigeon. To the services of these birds the Parisians were indebted for the only news that reached them from outer France, during the four and a half dreary months that the investment lasted.

Before proceeding further, it is necessary to make some allusion to the name by which pigeons which fly long distances are known in this country. It is a common error amongst those whose love and knowledge of pigeons are derived from the process which usually follows the appearance of a bunch of their innocent little toes protruding from the centre of a pie-crust, to apply the term "Carrier Pigeon" to these birds. This from a pigeon fancier's point of view is an unqualified mistake. The English carrier is a purely fancy variety, bred up to an artificial standard of perfection, but quite useless as a messenger pigeon: during the past 200 years this breed has never been employed in this country for that purpose.³

Although undoubtedly the descendants of the Persian carrier⁴

¹ There is an excellent article on "Carrier Pigeons in Warfare" in "Colburn's United Service Magazine" for March, 1885.

² "En Ballon! pendant le Siège de Paris," by Gaston Tissandier.

³ In Moore's "Columbarium" (1735), it is stated that good carriers are too valuable to be employed in this manner, and that pigeons called "Dragons" and "Horsemen" are the breeds used as messengers in England.

In a book published in 1694, called "Mercury, or the Secret and Swift Messenger," by John Wilkins, "late Lord Bishop of Chester," there is the following paragraph: "There is a smaller sort of pigeon of a light body and swift flight, which is usually made choice of for such particulars; and therefore the kind of them is commonly called by the name of carriers." The description "light body" could not be applied to the true carrier even in those days. The reverend author was evidently not a pigeon fancier.

⁴ This is sufficiently proved in "The Variations of Animals and Plants under Domestication," by Darwin. Moore also states "the original of these pigeons came from Badora in Persia."

pigeons that were employed as messengers in that country some 700 years ago, the English show carriers of to-day have long since completely lost the attributes which gave them their name. Like all highly developed fancy breeds they are often delicate, and are deficient in the strength, the intelligence, and the vigorous constitution necessary in a messenger pigeon. They may be recognized by the great length of face and beak, and by enormous excrescences, called wattle, at the base of the beak and round the eyes. We know, however, that the strikingly peculiar appearance of the present show carrier is due to careful breeding by English fanciers, and existed to a very modified extent in the original imported bird.¹

The pigeons used at the present period throughout Europe as messengers are called by English pigeon fanciers "Homers" or "Homing Antwerps." The French, Italian, and Portuguese call them "Messenger Pigeons." The Germans apply the term "Brief-Tanbe" to them, and the Belgians have called them "Pigeons Voyageurs" for over half a century. It may be argued—and with some show of justice—that the Homer's proper appellation is "The Flying Carrier," a distinction to which the fancy carrier cannot pretend. Be that as it may, I have preferred, in the presence of this established unfortunate misnomer, to follow the example of our foreign neighbours, and to apply the term "Messenger Pigeon," as most suitable to these hardy little travellers.

The large number of messenger pigeons now spread over Europe may be said to be of a general uniform type, although considerable variations sometimes exist in different individuals of the breed, especially to the critical eye. They are all descendants of the "Pigeon Voyageur" of Belgium. The Persian carrier, said to have been first brought to Europe by Dutch sailors, is probably the original progenitor of the species. In Holland, where we shall see pigeons were first used in Europe as messengers in war, the Eastern carrier must have become more or less crossed with local breeds, and its flying properties chiefly considered. From Holland the mixed breed in all probability found its way into Belgium, and its blood was thus infused amongst Belgian pigeons.²

It is hardly necessary for me to remind you that a pigeon cannot be taught to "fetch and carry." No amount of training will make him fly in any direction but that in which he believes his home to be. It is for man to adapt to his own ends, to utilize for his own human purposes, the extraordinary tenacity with which the domestic homing pigeon seeks to regain his loft.

¹ The gradual development of these fancy points is traced by Darwin in his "Variations of Animals and Plants under Domestication." The original Persian carrier was somewhat similar in appearance to our English "Dragon" pigeon.

² Dr. Chapuis, in "Le Pigeon Voyageur," does not go so far back as this. He thinks that the "Pigeon Voyageur Belge" is the result of a cross between the French owl pigeon, the short-faced, thick-beaked "Pigeon Camus" and the English Dragon. The Antwerp Camulet—a high-flying Tumbler—is usually held to be one of the crosses used in the production of the Voyageur. It is curious that the Dragon, which is clearly a descendant of the Persian Carrier, should have been used by the Belgians to improve their breed of voyageurs.

The employment of pigeons for transmitting intelligence may be traced back to a very early period. The use of the dove by Noah points to a knowledge of its habits and peculiarities. Anacreon, in the sixth century before the Christian era, wrote an ode in which he alludes to pigeons having been used for transmitting love ditties to beautiful damsels. The early navigators of Egypt, of Cyprus, and of Candia are recorded to have used pigeons when they neared their native shores to advise their friends of their return. Varro, who died twenty-eight years before the Christian era, alludes to their employment as messengers from the Olympian Games. Pliny, the soldier, the naturalist, and the historian, is the earliest author who records the application of their use to military purposes. He informs us that during the siege of Modena, B.C. 43, Consul Hirtius, advancing to the relief of his colleague Decimus Brutus, who was besieged in Modena, communicated to him by means of a pigeon.¹ He adds, "Many are mad with the passion of these birds, and build towers for them on the roofs of their houses, and speak with pride of the long pedigree of each."

It is evident, therefore, that the Romans utilized pigeons as letter-carriers. Some writers assert that by this means Julius Cæsar became acquainted with surprising rapidity with the risings in Gaul, and was able to throw his legions into the disaffected districts at the first signs of revolt.

The wars of the Middle Ages, especially the Crusades, afford several examples of the successful application of pigeons for the transmission of messages. About the middle of the twelfth century Nour-Eddin, Sultan of Bagdad, added largely to his dominions by his conquests in Syria and Egypt. When his Government was firmly established in his newly acquired territory, he ordered that pigeons of a certain breed were to be kept in all castles and in all the strong places of his dominions. Towers were built at intervals over a large portion of the country to serve as pigeon houses. In 1167 he originated a system of communication by pigeon between Bagdad and all the important towns of Syria. This organization was afterwards completed and extended to Egypt. A regular service was established between Egypt and Syria.

The central station appears to have been fixed at the palace of Cairo. From that point radiated lines of pigeon stations towards Alexandria, towards Damietta, and towards Gaza. This last town communicated with Jerusalem, Damascus, Bagdad, and Aleppo. The distance between stations varied considerably, but the average, according to Dr. Chapuis, was 50 miles.

The institution of these State pigeon establishments was considered

¹ *Quin et internuntia in rebus magnis fuere, epistolas adnexas earum pedibus, obsidione Mutinensi in Castra Consulium Decimo Bruto mittente. Quid vallum, et vigil obsidio, atque etiam retia omne prætentia profuere Antonio, per cælum eunte nuntio? Et harum amore insaniunt multi: super tecta exedificant turres iis, nobilitatemque singularum et origines narrant vetere jam exemplo. L. Axius eques romanus ante bellum civile Pompeianum denariis quadrigentis singula paria vendidit, ut M. Varro tradit. Quin et patriam nobilitare, in Campania grandissimæ provenire existimata.*

of so much importance for the public safety and tranquillity, that large sums were annually assigned to their maintenance. This pigeon post was kept up, with but little interruption, till the year 1258, when it became neglected, owing to political disturbances in Bagdad.¹ On several occasions it rendered signal service to the Syro-Egyptian Empire. During the siege of Acre by Richard Cœur de Lion (1189—1191), the town kept up a constant communication with the Sultan Saladin by this means. The news of the landing of Saint Louis and his crusaders at Damietta, in 1249, was conveyed by pigeon to Cairo and to other towns of the Empire. Joinville writes:—"The Sarassins communicated to the Soudan by means of *Coulons Messagers* that the King had arrived."

Many of the old pigeon stations of Egypt appear to have been in existence up to the end of the last century,² and one of the last of them, in the garden of Kiamil Pasha in Cairo, is said to have disappeared in 1801.³ Voltaire states that he was assured on unimpeachable authority that the ancient custom of pigeon flying is still in vogue in Persia, in Arabia, and in other Asiatic countries where telegraphs do not exist.

The siege of Candia by the Venetian Admiral Dandolo, at the beginning of the thirteenth century, is said to have been materially shortened by the receipt of messages brought by these birds from the island.

The first messenger pigeons brought to Europe were probably Persian carriers, "being sometimes brought by shipping and sometimes in the caravans."⁴ When the Spaniards under Frederick of Toledo invested the Dutch town of Haarlem in 1572, the besieged received communications from the Prince of Orange at Delft (some 30 miles distant) by means of pigeons. At the Spanish siege of Leyden in 1574, the Prince of Orange communicated with the Burgomaster of the invested place in a similar manner. The garrison was on the point of surrendering when a message reached them by pigeon that the dikes of the Meuse and of the Yssel had been cut by order of the Prince. The receipt of this communication saved the place from falling into the hands of the enemy, and the Prince of Orange, in recognition of the important services of the pigeons during that memorable siege, ordered that they should be fed at public expense, and, after their death, they should be preserved and kept in the Town-hall.

The bombardment of Antwerp in 1832 supplies another example of the successful use of pigeons as messengers in war.

Carrier pigeons have also their history amongst the Chinese. Sir

¹ This account of the Syro-Egyptian Pigeon System is taken from "*Le Pigeon Messager*," by La Perro de Roo, and from "*Le Pigeon Voyageur*," by Dr. Chapuis. These authors got their information from the writings of M. de Volney.

² Alexandria and Cairo appear to have communicated by pigeons with Aleppo as late as 1745; see "*Le Pigeon Messager*," p. 33.

³ Mr. Borg, H.M. British Consul at Cairo, informs me that pigeon lofts were first built there in 1173, and that the Egyptian stations were some 12 miles apart.

⁴ Moore's "*Columbarium*," reprinted from the original edition of 1735 by W. B. Tegetmeier, 1879.

John Maundeville, knight, warrior, and pilgrim, who penetrated to the border of China in the reigns of the second and third Edwards, writes:—"In that Contree and other Contrees bezonde whan . . . men holden sege abouten Cytce or Castelle, and they withinner dur not senden out messagers with lettere . . . they maken here letters and binden them to the nekke of a Colver and letten the Colver flee, and the Colveren be so taughte that they fleen with the letters to the very place that men wolde send hem to."¹

We are also informed in "The Natural History of the Island of Hainan" by Swinhoe, that pigeons are still used in China as letter-carriers.²

Taking leave of the consideration of the employment of pigeons in former centuries, let us pass to their utilization in modern times.

Siege of Paris, 1870-71.

The most interesting chapter in the history of the messenger pigeon is that which records its services to the French during the siege of Paris. It became evident, immediately after the capitulation of Sedan, that the French capital would shortly be invested. There existed in France at that time several pigeon flying societies, some in Paris and some in the provinces. These societies were well aware of the use that could be made of their birds in case of a siege. On the 2nd September, 1870, Monsieur V. La Perre de Roo, an eminent Belgian ornithologist, and one of the most experienced breeders of homing pigeons in Paris, wrote to the Minister of War suggesting that all trained pigeons belonging to Paris should at once be collected and sent into the provinces, while as many as possible should be got into Paris from different parts of France.³ On the following day, however, the Imperial Government was upset, and no notice was taken of the letter. The German advance on Paris continued, and Monsieur Cassiers, President of the Pigeon Society, "L'Espérance," of Paris, sought a personal interview with General Trochu, to offer the services of the trained birds belonging to members of his Society. In the absence of the General, he was received by a subaltern Officer, who intimated that his proposition was ridiculous, and bowed him out politely. When the Germans arrived under the walls of Paris, not a single pigeon had been sent out of the capital. It seemed, therefore, impossible to receive any news from the provinces. Eight hundred birds belonging to various Columbarian Societies in the north of France had, however, been brought into Paris before the investment, and were housed in the aviaries of the Natural History Museum. These proved most useful as messengers, and were for some time the only means by which the invested capital communicated with outer France. On 23rd September the first balloon

¹ The Penny Cyclopædia, "Columbidæ."

² "The Homing or Carrier Pigeon," by W. B. Tegetmeier, 1871.

³ See "Le Pigeon Messager ou Guide pour l'élève du Pigeon Voyageur," by V. La Perre de Roo. Paris: Deyrolle Fils, 23, Rue de la Monnaie.

("The Neptune") left Paris, carrying a large number of official and private documents. There was no means of ascertaining whether the balloon had landed safely and clear of the enemy. At the suggestion of Monsieur Van Rosebeke, the Belgian Vice-President of "L'Espérance," the next balloon ("The Ville de Florence") that started from Paris with despatches on 25th September, at 11 A.M., also carried out three pigeons. At 5 P.M. the same day the birds had returned with the message, "We landed safely at Vernouillet, near Triel. We will take official despatches to Tours. Bags of letters will be distributed." This was the first message that reached Paris after the arrival of the Germans. The Parisians, the large majority of whom had never before heard of the capabilities of pigeons, were amazed at this unexpected success. The illustrated papers were filled with drawings of the wonderful messengers, and printed fabulous tales of their performances. Nearly every balloon that left the capital after this date carried out pigeons.¹

The fifth balloon, which started on the 7th October, carried out Monsieur Gambetta, to whose care some of the best pigeons in Paris were confided. On the following day at 5 P.M. one bird returned with the news that the balloon had safely landed beyond the reach of the enemy. This bird was probably the best in Paris, having won the first prize in a race from Auch (600 kil. from Paris) in which there were 1,600 starters. (During the siege this pigeon entered Paris four times with despatches.) None of the other birds confided to the care of Monsieur Gambetta ever returned, although they were known to be of unusual excellence.

On account of these and other losses of good birds, Monsieur Ranpont, the Postmaster-General in Paris, determined to entrust the precious winged messengers to the care of persons who understood their management, and not to trust them to aeronauts who were unaccustomed to handle them, who often liberated them in the evening, perhaps with an adverse wind, when the bird had 120 miles to fly home, and sometimes in fog or rain, instead of waiting till the weather improved.

Messieurs Cassiers, Van Rosebeke, Traclet, Thomas, and Nobécourt accordingly left Paris in five successive balloons between the 12th October and the 18th November, and they all eventually reached Tours with the pigeons of which they had charge, except Monsieur Nobécourt, who was made prisoner by the Germans. Six birds belonging to him returned to Paris, each bearing a false despatch attached by the enemy who had captured them. There was, however, no difficulty in detecting the deception, on account of the manner in which the messages were attached, and of the signatures appended.

¹ Dr. Chapuis states that each of the 64 balloons that left Paris, except "The Neptune," carried out baskets of pigeons. The maintenance of the pigeon post was thus dependent upon the departure and successful landing of the aeronauts. No other French town could have furnished materials for these balloon expeditions, and no other besieged place had any communication either way with the exterior. "*Les Postes et les Télégraphes pendant la Guerre*," by F. F. Steenackers, formerly Director of Posts and Telegraphs, has been chiefly used in writing this account of the work done by the Paris pigeons.

To employ several pigeons simply to announce the landing of a balloon was a waste of valuable messengers, which was very ill-advised, and the practice was soon put a stop to. Orders were given that all birds sent out of Paris in balloons were to be taken direct to Tours, by special train if necessary, and on arrival there were to be placed at the exclusive disposal of the Delegation.

A large room at the Prefecture of Tours, from which the furniture was removed, was fitted up with perches, &c., and converted into a pigeon loft. In this loft were placed all the birds that arrived (by balloon) from Paris. It was under the charge of Messieurs Cassiers, Van Rosebeke, and the other colombophiles who, as we have seen, had been sent out of Paris for this duty.¹ Monsieur F. F. Steenackers was Director-General of Telegraphs and Posts (including pigeons) at Tours. Birds selected for the journey into Paris were taken by train (express or special) in the early morning from Tours to the furthest point north that could be safely reached, thus reducing as much as possible the distance they had to fly. For some time Blois was a favourite point of departure.² While the Government was at Tours, from middle of September to 11th December, 219 pigeons were tossed, and although the majority of the birds were lost, some copies of all the despatches they carried reached Paris. The average number of birds liberated each time was about five, all of which carried copies of the same despatches. From the time of the removal of the seat of Government to Bordeaux,³ the difficulties of the pigeon post increased enormously, on account of the greater distance to be flown and the severity of the weather. From 11th December to 2nd February (the date of the capitulation of Paris), 83 birds were tossed, but very few of them ever reached the capital. 363 pigeons were sent out of Paris in balloons, of which 302 were liberated; the deficit of 61 being due to illness, deaths, and to the number at first tossed by aëronauts. Out of these 302 birds, only 73 reached Paris with despatches, viz., 9 in September, 21 in October, 24 in November, 13 in December, 3 in January, and 3 in February.⁴ Besides these, several arrived with no despatches attached.

As, however, some birds performed the journey more than once, there were but fifty-seven pigeons that actually accomplished the task that

¹ The composition of the staff was as follows: Monsieur Godeaux, Head of Extraordinary Correspondence, resigned 23rd October, and succeeded by Monsieur Feillet; Monsieur De Lafolaye, Inspector of Telegraph Lines, in charge of communications by pigeons; Georges Blay, Auguste David, duties were to liberate the birds as near Paris as possible; Messieurs Cassiers, Traclet, Van Rosebeke, and Thomas, in charge of the birds and of the expedition to the place of liberation.

² Blois to Paris is about 100 miles, Tours to Paris about 130 miles, Poitiers to Paris 180 miles.

³ Whilst the Government was at Bordeaux, the pigeons were kept in a specially prepared room at the Prefecture at Poitiers.

⁴ These figures are taken from Monsieur La Perre de Roo's book. The "Bulletin de la Réunion des Officiers" of 11th July, 1895, gives the following table of results which is not identical with Monsieur La Perre de Roo's figures:—

was set them.¹ Neither can we be astonished that the losses were so numerous. Many of the birds used were reliable and well trained, and these were the ones which rendered a good account of themselves. One bird was taken out of Paris six times, and flew the return journey after each balloon trip. One of Monsieur Van Rosebeke's birds returned four times, and another three times. At least two birds are reported to have reached home badly wounded. The majority of the pigeons placed at the disposal of the Government at Tours and Bordeaux were, however, untried and almost useless. Thus Monsieur La Perre de Roo states that from the 26th October to 12th November not a single bird reached Paris, because during that time a lot of pigeons were used that were quite untrained, but which the person in Paris to whom they belonged had insisted on placing at the disposal of the Government.

One great obstacle to the success of the pigeon post into Paris was the weather. It is quite useless to liberate birds on very thick and stormy days, a consideration to which the Government at Tours and Bordeaux paid little or no attention. In the report of Georges Blay, who had charge of the liberation of the birds, passages such as this frequently occur: "In spite of the bad weather we liberated the pigeons in accordance with your orders. There is no chance of the birds making Paris." The winter of 1870-71 was exceptionally severe. The ground was often covered with snow, which confused the birds in their efforts to find their way home. The cold was intense. Fogs were of frequent occurrence. The days were short. Added to this, the pigeons were exposed to the pursuit of hungry birds of prey, and to the unceasing attention of the enemy; for if several of them returned home wounded many doubtless were fatally hit. It is also a fact that pigeons bearing despatches were shot by French peasants, who were totally ignorant of the important services the birds were rendering to their country. Monsieur La Perre de Roo states that at Blois six pigeons with despatches were killed by a French peasant, and Monsieur Steenackers mentions another instance of destruction.

A decree was issued from Bordeaux rendering any person who killed a pigeon carrying despatches liable to imprisonment for a

Date.	Number of birds liberated.	Arrived in Paris.
September and October	105	22
November	83	17
December	49	12
January.....	43	3
February.....	22	3
Total	302	57

¹ "The Bulletin de la Réunion des Officiers" gives a lower figure.

period of from three to five years.¹ Liberal rewards were given for the restoration of pigeons which had been caught after having lost their way. The sum of 240 francs was paid to a peasant who restored to the Government at Bordeaux a bird captured with its messages intact.

Pigeons began to be collected at Tours from the beginning of October, from which date they were regularly employed as messengers into Paris. It was not, however, till the 4th November, by which time 115 birds had already been used, that the advantages of the pigeon post were opened to the public. On that day the Delegation of Tours issued a decree to this effect: "Considering that since the investment of Paris there has been established, through the agency of the double service of telegraphs and posts, by means of balloons leaving Paris and of messenger pigeons leaving Tours, a special interchange of correspondence destined to supplement between Tours and Paris the ordinary means of communication, which for the time being are interrupted. . . . Every person residing within the Republic is permitted to correspond with Paris by means of the messenger pigeons belonging to the Administration of Telegraphs and Posts, the charge to be 50 centimes per word."²

It was further notified that telegrams for Paris would be received at all the postal telegraph stations of France (not in occupation of the enemy) and transmitted by telegraph or post to the point of departure of the pigeons (Tours). Such telegrams were to be in French and in clear and intelligible language without any signs or conventional figures. The contents to be of a purely private character; information concerning the progress of the war and allusions to politics were forbidden. The maximum number of words was limited to twenty. The arrival of the messages in Paris was not guaranteed. On the 16th November the regulations on the subject were issued from the General Post Office in London, and messages could be sent from any part of the United Kingdom, *via* Tours, into Paris. These arrangements made a considerable impression on the French public, who for the past seven weeks had been debarred from communicating with their friends and relatives in Paris, and within a few days an enormous number of telegrams for the capital arrived at Tours.

In the meantime important progress had been made in the method of transferring telegrams, &c., to the necessarily small despatches that

¹ This decree was as follows: "Whosoever, during the continuation of the war, shall hunt, destroy, or attempt to destroy, outside its pigeon house, by any means whatsoever, such as firearms, catapults, or hawks, a pigeon of any breed whatsoever, shall be liable on conviction to imprisonment for a period of not less than one month or over six months. If it be proved that the accused knew that the pigeon was carrying despatches, or was intended to be used as a messenger, the imprisonment awarded shall be from three years to five years. The person on whose evidence the conviction shall have been obtained shall be entitled to remuneration of not less than 50 francs or more than 100 francs, in accordance with the decision of the Court, and which is to be included in the costs awarded against the person convicted," &c. This decree is dated Bordeaux, 23rd January, 1871.

² This charge was reduced to 20 centimes on 8th January. On 25th November, a system of reply cards was introduced, and a Post Office order service was approved of.

were carried by the pigeons. At first the despatches carried by the birds were written by hand on small pieces of very thin paper and on one side only, a numeric cypher being often used. This is the most simple and primitive method, and was in operation till about the middle of October. It was, however, long and toilsome, and quite unsuited to the transmission of the enormous number of despatches which had to be sent into Paris. Each despatch had to be copied several times, and errors often crept in. It was then suggested by Monsieur Barreswell, an eminent chemist of Tours, to reduce the size of the despatches by photographing them, and thus at the same time secure a large number of copies without risk of errors. The despatches were accordingly first copied in handwriting in large characters, then pasted one under the other upon large sheets of cardboard. These large sheets were then fixed to wooden panels about 2 feet by $3\frac{1}{4}$ feet (65 centimetres by 1 metre), and the panels thus covered with two or three columns of messages were photographed and reduced to $1\frac{1}{2}$ inches by $2\frac{1}{2}$ inches (4 centimetres by 6 centimetres), a reduction of $\frac{1}{36}$ in surface.¹ The photographs were on very thin paper, and on one side only. They were checked under a microscope before being confided to the pigeon.

Amongst the despatches were several cuttings of the "Moniteur" newspaper, which at once demonstrated how much more considerable the reduction would be if all the despatches were printed before being photographed. The next step in advance was therefore to set up the despatches in type and to photograph them on each side of the small paper messages. The first official messages thus printed are dated the 9th November, but the result had been attained some time previously to this, and it was chiefly on account of the facilities this afforded that the pigeon post was open to the public on the 4th November. By that date twenty-two tablets of official despatches had been photographed, twenty copies of each having, on the average, been struck off, and up to the 11th December (the day on which the Delegation moved from Tours to Bordeaux) nearly fifty of these official tablets had been photographed.²

About the middle of November, Monsieur Dagron, a well-known microscopic photographer of Paris, arrived at Tours with two assistants, having been sent out of the French capital by balloon for the purpose of assisting in the photography of the messages. Soon after the transfer of the Delegation to Bordeaux, Monsieur Dagron's new system came into operation. His reduction in surface was much more considerable, and the messages were photographed on a very thin film of collodion. Although necessarily photographed on one side only, each of these films or pellicles contained on an average

¹ Each of these pigeongrams could contain 150 despatches averaging 16 words each. One bird could carry six of these, making 900 messages.

² To these must be added 16 tablets, each containing 6 columns of private messages. These 6 columns contained about 613 messages, averaging 16 words each. As the messages attached to the birds were photographed on both sides, there was a total of 1,226 messages on each pigeongram of about 4 square inches. Monsieur de Lafollye in his report states that 9,800 private despatches and 43 full sheets of official despatches, all reduced by photography, were sent from Tours into Paris, and that the greater part of them arrived at their destination.

2,500 despatches. One bird could easily carry a dozen of these pellicles, making 30,000 despatches. Sometimes this number was exceeded. For instance, a pigeon which arrived in Paris on the 3rd February carried eighteen pellicles which contained 40,000 messages, most of them private.¹ This was the largest number carried. Each pellicle was sent so as to ensure arrival on several birds, some only three times, others up to thirty-nine times, the average being about twenty.²

The "Bulletin de la Réunion des Officiers" (11th July, 1855) states that "150,000 official despatches and one million of private despatches or notices of money orders were carried by pigeons into Paris.³ These messages if copied in ordinary writing would fill 500 library volumes. The postal orders amounted to 190,000 francs (7,600*l.*)."

The method of attaching the messages to the birds is always of importance, and had not been studied before the siege. At first the paper message written by hand was simply rolled up tight, waxed over, and attached to a feather of the tail. It was soon found that the thread which kept the message in its place cut or damaged the paper, and so in order to protect the despatch from this, and being pecked by the pigeon, from damage by wet, &c., the paper message was inserted in a small goose quill 2 inches long. The tube was then pierced close to its ends with a red-hot steel point so as not to split it, and in the holes thus made, waxed silk threads were inserted to fix it to the strongest feather of the tail.⁴

The birds were stamped on the wing feathers with numbers, the first number indicating the number of birds sent, the second the number of the series of messages, and the third the number of pigeons remaining.

In Paris the Administration of the Posts placed a sentry on each

¹ The greater number of these pellicles contained messages that had been previously sent by other birds into Paris, but the receipt of which had not been acknowledged.

² The weight that can be carried by a pigeon is an important matter. The weight in messages carried by one bird into Paris was always under 1 gram (15½ grains). In America newspaper reporters attach to one pigeon twelve sheets of very thin manuscript, each sheet being 9½ inches by 7 inches. These sheets are folded and made into a roll nearly 5 inches long. This roll is attached to two tail feathers by means of thin copper wire. The weight of the pigeongram and wire is 96 grams. In England this weight has been considerably exceeded. Pigeons have been used to carry a whole page of a daily newspaper weighing ¾ of an ounce (360 grains), tightly rolled up, and hung by a loop around the neck. Birds are regularly employed in this service between Alton and Rotherfield Park, a distance of five miles.

³ The service of post office orders was established on 25th November. Monsieur De Lafollye states in his report to Monsieur Steenackers that, during the siege, 95,581 private telegrams of all sorts, representing a value of 432,524 francs 00 centimes (173,000*l.*), were carried by pigeons into Paris. Of these over 60,000 arrived. Monsieur La Perre de Roo estimated the number of official despatches at 115,000.

⁴ Monsieur Georges Blay was the originator of this idea. At the Museum of the Zoological Gardens at Antwerp there is a stuffed pigeon that belonged to Monsieur Cassiers, and which flew into Paris with messages. The quill is attached to a tail feather.

pigeon loft that had furnished birds for Government use. When a messenger bird arrived the owner was conducted under escort with his pigeon to Monsieur Chassinat, Postmaster-General, who detached the messages.

The first despatches which arrived in Paris were, as we have seen, written by hand.¹ They were read by the naked eye or with the assistance of a microscope. To these succeeded the photographic ones on paper, to decipher which a powerful microscope was essential. When, however, the collodion pellicles began to arrive, a more rapid means of reading them was adopted. Being transparent, they were placed between two pieces of glass put into a species of electric magic lantern, and the writing was thrown in large legible characters on a screen or wall. This was copied by several clerks at once, each taking one column of writing, and in this manner the transcription and sending out of the messages was rapidly accomplished.

In spite of many shortcomings the Paris pigeons performed valuable services. Not the least of these was the conveyance from time to time of news from relatives and friends outside, and the occasional gratification of the intense desire for communication with the rest of the country from which the besieged suffered.

The organization of regular "Military Pigeon Systems" in almost every Continental nation of Europe soon followed the Franco-German War.

The uses to which the birds are put are not however limited to cases where no other methods can be put into practice. In war time the stress of work on telegraph lines and on military signallers will be relieved by this means.

The organization of all foreign military pigeon systems is based upon the same guiding considerations.

The frontier fortresses, especially those that are considered most liable to attack, and a large number of inland towns both open and fortified, are provided with pigeon lofts. An important point in the interior of the country—usually the capital—is selected as a central station with which all other stations are to communicate. There is often also direct communication between fortresses. When the distance separating outlying stations from the central one is considered too great, the connection is ensured by means of intermediate ones. It is also sometimes convenient to resort to this last arrangement in order to reduce the number of birds that must be kept.

The strategical and other considerations which influence the selection of stations will be best appreciated by following on the accompanying map the description of the French or German system.

The number of birds in each station varies with its position, the

¹ Amongst instances of the satisfactory working of the pigeon post, the following are worthy of record, and are mentioned by Monsieur Steenackers. Being short of chemicals required in his photographic processes, Monsieur Dagron, who could not obtain them in Bordeaux, sent for them by pigeon to a firm of chemists in Paris. The bird was liberated at Poitiers on the 18th January, reached Paris the same day, and on the 21st January the chemicals required were delivered to Monsieur Dagron at Bordeaux, having been sent out of the capital by balloon. The news of the French victory of Coulmiers reached Paris the day after the action.

distances that have to be flown, and the number of directions in which the pigeons have to be trained.

A single section station, that is, where the birds are only intended for use in one direction, should have about 200 birds. 150 birds may be added for each section after the first. Thus, for instance, a station at which birds are trained to fly in three directions should have 500. These are sufficient to ensure communication for six months in case of siege. The calculation is arrived at somewhat in the following manner. Suppose the communication is, on an average, to take place twice a week; then in 6 months (26 weeks) 52 liberations would be necessary. The number of birds liberated on each occasion may be taken to average 3, or a total of 156 for the 52 tosses. Making allowance for various contingencies, it may be laid down as a general rule that the smallest military pigeon station should consist of about 200 birds.

All foreign Governments are however able to modify these figures to the benefit of the exchequer. Under the fostering care of the War Ministers, private pigeon flying clubs have within the past twelve years enormously increased in every part of the Continent of Europe. In Germany there are at the present time some 350 such societies, while in France the number may be estimated at 300. The greater number of these fly their birds in directions fixed by the War Minister, who gives prizes for many of the races. The military authorities can therefore rely upon the services of many thousand privately-trained birds to supplement the work required of the military lofts. In the possession of these pigeons each nation has at its disposal an ever-ready means of general intercommunication, which in time of invasion may be beyond price, and which has been established, and is maintained, at comparatively small cost.

When invasion threatens an interchange of birds takes place: the messenger pigeons are kept confined in their temporary home until their services are required. When a despatch has to be sent to another station, birds belonging to that station are selected, the despatches are attached to them and they are liberated. When properly trained birds are employed, their return to their own loft may be looked upon as almost certain, unless the weather is sufficiently bad to render flying impossible.¹

M. H. J. Lenzen, of Cologne, the chief adviser of the German Government in all matters relating to pigeon communications, makes the following observations on the organization of a system, in his book "*Die Briefftaube*." "It is sufficiently established that pigeons have been used in the service of the god of war to carry news, despatches, &c., to invested places. Such communications might be of the utmost importance, if, for instance, they related to the relief of a fortress, or the timely organization of a sortie. It might, indeed, occur that this method of communicating was the only one left open to the public by which their private correspondence could be maintained, and this circumstance alone not only is sufficient to warrant the establishment of pigeon stations, but should engender a more

¹ The judicious selection of birds is important. Some birds are remarkable for their reliability in bad weather, others for their rapidity under favourable atmospheric conditions.

lively interest for this branch of ornithology, and more affection and care amongst the public at large, but more especially amongst the inhabitants of fortified places. The inhabitants of Paris are well able to appreciate the benefits resulting from direct communication being maintained between an invested place and the outside world. Balloons can indeed secure communication in an outward direction, but the bringing in of news when the telegraph is cut can only be effected by means of messenger pigeons; besides, the direction that a balloon will take can never be depended upon, and the bold aeronauts often fall into the hands of the enemy, with their valuable cargo of despatches, &c., in spite of the sympathy of their own countrymen, or they may even be committed to a worse fate. Pigeons which are intended exclusively for ultimate military purposes can be used, as already stated, either for bringing communications—official or private—from outside into a town, or for carrying despatches out. Their services may also be required to carry on correspondence from occupied districts to the seat of Government elsewhere, and *vice versa*. In such a case the birds would, as it were, be secret messengers playing the part of spies.¹ Their work would be of unmistakable importance when an occupied country was either completely shut off from all news, or only received information which had filtered through the enemy, and which was consequently imperfect and unreliable. This latter rôle of messenger pigeons may be considered as of equal importance with the first.

"For the proper carrying out of the scheme it is in the first place necessary that the frontier fortresses and all towns in the interior, whether fortified or not, be furnished with pigeon lofts. It is a question for the careful consideration of the authorities, whether public buildings or private ones are most suited for the positions of lofts in fortresses. The fact that in the case of a siege the public buildings would be the first destroyed, is an argument against placing them there. Suppose a bird with despatches returned and found its home destroyed or gone! It would fly about as a wanderer with the despatches, and that particular part of the system would collapse during the war. In the case of an occupation by an enemy, the lofts and the pigeons would fall into the hands of the enemy. The best course would be to induce or encourage pigeon fanciers in towns (and there are always many to be found) to keep pigeons, and to cultivate the sport of pigeon flying in the same manner as is done in Belgium. In this manner the country would soon be in possession of thousands of pigeons, which could be placed at the disposal of the State in case of national danger, as happened in France. In the Imperial provinces of Alsace and Lorraine the whole task would for the present devolve upon State officials. Furthermore, it would be necessary that all birds be trained, in the interests of the State, in directions fixed by the latter: for example, those of the western frontier places towards the centre of the country, viz., Berlin, and those belonging to Berlin, Magdeburg, and Stettin towards the west. At the outbreak of hostilities the pigeons of the frontier fortresses would be taken into the interior, the best trained and most reliable being sent to the more remote fortresses and open towns, and those with less training to the nearest places. In case of danger threatening any of these places, the birds must be sent further into the interior, but never further than their previous training may warrant. These pigeons will be employed to carry despatches to the commanders of besieged towns, as well as the latest and most reliable news to official persons in the occupied parts of the country. The most important rôle will, however, devolve upon those birds that have been taken into the frontier places from the interior of the country. They can, especially if the fighting ground is our own country, carry reports concerning positions, &c., faster than the most speedy mounted messenger, or *etc.* 'han the telegraph. . . . The system must be so organized that the commandants of fortresses and the official persons of towns be furnished with an accurate list of the pigeons that can be placed at their disposal. To avoid mistakes, the pigeons from different towns should be kept in different lofts, or in some other way be kept separate.

¹ Hence the necessity of searching for pigeon lofts in occupied districts. An invader might not only prevent the enemy from using such lofts, but might employ the birds very much to his own advantage. A series of lofts at intervals along a line of advance would be a most valuable acquisition.

"In the employment of pigeons as military messengers it must be borne in mind that the first consideration is the safe arrival of the message. In view of the obstacles which are met with in the German Empire (such as mountains and forests) the stations should not be too far apart. A distance of 90 to 120 miles may be fixed as a reasonable limit. With such moderate distances the pigeons can be used in unfavourable weather, and when their journey is but 90 miles, they can be liberated in the summer as late as six o'clock in the evening, as they can traverse such a distance in two hours at the outside. All stations should be put into communication with a central station (which in Germany is Berlin), and such a connection can most easily be ensured by means of intermediate stations. A further advantage will result from this arrangement, viz., that in a period varying from one to two years, a perfectly organized post can be established; for young birds in their first season are able to fly 90 miles, while the long journeys of 300 miles can be accomplished by only a portion of the old birds in their third season.

"These considerations have determined the directions of the pigeon races from Berlin, and from Basle, Strasbourg, &c. Special care must be exercised at a station in the identification of birds that are trained in different directions. This can only be ensured by stamping the birds with a number and the name of their route, such as 'Cologne-Metz,' 'Cologne-Berlin,' and entering these particulars in a register kept for the purpose, so that when an exchange of birds takes place preparatory to their employment, they can readily be picked out owing to their previous stamping. Since, as long as the war lasts, the pigeons cannot be expected to return to their station at any certain intervals, it is essential that every bird should signal his arrival. This can be done by means of a trap attached to the entrance of the loft, which is described elsewhere."

A description of the different Military Pigeon Systems of Europe will best illustrate the practical application of the foregoing remarks.

France.

The campaign of 1870-71 showed the French how dangerous it is to neglect any factor that may influence the success of military operations, and that elements of success cannot be improvised, but must be prepared beforehand in all their details if the best results are to be attained.

Prior to the Franco-German War it had not been thought necessary to establish any means of communication that could be made available between an invested place and the rest of the country. It was solely due to the existence of two private pigeon flying societies in Paris that any news from the provinces reached the capital during the siege, and this means could not have been employed but for the assistance of balloons.

The work done by the birds during that critical time, under very unfavourable conditions, all other means of reaching the capital having failed, showed the necessity of organizing a regular service of message pigeons for use in war generally, and particularly as a means of communicating over the heads of the enemy with a besieged fortress.

Immediately after the Franco-German War, Monsieur La Perre de Roo was applied to by several of the Continental Powers for instructions relating to pigeon flying. He was asked to undertake the establishment of a military pigeon system in Russian Poland. Although this offer was not accepted, he appears to have given some assistance to

the Czar's Government in the matter. In the meantime he did not cease to represent to the French military authorities the necessity of establishing military lofts, and in 1872 a Commission was appointed to examine the question. The result of its deliberations was—after an investigation of the merits of the various breeds—to recommend the employment of birds that were to be a cross between the "Pigeon Hirondelle" and the Belgian pigeon. Fortunately no notice was taken of this part of their report. These birds were to be entrusted to the care of the Director of the Jardin d'Acclimatation, and their produce was to stock the military lofts of France.

It was not, however, till the year 1877,¹ by which time many other nations had a regular system of pigeon communication in working order, that any further steps were taken. Monsieur La Perre de Roo states in his book² "*Le Pigeon Messenger*" that he then "prevailed upon the French Government, only after continuous and persevering efforts, to accept as a free gift 420 messenger pigeons of the best Belgian breed . . . and the descendants of these are intended to stock the lofts which are to be established in all the fortresses of France."

Monsieur Geoffrey Saint-Hilaire, Directeur du Jardin d'Acclimatation of Paris, was charged with the care and breeding of the pigeons which were thus to contribute to the national safety. A handsome four-storied pigeon-house, built of brick and iron, was constructed in the gardens, and became the first French military breeding loft. The next loft constructed was that of Mont Valérien.

There are now ten stations well stocked with working pigeons, and all communicating, either directly, or through intermediate transmitting stations, with Paris. All these are on the eastern or south-eastern frontier.

Commencing from the north the military pigeon stations are as follows:—Lille, Mézières, Verdun, Toul, each with about 200 birds, and communicating direct with Paris, the maximum distance being 160 miles.³

No doubt birds are trained to fly between such of these fortresses as are not considered too far apart, but being single section stations with only 200 birds, they are supposed to correspond with one another through Paris.

Belfort and Besançon are single section stations, but being each of them over 200 miles from Paris, they communicate with the capital through Langres.

¹ The "*Bulletin de la Réunion des Officiers*," No. 29, of 18th July, 1885, gives the date as 1878.

² "*Le Pigeon Messenger, ou Guide pour l'élève du Pigeon Voyageur et son application à l'Art Militaire*," by V. La Perre de Roo, Paris. Most foreign military lofts are in the attics of a barrack, and somewhat similar to that of Cologne, which is described in the account of the German pigeon system. Registers containing particulars of every bird are also kept.

³ The lines of flight shown on the map indicate the services to which the birds are destined in time of war. The training of the birds is not, however, confined to the directions and distances shown. The Langres birds, for instance, are trained as far as Marseilles.

Langres is, next to Paris, the most important central station in the country. It is the direct transmitting station for Belfort, Besançon, and Lyons, and should therefore contain 500 birds.

Lyons is a two section transmitting station communicating with Paris through Langres, and receiving from Marseilles and Perpignan, each of which places has a military loft.

In Colonel v. Löbell's "Annual Reports on Changes and Progress in Military Matters in 1834," the following appears:—"Orders have been given for the establishment of central pigeon post stations at Paris and Langres. These are to be formed on a basis for securing the communication for a period of six months between the more important fortresses. Paris is to communicate with Mézières, Verdun, Toul, and Langres, and the latter place also with Belfort, Besançon, and Lyons. Recruits for the working of these establishments are to be taken exclusively from men who before joining have belonged to a pigeon flying society, and they are to be posted to the 1st Regiment of Engineers at Versailles."²

The military budget assigns a credit of 100,000 francs (4,000*l.*) for the annual cost of signalling and pigeon lofts.

In one of our daily papers of the 6th January, 1885, the following telegram appeared from a Paris correspondent:—"The usefulness of carrier pigeons for military purposes is once more demonstrated by the fact that General Camponon has given orders that all the detached and isolated forts on the Alpine frontier be supplied with those birds."

When soldiers are transferred to the reserve, they may take with them a pair of young birds, if they are known to be interested in pigeons. Civilians of approved character may also be given birds if there are any to spare.

In the "Bulletin de la Revue des Officiers" of 18th July, 1885, it is stated that at the grand manœuvres of the 9th Army Corps, private persons lent pigeons which were used as military messengers, and prizes were given for those birds that did the best work.

As in other countries, every effort is made to develop the sport of pigeon flying, and to exercise some control over the directions in which private societies train their birds.³

The Minister of War frequently gives prizes for pigeon races in different directions.

The number of private societies has increased very much in France of late years. At the present time there are about 300 such societies. Allowing 500 birds to each, which is a moderate estimate, there

¹ See "Journal of Royal United Service Institution," vol. xix, No. CXXXI, of 1895.

² There is a large military loft at Versailles which, with that at Mont Valérien, may be included among the Paris lofts. It will be observed that all the French pigeon stations are here mentioned except those of Lille, Marseilles, and Perpignan. I find that the Lille loft, which is situated in the "Caserno de la Porto de Paris," still exists, but it now contains no pigeons. At Marseilles the loft is in the Fort St. Nicholas, and contains about 300 birds. The pigeons of Perpignan are trained to Marseilles and to Lyons, those of Langres are trained as far as Marseilles.

³ The Fédération du Département de la Seine flew last season from Nuits-sous-Ravières and from Dijon. In the latter *concours*, which was for young birds, 742 pigeons were liberated. The Society "L'Epervier," of Paris, fly their birds from Lyons, 350 miles.

would be 150,000 trained private pigeons in France; probably there are a good many more.

At the suggestion of the Général Directeur du Dépôt des Fortifications, the Minister of War directed Captain Thomas Caldilhac, of the 80th Territorial Regiment, to visit the principal towns of France in the summer of 1884, to report on their resources in trained pigeons and to act as a connecting link between the military lofts and private societies.

In accordance with the Law of the 3rd of July, 1877, the military authorities have the right to requisition messenger pigeons, but it is not specified in what manner these requisitions are to be prepared. In September last the Minister of War reported to the President of the Republic that it was necessary to issue definite instructions relative to such requisitions. M. Grévy consequently directed that once a year, at the time that horses, mules, and other animals are registered, a census is to be made of all messenger pigeons: the lists are to be made out under the orders of the mayors, upon the obligatory declarations of the proprietors of the birds, failing which an official inspection of any loft may be made.

A recent article in a French military paper¹ on their pigeon system concludes thus: "In a word, all dispositions are made, so that, when a new war breaks out, the service of messenger pigeons will not have to be improvised as in 1870. An exchange of correspondence between the central authority, the governors of fortresses and entrenched camps, and the commanders of armies is ensured. In this respect we are quite prepared."

Germany.

The Germans recognized at once the importance of the services that pigeons rendered to their adversaries during the siege of Paris, and were one of the first nations that established military lofts.

In May, 1872, M. Lenzen, of Cologne, whose past experiences with pigeons entitled him to attention on such matters, was charged with the organization of the military pigeon system of Germany. He at once proceeded to Belgium, where he studied all the details connected with the Belgian lofts, and eventually purchased at Brussels and at Antwerp 300 pairs of first-class birds. These were distributed amongst the four first lofts that were constructed, viz., at Berlin, Cologne, Strasbourg, and Metz.² Their number was afterwards increased by further purchases. M. La Perre de la Roo states that at a public sale of *pigeons voyageurs* held at Brussels on the 1st of March, 1874, the majority of the sixty-five birds sold were purchased on behalf of the German Government at an average price of 65 francs per pigeon.

All these Belgian birds were kept as prisoners at the stations to which they were allotted, solely for breeding purposes, and were the stock from which all the military lofts of Germany were supplied.

¹ "Bulletin de la Réunion des Officiers," No. 29, of 18th July, 1885.

² "Die Briestaube," by H. J. Lenzen, of Cologne, published at Dresden, 1873. Price 15 groschen.

Two pigeon houses were erected in the Zoological Gardens of Berlin; each is capable of containing about 500 birds. They were at first intended only as breeding depôts, and were placed under the supervision of Dr. Bodinus, the Director of the Zoological Gardens.

The pigeon loft at Cologne is in the attic of a barrack, and in 1874 it contained 200 birds.¹ The interior fittings are said to be suitably arranged, and every attention is paid to cleanliness, ventilation, &c. As nearly all the German military lofts are thus situated immediately under the roof of a barrack or other Government building, a further description of that of Cologne may be interesting. The floor space is about 16 yards by 11 yards. The interior is divided by wooden lattices into ten compartments which communicate by sliding doors.² These doors are usually kept closed, but, in order to allow the birds to pass from one compartment to another, there is a small opening at the bottom. This arrangement is very convenient for catching the birds readily—no small consideration when many have to be sent away for a training fly.

The pigeons are fed twice a day on vetches, and their water fountains are cleaned out every second day.

The nest boxes are on the floor against the wall. In each nest box there is a red earthenware nest pan, in the bottom of which are placed a few fine oak shavings.

Round the sides and front of each pair of nest boxes runs a little wooden fence fixing the boundary of the apartments occupied by each pair of birds.

Over each nesting place is a card showing the index number of the cock and of the hen, the date of laying and of hatching, and the number of young ones. Every pigeon is stamped on the wing with his number and the private mark of his loft.

The commandant of the place is responsible for the birds, that they are properly cared for and trained. A non-commissioned officer is in charge, and under him there is a keeper (who receives 4*l.* 10*s.* per month) and two private soldiers. This establishment is for peace time; in war time it would probably have to be doubled.

The accounts are strictly kept, and are signed by the commandant once a month. A register is kept giving a list of the birds, the numbers stamped on them, their age, sex, colour, and any distinguishing marks.

Another register gives the different places from which each bird has flown, with notes on their rapidity and reliability. It contains complete information on the capabilities of every bird.

The next fortresses that received attention were those at the eastern extremity of the Empire, viz., Königsberg, Thorn, and Posen, all near the Russian frontier.

Other pigeon stations have from time to time been added until the German military pigeon system has become by far the most extensive and complete of Europe.

¹ "Le Pigeon Messager," by V. La Perro de Roo, p. 112.

² This description of the Cologne loft is taken from "Le Pigeon Messager." It applies generally to French and German military lofts.

The western fortresses of Cologne, Metz, and Strasbourg each contain at the present moment about 400 trained pigeons, but it is intended to increase the number to 600. Mayence and Würzburg are also well stocked with birds.

Cologne communicates direct with Berlin, a fly of 300 miles, and is a transmitting station for Metz, and perhaps for Mayence. Strasbourg and Metz are both in communication with Berlin through Würzburg. There is an important pigeon establishment at Torgau on the Elbe, which fortress acts as an intermediate transmitting station from some of the western fortresses.

The whole of the northern coast is studded with pigeon stations, which are under the Minister of Marine. They are to be found at Wilhelmshavn, Tønning, Kiel, Stettin, Danzig, and Königsberg. There is intercommunication between all of these, and they are all in direct or indirect communication with Berlin.

Experiments have recently been made by the naval authorities in homing pigeons on board men-of-war, so that messages may be sent to the ship from the shore. It is said that the birds experience no difficulty in recognizing their own ship amongst a number of others. Such a method of communication may at times be of value, but its application is evidently a good deal restricted.

Thorn is looked upon as a central station of importance, and is said to be prepared for the accommodation of 1,000 pigeons. It is in direct communication with Posen, Königsberg, Danzig, and Berlin. Breslau is also in communication with Berlin by pigeon.

The training is not confined to the lines of flight I have indicated, which are often insufficient to test the qualities of the birds. For instance, the Königsberg pigeons are trained as far as Torgau.¹ Those that will fly that distance are hardy resolute birds that may be depended upon as messengers from shorter distances, even in bad weather.

The stations under the Minister of Marine do not all belong to the Government. That at Danzig was established by contracting with a private individual, the possessor of a large loft, to keep a specified number of birds in training.²

The military birds are employed as messengers whenever opportunity occurs. In the manoeuvres which take place annually in the neighbourhood of Cologne, the garrison of the place are kept constantly informed of the progress of the operations by this means, and pigeons are also sent direct from the field of operations to Berlin with reports.

The annual credit in the military budget for pigeons and signalling was increased in 1884 from 900*l.* to 1,700*l.*

¹ Königsberg to Torgau is about 300 miles. The training table for this journey is given in the "Militär Wochenblatt," p. 999, of 1884. The distances between the training stages are very similar to those generally adopted in England. The birds are never liberated later than 5 A.M.

² I understand, from information obtained from local sources, that the Danzig contractor has recently given up his pigeons, and that there is now only one amateur in that town who keeps some homing pigeons, his loft containing about fifty birds. At Stettin the birds are also private property.

Such resources as I have described might be considered sufficient to ensure a regular service of pigeon posts throughout the country in case of invasion. The Government have, however, also at their disposal the services of a large number of private lofts scattered over the whole Empire. Since the Franco-German War pigeon flying has continuously and rapidly developed,¹ until it may now be said to be a national pastime. The number of private societies is estimated at 350, the country enclosed by the western fortresses being most favoured in this respect. The federation of pigeon flying clubs of the outer Rhine numbers seventy societies. The United Federation of Cologne and its environs have issued their training table for 1886, and during the coming summer will send their birds as far as Vienna, about 470 miles.

The Emperor is an active supporter of the sport, and gives gold and other medals every year for races over long distances. Military Officers of high rank attend the meetings of the principal societies. The Minister of War assists, as in other countries, by offering money prizes at some of the *concours*.

With a view to reduce the ravages committed on pigeons by hawks, the Government offered, in 1885, rewards to gamekeepers and others for the heads of any birds of prey.

Austria.

In Austria the application of pigeon flying to military purposes has been very gradual.² The first private society is said to have been established in 1873, and the first military one two years later, at Komorn. A second military station was established in 1882 at Cracow. As far as I can learn there are no others in Austria.

Very complete instructions "für die Brieftauben stationen" were issued by the General Staff, in 1883.

Private societies are evidently relied on to a great extent to supplement the work of the Government birds, and prizes are given annually for races to Vienna and other places. Besides this the Government give, free of cost, the wood required for the erection of a pigeon loft to such Officers and Government servants who will undertake to keep and train the birds, with a view to their use as messengers in case of war.

¹ In 1875 the "Colombia" Society of Cologne had 157 members. In that year it organized nineteen pigeon races. Since that time it has continued to increase in importance, and is now one of the leading German clubs of Germany. At a general meeting of the Rhine societies held at Elberfeld on the 25th October last, seventy-four different societies were represented. The following clubs will take part in the Vienna Concours of 1886:—Union-Cologne, Club-Cologne, Cenobia-Deutz, Fauna-Elberfeld, Columbia-Elberfeld, Brieftaube-Solingen, Brieftaubenpost-Solingen, Concordia-Bonn, and the Brieftaubenzüchter-Verein.

² This account of the Austrian pigeon lofts is chiefly taken from an article by Lieutenant Mandry, of the Austrian Field Artillery, which appeared in the "Organ der Militär Wissenschaftlichen Vereine," No. 39, of 1884. See also "Die Brieftaube im Dienst des Krieger," by Lieutenant E. von Scheure, published in "Streiffleur's Militärische Zeitschrift," July, 1883, Vienna.

At the end of the breeding season civilians can buy young birds just out of the nest at 50 kreutzers each (one shilling). The railway lines also assist by taking persons at reduced fares who accompany baskets of birds sent by train for liberation.

The Austrian military authorities appear to appreciate the usefulness of pigeons as messengers in mountainous countries, where the electric telegraph might not be able to keep pace with the movements of troops, or where detachments had no other method of communication. It is now a question of establishing pigeon stations at certain places on the mountainous frontier, viz., at Franzenfeste for the Tyrol, at Karlsburg for Transylvania, at Serajevo for Bosnia, and at Mostar for Herzegovina, the object being to establish rapid communication by pigeons between the fortresses of the frontier and the passes of those mountainous regions.

In the experiments that the Austrians have made the following results have been attained:—

Vienna to Komorn, 144 kilometres, in $2\frac{1}{2}$ hours. From Olmutz to Komorn, 206 kilometres, in 3 hours and 20 minutes. From Lemnaring to Vienna, 84 kilometres, in 1 hour and 20 minutes. The average rate of flight for these short journeys was therefore 1 kilometre per minute.¹

Russia.

Russia appears to have been the first European country that adopted a military pigeon system.

In April, 1871, the Russian Government proposed, as already stated, to M. La Perre de Roo that he should undertake the organization of a pigeon system in Russian Poland. Although the offer was not accepted, several pigeon stations were shortly afterwards established, and a regular service of pigeon-posts was organized. The first lofts were at St. Petersburg, Krasnoï-Solo, Moscow, Kieff, Varsovie, Warsaw, and Norvo-Georgewsk.

In parts of the Empire, however, the results were not satisfactory, and in 1883 some of the military lofts were abolished. A correspondent in St. Petersburg, who has made enquiries for me on the subject, writes, "The expenso of the military lofts was very great, and for some years the results were almost *nil*, for several reasons—(1.) The native pigeons are no good for long journeys, and the imported ones die in great numbers, from the severity of the climate. (2.) The appearance of the Russian country and landscape is so uniform and monotonous, that the birds had no landmarks to guide them, and consequently were very often lost (all the villages in Russia are wonderfully alike, and the steppes also)."

These are some of the reasons assigned for the abolition of the pigeon stations. They are, however, not worth discussing, for it is known that homing pigeons can stand Arctic cold with impunity, and

¹ The Komorn birds have done some good work, but the Cracow loft has not been a success. Small lofts have been established at Olmutz, Riva, and Gardasel, by the private enterprise of Officers, who received birds from the Government on condition that the experiments were to be conducted at their own expence.

the monotonous aspect of the country is not a sufficient cause for the collapse of the pigeon communications.

The military authorities also assert that the organization was faulty, and left too much in the hands of amateurs.

"It is now intended to reorganize on a really efficient footing, and the affair has been placed in the hands of a Commission of Officers of the Engineers. As yet, however, nothing has actually been done, and the idea is to proceed tentatively at first. With this object, new stations are to be established at some of the western fortresses on the Vistula."

From Warsaw I learn that a regular pigeon service has been kept up for some years between several fortresses, and that there are lofts at Warsaw, Norvo-Georgewsk, Ivangorod, and Brest-Litovski, fortresses not very far apart. As general intercommunication is aimed at, there should be 500 birds at each of these stations.

The contemplated reorganization is confirmed in a telegram from a Russian correspondent of the "Times," which appeared in that paper in November last.

The sum annually voted for the maintenance of pigeon communications is said to have been 2,000*l*.

Lieutenant Mandry, of the Austrian Artillery, states in his paper, which has already been referred to, that experiments have recently been made to test the use of pigeons in tactical operations, where a turning force or detachment may be without communication with the main body. Such a case might readily occur through the nature of the country not admitting of the sufficiently rapid laying of a telegraph wire, or through the removal by the enemy of part of the wire which, under such circumstances, is usually dangerously exposed. In such a case the birds from the detachment would return to their loft, which should be the one nearest to the headquarters.¹ The messages would then be transmitted to the General Commanding by telegraph. These tactical experiments are said to have been carried out under General Stroukoff during the last great manoeuvres. "According to the report of the General, the experiments succeeded, and this method of communicating will very likely be introduced amongst the irregular cavalry for exploring service in front of the Army."

"It appears that in Afghanistan, and in their other far distant possessions where the telegraph can never be relied on to work with regularity, correspondence by pigeons may be the best means of securing the maintenance of communications."²

In some of the large towns, such as Kieff, Warsaw, and Moscow, there are a few amateurs who breed and fly pigeons.

Italy.

In Italy there is an extensive military pigeon system which is now beginning to work satisfactorily.

¹ This suggests a question as to the length of time necessary for the establishment of a loft. From experiments that have been made, it is found that if suitable birds are available, they can be trained up to 50 miles within three weeks of the opening of the loft.

² "Bulletin de la Réunion des Officiers," 19th July, 1885.

The establishment of military lofts dates, I believe, from the beginning of 1872.

The stations on the north-western frontier are at Exilles, Fenestrella, and Vinadio. There are also military lofts at Alexandria, Genoa, and Bologna.

On the western coast Gaeta and Rome, the latter a large central station, are both furnished with pigeons.

Ancona on the eastern coast is an important central station; the loft is situated on high ground in the Villary Barrack. A subaltern Officer is in charge. The internal arrangements appear to be complete in all particulars, and a record is kept of everything that takes place amongst the pigeons.

According to the "Bulletin de la Réunion des Officiers," it is intended eventually "to increase the number of pigeons at Ancona to 2,000." This strength has, however, not yet been reached. In July, 1884, there were about 300 birds, of which 151 were old trained pigeons, and the remainder untried young ones.¹ The birds are divided into three sections, and are trained to Rome, to Genoa, and to Turin.

The north-western stations train their pigeons eastwards towards Ancona.

The lofts on the coast also train their birds out to sea, with a view to their employment as messengers from cruisers off the coast.

The "Bulletin de la Réunion des Officiers"² recently stated that "generally speaking, either on account of want of proper care, on account of climate, or on account of mismanagement, the breeding at Ancona has not been attended with success; neither have the results obtained in other respects been satisfactory. "For some years past the training experiments that have been made have not succeeded. This may be accounted for by the ill-chosen positions of intermediate stations, which may be either too far apart, or not in a straight line with the extreme points. The experiments are, nevertheless, still continued, and an improvement in the breed of bird employed, and in the instructions given, may be expected."

On 4th of June, 1884, experiments were carried out at Turin—on the occasion of the Zootechnical Exhibition—with Italian messenger pigeons carrying despatches. The birds were divided into groups.

The first group consisted of eight messengers for Ancona (315 miles distant), and started at 8.20 A.M. The next two groups were Bologna³ birds, and started at 9 A.M. and 9.15 A.M. respectively. The fourth group was composed of six birds for Alexandria (50 miles distant). The fifth group was six birds for Exilles (35 miles distant); and the sixth and last lot were liberated at 10.30 A.M. for Fenestrella (32 miles distant).

The results of these experiments were published at the time in a Belgian newspaper⁴ devoted to such matters. Of the eight Aucona

¹ These figures and other particulars relating to the Ancona loft, are taken from the newspaper "L'Ordine," of Ancona, of 4th June and 27th July, 1884.

² No. 29, of 16th July, 1885.

³ Turin to Bologna is 190 miles.

⁴ "L'Épervier, 6th July, 1884.

birds, two reached their home at 6.20 p.m. the same day, having taken ten hours to accomplish their journey of 315 miles, and four others arrived in the course of the next day.¹ It is not recorded whether the remaining two birds eventually turned up at their loft.

There are several private pigeon societies in Italy, but I am not able to give much information as to the work they have done.

The Modena Flying Club race from Ancona and from Rome.²

Spain.

Owing to the apparent liability of civil wars in Spain, the establishment of military pigeon stations would appear desirable in that country.

In 1876 the Minister of Marine decided to establish pigeon lofts at various coastguard stations. The idea was to employ the birds to communicate between the different stations, and also between the shore and naval cruisers which in war time would be employed to intercept the enemy's ships, and in peace time to stop smuggling. "Le Pigeon Messenger" states that stations were established, and the experiments that were made were perfectly successful.

In 1879 the Minister of War ordered the erection of a pigeon loft at the Military School of Guadalajara.

Madrid, St. Sebastian, and Cadiz were subsequently furnished with pigeons.

The military pigeon service is under the orders of the Director of Engineers.³

Portugal.

The military pigeon system of Portugal dates from the year 1876. M. La Perre de Roo, after some correspondence with the Portuguese War Minister, had presented to the Government in the previous year several pairs of stock birds, which were kept as prisoners in a suitable pigeon loft at Lisbon, and became the progenitors of many of the working pigeons of the military lofts. New blood was subsequently introduced by the purchase of twenty pairs of birds from Antwerp and Liège. Under the able direction of Captain A. C. Bon de Sousa, who is an enthusiastic and experienced pigeon flyer, the various stations at which the lofts were to be established and the lines of flight were decided upon.

The original plan has not yet been fully carried out. There are now five lofts which have been in regular working order since 1881. These are Lisbon, Setubal, Tameos, Vedras Novas, and Elvas. To complete the system it is intended to establish a central loft at Oporto, and single section lofts at the frontier fortresses of Chaves,

¹ The result of the Turin-Ancona fly is taken from "L'Ordine," already referred to.

² In July, 1884, this club had a race from Ancona for young birds. Forty pigeons competed.

³ "Telegraphia Militar," by Captain D. Carlos Banur, published in Barcelona, 1884, devotes one chapter to messenger pigeons.

Bragança, Almeida, Guarda, and Alcoutim. Lisbon is, of course, the headquarters, and the central station.

The Lisbon lofts are constructed on the most recent and approved systems, and being under the personal supervision of Colonel A. C. Bon de Sousa, now Director of Telegraphs and of Military Pigeons, are models of cleanliness and order.¹ They contain at the present time 400 birds which are trained to fly from Elvas (120 miles), from Vedras Novas (45 miles, almost in the same line), from Tameos (83 miles), and also from the north, and from Setubal (18 miles south).

At Setubal there are 100 birds trained to fly from Lisbon.

Tameos is a strategical point and entrenched camp of great importance, at the junction of the Zézere and Tagus, the hills forming strong positions covering Lisbon from an enemy's advance down the valley of either river. Here there are 150 birds trained from Elvas (60 miles), and from Lisbon (83 miles). Tameos is the School of Military Engineering.

At Vedras Novas (45 miles due east of Lisbon), where is the School of Artillery, there are 250 birds trained to Setubal and Lisbon.

At the important frontier fortress of Elvas (some 10 miles from the Spanish fortress of Badajoz) there are 300 birds trained from Lisbon (120 miles), from Tameos (60 miles), and also from Chaves (210 miles).

As the whole length of Portugal is but 350 miles, there will be no difficulty, especially considering the central positions of these five pigeon stations, in securing communication with Lisbon from any part of the country.

The nature of the country and climate is not, however, favourable to pigeon flying. The country which the birds have to cross is intersected by several mountain ranges, the Sierra d'Estrella being in some places over 6,000 feet high, abounding in birds of prey, chiefly large vultures and hawks, and in winter covered with snow. Colonel Bon de Sousa states, in his book "*Serviço dos Pombos-Correios*," that the pigeons always fly down the passes along which they have been trained, and that very few are lost when in proper flying condition.

The climate presents considerable variations in the north and south provinces, the latter being very hot in summer, and consequently trying to the pigeons.

A velocity of 1,000 metres per minute has been attained, but the average rate of flight is 800 metres.

The introduction of military lofts has resulted, as is usually the case, in the general spread of pigeon flying throughout the country. I have been assured by a Portuguese gentleman that about eighteen months ago four pigeons belonging to Lisbon were liberated at Southampton, each with a message attached; two of the birds reached home, 900 miles from their starting point, but only one of them still carried its message.

Colonel Bon de Sousa has told me that on the 1st July, 1881, four pigeons belonging to a Pigeon Flying Society of Paris were liberated

¹ This information was kindly given me by a gentleman who visited the Lisbon lofts about twelve months ago.

at Lisbon, and that they all reached Paris on the 5th July, having flown nearly 900 miles.¹

Denmark.

In Denmark there are no pigeons which are the property of the Government. There is, however, a pigeon club at Copenhagen, and others exist in the provinces. There is a monthly paper called "Brevduen," devoted entirely to the sport. Races are organized throughout the summer months, and the Danish War Office has recognized the possible utility of the pigeons by granting money prizes for some of the races.

It is not within the scope of this lecture to enter into particulars relating to the management of a loft of homing pigeons, or the method of training them. There are several English books devoted to this very interesting and important part of the subject.²

I will content myself with observing that the loft should be kept thoroughly clean, should not be damp, should be well lighted, and not overcrowded. Our English lofts are usually specially built. On the Continent the gable ends and attics of existing buildings are generally utilized. 200 birds is the maximum number that should be allowed in a single loft. If there are more, they must be homed in two or more lofts, which should be some distance apart.³ The training consists in sending the birds in baskets (or paniers) away from home and liberating them, first at short distances, and then at longer ones until the goal is reached. Young birds in their first season, when about five months old, may be trained to fly home from a place 150 miles away. In their second season this distance should not be much increased, but in their third year they may be sent fully 400 miles.

Many men fail to achieve success with their pigeons and give up their birds in disgust. In a letter by "Voyageur," which appeared in "The Field" of December, 1872, the following observation occurs: "A man may have the best strain in the world, and if he does not understand the minutiae of breeding, training, feeding, and general management, he may sit expecting his birds home till he gets such a crick in his neck that he vows he won't have anything more to do with the job. They simply don't come under those circumstances."

¹ The Americans are fond of flying "for distance record." They have accomplished journeys of over 900 miles. The greatest distance covered by a homing pigeon in America is reported in "The Homing Pigeon," New York, 26th Sept., 1885. The bird flew from Montgomery, Ala., to Fall River, Mass., the "air line" being 1,040 miles. The time taken was 20 days.

² "The Homing or Carrier Pigeon: Its History, General Management, and Method of Training," by W. D. Tegetmeier, F.Z.S. "The Homing Pigeon Fanciers' Guide," by J. W. Logan; price 2s. 6d., from "The Stockkeeper" Office, 140, Fleet Street. "The Homing Pigeon," by J. L. Burgess, Latton, Cricklade, Wilts; price 1s. of the author.

³ One hundred birds require a loft with a floor space of about 100 superficial square feet. When the pigeons are prisoners they require fully twice that amount of space.

It is therefore essential to exercise judgment in the selection of persons placed in charge of lofts, to make sure that they are by nature fitted for such duties, that they will take an interest in the breeding and work of the birds under their charge, and that they have been properly instructed by practical apprenticeship to their employment. There is no difficulty in doing this, and without these precautions failure at first is almost certain.¹

To appreciate the perfection to which pigeon flying may be brought, a visit to Belgium is essential.

Belgium is the ancestral home of the European messenger pigeon. The Belgians were the pioneers of long-distance pigeon flying, which they originated more than sixty years ago.² Their devotion to the sport saved the *pigeon voyageur* from oblivion, when the introduction of steam and electricity threatened its universal extinction. "In that country pigeon races, or *concours*, still constitute the great national pastime, which is supported by munificent gifts from His Majesty the King of the Belgians and the Comte de Flandres, subsidies from the great cities, and subscriptions, amounting to many thousands of pounds annually by those interested in the pursuit."

There are nearly 2,000 flying clubs in the country, which own between them an enormous number of birds. The favourite direction for training is through Paris to the south-western extremity of France and even into Spain. In 1885 in a *concours* from Douai, 1,928 birds were liberated, while in the national *concours* of Bayonne (565 miles from Brussels), there were 1,155 competing birds.³

A large number of pigeons are also trained eastwards through Germany, and some westward to London. In 1884 the Belgians had races from Dover, London, and Sandhurst, in 1885 from Dover and from London: the average number of competitors was 500. In the Dover race of 1884, 1,000 birds started, of which some 300 were lost, owing to the thick weather in the Channel.

Reference has already been made to the important connection that exists between the work of private pigeon flying societies and that of Government pigeon establishments. It is therefore interesting to examine our own resources in trained pigeons, which have been developed by private enterprise, and which are capable of being placed at public disposal.

During the past few years very considerable progress has been made in this country in this respect, and at the present time a large

¹ It will have been observed that the first establishment of Government lofts has in many cases been a failure.

² The first Belgian fly of any importance was in 1818, when about 100 miles was accomplished. In 1820 a bird flew from Paris to Liège, about 200 miles. In 1823 the first race from London to Belgium is said to have taken place. At that time Liège was the chief centre of pigeon flying. The first Pigeon Society of Brussels was established about 1826.

³ In the Belgian National Race from Lamothe in 1880 there were 3,637 competing birds, half of which arrived home on the day of liberation. Paris to Brussels, 170 miles, has been flown in two hours 20 minutes. There is a Belgian Society for the protection of pigeons. Rewards are offered for the conviction of persons who shoot or otherwise destroy pigeons. A price is set on the head of every bird of prey.

and still increasing number of persons take part in the sport of pigeon flying. The number of birds—old and young—put into training during the past season may be estimated at about 9,000. The great majority of these are trained through the medium of pigeon flying societies. The number of these societies in the United Kingdom is about forty—mostly in England. In the metropolis there are four: the chief of these is the London Columbarian Society, which races its old birds from Cherbourg, from Granville, from Rennes, from Napoléon Vendée, and from Bordeaux, and its young birds from Templecombe, Chard, and Exmouth. A conductor is invariably employed—as is the custom with all the more important societies—to take charge of the birds during their transit to their destinations, to attend to their wants and to liberate them, weather permitting, at the appointed time.

The result of the London Columbarian Society's races during the past season may be summarized as follows: 526 old birds were put into training and marked for the Continental races. In the Cherbourg race 226 pigeons were liberated, the velocity of the winner, which had flown 130 miles, being 1,437 yards per minute, and each of the first 41 birds attaining a velocity of over 1,000 yards. In the Granville race 126 birds were liberated; the velocities were somewhat higher than in the preceding case, while the average distance was nearly 200 miles. In the Rennes race 122 birds competed; but owing to bad weather during their flight, about half of them were lost; the eleven first prizes were nevertheless won with velocities of over 1,000 yards, with an average distance of 231 miles. The result of the race from Napoléon Vendée, 345 miles from London, and therefore 100 miles beyond the previous ones at Rennes, was, under the somewhat unusual attending circumstances, very remarkable. The birds left London on the 29th of June, for liberation on the 2nd July; but owing to bad weather, they were detained at Napoléon Vendée till the 7th, when a start was effected. They had, therefore, for eight clear days immediately preceding their flight of nearly 350 miles, been confined in a training panier. The first four birds, nevertheless, flew home at a rate of over 1,000 yards per minute. The Bordeaux race was not a success. Twelve birds started, but only two returned to England, and these were several days on the road. For the young bird races, 1,281 squeakers (young birds just out of the nest) were marked. The majority of these were, however, lost or taken off the road before they had done 100 miles. For the Templecombe race 240 birds competed (distance, 105 miles from London). For the Exmouth race, distance 160 miles, there were 53 competitors.

Of provincial societies, there are also several that do excellent work. Amongst these may be classed the "United Counties Flying Club," of which Mr. J. W. Logan is president; the "Manchester Flying Club;" the "Preston and Northern Counties Homing Society;" the "Southern Counties Flying Club," and a few others. These four clubs flew between them a total of over 1,000 old birds in their early races during last season, and a somewhat less number of young birds in their later races.

The "United Counties" is not only engaged in training and racing their birds, but offer prizes for open competition on payment of a fixed entrance fee. Pigeons taking part in the open races are divided into four groups, according to the districts in which their lofts are situated, so as to ensure some uniformity of distance. Their races are from Winchester, Ventnor, Cherbourg, Granville, Rennes, and La Rochelle with old birds, and shorter distances for young ones. Their last race from La Rochelle is worthy of record on account of the distance, over 450 miles, flown by some of the competing birds. Thirty-four birds were liberated at La Rochelle at 4.41 A.M. on July 18th, and the three first prizes were carried off by birds that reached their English homes before 9.15 A.M. on the following morning; but of the thirty-four starters, seventeen—or just one-half—were lost.

The Manchester Flying Club train their old birds as far as Vannes, 407 miles, and their young ones up to Swindon, 127 miles. They marked last season about 1,000 old birds and 600 young birds for racing. The Preston and Northern Counties Society fly from Rennes, 400 miles, with old birds: and from Chippenham, 157 miles, with young birds.

The birds of these two last-named clubs must always cross on their homeward journey the smoke-covered districts in which ironworks and cotton manufactories abound; but this does not appear to affect their velocities, which are often excellent.

The practical result of English fondness for the sport is that at the present moment there are in this country a considerable number of excellent and highly trained pigeons suitable for use as messengers in case of necessity. It is not easy to estimate with accuracy what that number is. Perhaps it is about 2,000, of which only 400 have flown over 200 miles, the remaining 1,600 having been trained from 100 to 200 miles.

Figures such as these, if even approximately correct, illustrate in a striking manner the proportion of loss which may attend the training of pigeons in England, for out of some 9,000 birds with which our English pigeon-flying campaigns of 1885 were begun, there are left but 2,000 reliable working birds. Of the remainder, 1,000 may be classed as insufficiently tested, and 6,000 as having been lost in training.¹

In the limited time at my disposal, I cannot enter fully into the probable causes of so many losses. There can be little doubt, however, that as our experiences become extended and the quality of our birds improves, our percentage of losses will decrease.

Our variable climate, our liability to mists and fogs, will nevertheless always be responsible for more or less heavy losses in training, and we can hardly expect to do as good work with pigeons in this country as our Continental neighbours do abroad.

The chief point in connection with English pigeon flying to which I

¹ These statistics have been compiled with the assistance of returns kindly furnished by some of the leading societies. It must be borne in mind that a large number of birds that accomplished distances of over 200 miles were afterwards lost at 300 miles or perhaps more.

would draw attention is that we have in this country a widespread fondness for the sport which is capable of large and rapid development.¹

As most foreign standard works on pigeon flying allude to the employment of pigeons by the Trinity House authorities, as the first official recognition in this country of the utility of these birds as messengers, and further as the attempt was not crowned with success, it is desirable that some allusion be made to it. The general idea was to obtain communication with light-ships by this means. The experiments were first commenced in 1876, and were continued without interruption up to March, 1895. The upper story of a disused lighthouse at Harwich was fitted up as a pigeon loft, and some suitable old birds were installed there as prisoners. The first year was spent in breeding from these, and in training the young ones to fly more especially across the sea. In the summer of 1877 the birds (then about twelve months old) were sent off in relays to the "Cork" and "Sunk" light-vessels, distant respectively about 5 and 12 miles from Harwich, where they were kept in roomy cages specially constructed for the purpose. Every time the Harwich sailing tender went to sea a fresh basket of birds was sent to the light-vessels, from which, when the weather was not too bad, a bird or two would be daily released. Many birds were from time to time lost, and the pigeon loft was reinforced by the addition of young birds (squeakers) purchased in Belgium.

After a trial of eight years the attempt was abandoned, as the Board were convinced that for the purpose of the Trinity House pigeons were useless. They could only be depended upon to return home in fair weather. "In gales of wind or in snowy weather, which would be the only times when the light-vessels might be desirous of calling immediate succour from the shore for vessels in distress, the birds if sent up were invariably lost or refused to leave the ship." The pigeons therefore—100 in number—were sold by auction in London on the 3rd March, 1895. If the birds were intended for use in bad weather only, it is obvious the experiments were doomed to failure from the first.

It is not for me to venture an opinion on the desirability of establishing Government pigeon lofts in England.

I may, however, be permitted to indicate some of the considerations which bear upon the question, and which should not be lost sight of in discussing it. We enjoy some undoubted advantages through our insular position, and, as a rule, we are not given to underestimate them. These advantages do not, however, extend to the safety of our communications in case of war. In this respect we are in a far worse position than any other European nation. A Continental country could not be prevented from communicating with the rest of the world and be thrown entirely upon her own internal resources, except in the very improbable case of being at war with all surrounding neighbours. An invasion would affect her communications only to a limited extent.

With us the case is different. Our telegraphic communications with the external world might be severed without an invasion. Our submarine cables might be cut by an enemy who had never come within sight of our island.

I am not able to state what arrangements have been made by our naval authorities for the protection of the many cables which radiate

¹ One of the chief obstacles to the development of pigeon racing in England is the heavy expense of training, that is, the high railway rates charged for live birds.

² These particulars were kindly furnished by the Trinity House authorities.

³ The number of cables between the United Kingdom and places abroad is twenty-nine. Seven cables cross from Ireland to England and Scotland.

from these shores to all parts of the globe. It would obviously be a difficult task for our home or Channel fleets to watch and protect them all; while the great speed of war-ships of the present day would render hostile demonstrations of this nature by fast cruisers and other ships by no means difficult.

In such an emergency, pigeons afford a means of maintaining direct, cheap, and speedy communication with the Continent.

An organization of this nature existed half a century ago, when a regular interchange of correspondence took place between London and Cologne,¹ *viâ* Antwerp, and between London and Paris by means of messenger pigeons.²

A further use of pigeons applicable to our insular position, and on which the Italians appear to place some reliance, lies in their employment as messengers from an observation ship, or fast cruiser, told off to watch the movements of an enemy's fleet. By having a suitable number of birds on board, every movement of the enemy could, in moderate weather, be reported in the day time to a military station on shore. An illustration of the services that can be rendered by pigeons in such cases is afforded by Boyton's paddling cruise across the Channel in May, 1875. The South-Eastern Railway Company's steamer "Prince Ernest" accompanied the swimmer in his passage. Twelve trained pigeons belonging to Mr. T. G. Ledger, of Folkestone, were put on board. These birds were liberated at regular intervals, and carried reports to Folkestone, whence the messages were telegraphed to London. In this manner the London press was able to publish periodically on that-day accounts of Boyton's progress.³

It has already been shown that, in case of actual invasion, pigeons probably afford the *only* means of preserving a fairly efficient system of corresponding.

If the view taken by a writer of a series of articles on "Volunteer Coast Defence" is to be accepted, it would appear that our coast frontier is in a "dangerously defenceless state."⁴ He says: "We have many commercial ports, small harbours, open roadsteads, and inlets abounding on our coast which we have not the means of properly protecting, and for which we have no systematic scheme of coast defence."

In any case, in the presence of the large and formidable Continental navies, it is safest to regard the sea which surrounds us—and on which many build their convictions of insular safety—as a vast plain over which an enemy can easily move and approach us at any point and from any direction. We spend money freely on our forts and

¹ M. Lenz is responsible for this statement.

² In 1836 there were three pigeon lofts at Dover, containing between them some 600 birds. They were all employed in this Continental service. Pigeons were also kept about this time at Folkestone for a similar purpose. The proprietors were stockbrokers and newspaper reporters.

³ Pigeons were used in a similar manner in the late American International Yacht Race between the "Puritan" and the "Genesta."

⁴ See "Army and Navy Gazette," 5th December, 1885, *et seq.*

coast defences, on the guns we put into them and on the men who garrison them, but we have no means of communicating with any of them in case they are invested.

In conclusion, I beg to be permitted to tender my best thanks to my many correspondents abroad, who, at considerable trouble to themselves, have kindly obtained for me information on the pigeon systems of the countries in which they are resident. Without their help, the descriptions of the foreign military systems would have been far more incomplete than they are.

The CHAIRMAN: I hope that this instructive and interesting lecture will be followed by information from other persons who have given their attention to this art; and if General Hassard, of the Royal Engineers, is here, who I believe has come at considerable trouble, and has great knowledge of this subject, I will ask him to open the discussion.

Major-General HASSARD, O.B.: I am here, Sir Beauchamp Walker, but I am afraid I have very little to say after the exhaustive manner in which Captain Allatt has brought the subject before you. I could say, of course, a great deal that he could also say about details, but that I think you do not want to hear. There is one thing which perhaps will amuse you, that these birds are not always employed for good purposes; sometimes they are employed for bad. About six weeks ago I heard they were used in South Africa—descendants of birds that I took there—to smuggle diamonds from Kimberley to Cape Colony. I quite agree with Captain Allatt in what he has said concerning the utility of the birds, but I do not think it necessary to say anything more.¹

Mr. TEGETMEIER: Mr. Chairman, ladies, and gentlemen, I can only say I have heard with very great pleasure the very exhaustive and complete lecture of Captain Allatt. I may speak, perhaps, with some little authority on the matters, inasmuch as some ten years ago I myself brought the subject before the Engineering College at Chatham, and I have been very much interested in the subject of homing pigeons ever since my boyhood. With regard to the practicability of using these birds I am perfectly satisfied. In 1872 I got my friends at Brussels to send over 200 pigeons for a race from the Crystal Palace to Brussels. The pigeons were started at 12 o'clock (a very late hour of the day, considering the distance that they had to travel, and that they fly so much better earlier in the morning), and at the same time I went to the telegraph station, and telegraphed to my friend, a very well-known columbophile in Brussels, that the birds had started, but the pigeons reached Brussels first, and informed him that the telegram was coming. On that occasion I wrote a letter to the "Times," calling the attention of the military authorities to what I thought would be a great advantage of pigeon messages from armed cruisers watching an enemy's fleet, in case the submarine telegraph was broken. That letter was reprinted by my friend Mr. Gould, the eminent naturalist, in his work on "The Birds of Europe." To show that this was not an exceptional flight to Brussels, I may say it was repeated the next year, and two years afterwards it was repeated twice from the Alexandra Park. In all these cases the flights were accomplished with very great success. The return flights from Brussels to England were not as good, because our birds in England at that time had not been trained for long distances. I differ a little from my friend Captain Allatt, in believing that the utility of the birds will not be found in flying 300 or 400 miles, but in short stages of 40, 50, or 100 miles. In flying long distances of 300 or 400 miles, a very large number of birds are lost, whereas in the shorter distances under 100 miles practically very few of the birds are lost. I have always found in endeavouring to establish communication by pigeons, the great difficulty has been to get suitable men to take charge of them. Unless the man is what you may term a born pigeon

¹ In 1852—53 I employed pigeons to carry official messages between Guernsey and Alderney with success.

fancier, he is of very little use. An ordinary man, who may even be a lover of birds, or an obedient soldier, is not the man that will answer; you must have a man who is used to the birds, and really takes a very vital interest in them. That is a point about which I have found some difficulty. At the request of the Trinity House, I endeavoured to establish a pigeon service from the light-ships situated off Harwich, after the loss of a large German vessel on the sands some eight or ten years ago. The conditions were very severe on the birds, inasmuch as they had to be kept for a month on the light-ship, and the agitation of the vessel during the whole time when the weather was rough must have knocked about the birds in a rather dangerous manner. Still they saved some ships, and I believe some lives. Since then telegraphic communication has been established, and the pigeons have been discontinued. I may mention perhaps another case, which illustrates the value of these birds, under certain conditions, even over the electric telegraph. Originally the ships going out to India touched at Point de Galle, at the south of Ceylon, and communications were sent up by pigeons to Colombo, the seat of Government, and the news of the capture of Sebastopol was conveyed by pigeons to Colombo, and a salute was fired there celebrating the victory, solely on the authority of the intelligence brought by the pigeons. The editor and proprietor of the paper there told me of the anxiety with which the military men at Colombo came to his office in order to wait for the news brought 70 miles by the birds, where the electric telegraph was established and committed to the hands of the natives, and he gave up his pigeons, but after six months' experience he wrote to me and asked me to send him some more birds, because the pigeons were not only better, but would convey more intelligence, and at a greater rate than he could receive it by the electric telegraph as worked by the natives. These are a few illustrations of the practical use of pigeons, in corroboration of those mentioned by Captain Allatt. Captain Allatt said he thought it was quite impossible to make pigeons go anywhere except to one home. Now I am inclined to differ from him in this way. I think it is possible, that is to say, it is not out of the range of possibility, to make them follow a movable home. I recollect on one occasion being in one of the squares of London, and seeing a singularly formed handbarrow, drawn by a man and woman. It attracted my attention, as there were some pigeons in it; the man opened the barrow, and the pigeons flew out, and when he blew a little trumpet they returned. He sent them away again, and then moved the vehicle round the square down the adjacent streets; the trumpet was blown again, and back flew the birds. I do not know how far this idea could be practically worked out, but a correspondent in "The Field" some years since really drew out a plan by which he thought movable homes might be conveyed with armies, and pigeons might be trained to follow the army, and return to these small movable homes. I merely mention this. I do not think it so important as the fact of training them to fixed places, but still it might be possible. As to their utility in warfare, and the feasibility of their employment, the details which Captain Allatt has given of what took place at the Siege of Paris, with all of which I am perfectly acquainted, and know to be perfectly accurate, show how very feasible the plan is, and how exceedingly useful it may become.

Captain W. S. J. HORNBY, R.N.: Sir Beauchamp Walker, my lords, ladies, and gentlemen, I think we must all be very much obliged to Captain Allatt for the very interesting lecture he has given us. Like my friend Mr. Tegetmeier, who I am delighted to see here this afternoon, I am one of those who have always from boyhood days taken a very great interest in pigeons, and when I have not been at sea I have always had birds. Before I went to sea I had a pigeon which did very good work. I flew it a distance of 25 miles: in these days of course it would be considered a very short distance, but in the year 1849 it was not so, and I then flew that little bird 25 miles. Another reason why I am glad that this lecture has been given here to-day is that now we have an opportunity of this subject being brought to the notice not only of the press but also of the military and naval authorities. I am quite aware that Mr. Tegetmeier years and years ago wrote on this subject, but the Government of this country, it appears to me, generally allows all new ideas, inventions, or discoveries to be conducted by private enterprise. As an illustration of the dawdling nature of the Government, I may say that when chain cables were first invented they were used—I won't say for ages—but certainly for years by merchant

ships before they were introduced into the Navy. It was the same thing with regard to iron tanks for holding water; water-casks were still used to a great extent when I went to sea, although the first private shipping firms had long discarded them. It was the same thing with reference to steel hawsers. The Admiralty are about the last to take up any useful invention of this sort. And so it seems to me with regard to pigeons. The great military Powers of Europe, as you have heard from the lecturer this afternoon, have all adopted the system of military pigeon-lofts, but it has been left in England to the private enterprise of individuals. Amongst those individuals I am glad to see Mr. Tegetmeier and Mr. John W. Logan are present. Mr. Tegetmeier was the first to introduce into this country the Antwerp or Belgian voyageur. I remember talking with him in 1870, before the siege of Paris, and he then told me just what *might* occur. When I was at Paris in 1881, I met the gentleman who has been mentioned by the lecturer, M. La Perre de Roo, and he told me that he was in Paris and had seen these high military authorities, and, as the lecturer said, they simply laughed at him when he told them he had pigeons which would be of some use to the country in case Paris was completely invested. Mr. Logan is the gentleman who instituted pigeon races for long-distance flying in this country, and he has flown further distances I believe than anyone—at all events until the London Columbarian Society came into the field. I had some splendid birds from Mr. Tegetmeier myself in 1870, but latterly, in consequence of living in London, I have not been able to do much in the way of joining Mr. Logan's club, which has its headquarters at Market Harborough, although I have taken great interest in, and have been present at much pigeon flying of all sorts. With regard to the distances flown by pigeons, perhaps I might say a word. Young birds five, six, seven, and eight weeks old will no doubt do 100 to 150 miles, but I do not think it is desirable that young birds should be taxed so far, and thus worked beyond their strength. I should not care myself to let a young bird do more at the outside than 100 miles during the first year. At the same time, with regard to the old birds, although it is a very grand thing to have birds that will do 400 or 500 miles, I think those are only extreme cases, and distances of 200 miles are to my mind quite sufficient to test the birds. For instance, from Brussels to London will be about 200 miles, and from Boulogne about 100 miles, and Cherbourg about 140 miles, and I do not think we want to get a single bird further than that—at least so far as military operations in this country are concerned. In the old times, and for years before telegraphs, when the stockbrokers used to depend upon pigeons for early information from foreign bourses, they had three or four relays. The pigeons used to come over the Channel to Dover or Folkestone, then from there to Redhill, from Redhill to Blackheath, and then into London. In this way they had three or four changes; but I fancy they did the distance as quickly as at present, and the time taken in changing the despatches from pigeon to pigeon was so very short, that they really gained in that way, as the birds, thoroughly knowing their road, were seldom lost. Mr. Tegetmeier touched upon pigeons being attached to floating objects. I can say in my own experience I have kept pigeons on board men-of-war on the Pacific Station and in the Mediterranean Fleet—the blue-jackets have often pigeons in the tops. But we never tried flying them; they never deserted their own ships, but they always knew one ship from the other.

Admiral Sir ERASMUS OMMANER: How many years would a pigeon work?

Captain HOBBS: Up to ten years. I should put the prime of the bird at from five to six years. With regard to some of the distances done, and the time in which they have done it, very much depends upon the state of the atmosphere, the clearness of the sky, and whether the birds have a fair wind or not; so that really the criterion of a bird flying at a certain speed is very delusive. I find that the United Counties Flying Club, of which Mr. John Logan is president, and his brother secretary, in 1881 did from Cherbourg, about 200 miles, at a speed of 796 yards a minute—but it was very stormy weather this side of Channel; from Granville, 267 miles, at an average of 830 yards a minute; from Rennes, 309 miles, at a speed of 806 yards a minute; from Nantes, 333 miles, at a speed of 795 yards a minute. Then they had a race from La Rochelle, 411 miles, on a very bad day, blowing hard; the first bird did not turn up for two days; but I believe they had another similar race from La Rochelle this (1885) year, and the winning bird arrived the

next morning. Those are very great distances for birds. On the Continent—especially in Belgium—they have great advantages, because the country is much flatter, the atmosphere is much clearer, and they have not the great disadvantage of having to come over the sea. Coming from Cherbourg or any of the towns of the South of France, our birds have to fly over 60 or 70 miles of water, where they can get no object to guide their sight at all, and if it is not very clear weather they have a very hard job to find their way—how they do manage goodness knows. Perhaps one of the most extraordinary races on record is one mentioned in a work written by Mr. Tegetmeier. The race was from Rome to various cities in Belgium; the distance being 900 miles. The first bird was ten days getting home. Of course for particular purposes in the way of military operations that would be useless, it was more to show what birds *will* do. In that case out of the 900 miles the birds had to fly, 500 miles was over ground which they had never been over before. In that case the birds would have to fly either over the mountains, or to go round by Nice, and so by Paris home—which they probably did. Out of the 200 pigeons liberated at Rome there were only 20 which arrived at their homes in Belgium. That shows what birds are capable of doing. Nothing will daunt them as long as they have strength and are not caught or shot. The most interesting point of late years with regard to pigeons has been the part that they played at the siege of Paris; but I think if the birds had been better birds and better trained—that is, if the Frenchmen had understood how to work birds like our English people do—they might have obtained better results. I will take any English working man, and he will know something about pigeons, but at that time (1870) in France nobody knew or cared much about them. Frenchmen, as a rule, do not care much about them, and there was only one pigeon club in Paris which at all went in for training and racing. Those birds were only trained in a northerly direction—and there were very few of them—and, as has been said by the lecturer, the authorities did not believe in them. The consequence was that Paris was eventually isolated and unable to hold communication with the armies in the provinces. I think military men will see that if the Parisians had had four or five hundred trained pigeons, there is no doubt they could have had easy and rapid communication with the Army of the Rhine, with the army that got shut up in Sedan, and with the army in Metz, and I leave it to military authorities to decide whether, if communication could have been opened up between Marshal MacMahon, Marshal Bazaine, and the General Commanding in Paris, there might not have been a different complexion put upon the war. With regard to a military pigeon system being taken up and adopted by the English Government, I think it is hardly possible at present to induce our Government to establish pigeon stations round this country. I do not advocate it; but I do think they might give subsidies to well-known and celebrated clubs, whereby prizes could be offered, and so the great expense of training would be in some degree met. One of the greatest difficulties of training pigeons is the expense of having suitable persons to take charge of them, and the heavy railway fares. I have done my own work for the last two years altogether by myself, and I have found it a great expense. By the formation of clubs a great deal of individual expense is avoided, but not to a sufficient extent, and working men who have a few birds are not able to find the money for entrance-fees and things of that sort. I think therefore that the Government might assist by giving prizes to some of the chief towns and the garrison towns, so that people might have an inducement to keep a few birds on hand, and then there would always be the certainty of having birds ready in case they were wanted.

MR. LOAN: I came this afternoon not to address any remarks to the gentlemen I see around me, but to try and gain a little information for myself; but as you have been kind enough to ask me to say a few words I will do so. I hope that Captain Allatt will pardon me for not agreeing with him in all that he says. I am very fond of the sport of pigeon-flying, and have been all my life. I may say I am a most ardent pigeon fancier, and, as a rule, I would vote with my party on pigeon-flying through thick and thin, but in this case I am afraid I cannot, because I prefer my country first. I should like to warn the military authorities of this country not to place too much reliance upon pigeons. On the Continent they have gloriously fine, clear weather day after day, month after month, the year round,

Here what have we? Nine months out of the twelve weather totally unfit for any bird or the best bird to fly in. I have been in town for the last fortnight, and during that fortnight if you had got together the best 300 birds in London (and there are some very good ones here) on very many days during that time, and had taken them 200 miles in a direction in which they had not been trained, you would perhaps not have seen one again for days or even a week, given a continuation of the same weather, for the weather has been totally unfit for pigeon-flying. I should have rather liked to have heard from Mr. Allatt some small details as to how he proposed to work the birds. I have read several letters on this subject, and have followed Mr. Tegetmeier and his movable loft; but God help old England, Mr. Tegetmeier, the day she relied upon your movable loft! I should like to say that, taking the ordinary weather round our coasts at any time of the year, with the exception of three months in the very finest weather, birds could not come into England if you took them 60 miles away. Therefore I say to those who are going to study the subject, let them bear in mind this one most important thing, and that is, that given the very best birds in the world, they cannot return home on a thick day when they cannot see, and I leave you to guess how many of those thick days we get in jolly old England. No, my friends, let us keep command of the sea round the coast, and do not let our telegraph-wires be cut, we shall not then want cruizers dodging about the Channel letting off birds here and there. Let us keep command of the sea, and then we shall not want any assistance from such unreliable messengers as homing pigeons.

MR. TEGETMEIER: May I rise to correct a statement of my friend Mr. Logan? The proposal of movable lofts was not mine, and I merely threw it out as something that had been suggested. With regard to Mr. Logan's statement that the birds would not fly in winter, would you permit me to remind him that the birds sent out from Paris were 6 on November 2; 6 on November 4; 6, November 6; 32 on the 12th; 34 on the 18th; 24 on the 24th; and so on till the end of the month? Three pigeons were sent out on December 7; 18 on December 11; 15 on December 10, and continued during the very worst of the winter months, and of the 300 birds that were sent from Paris 73 returned with information. If only one pigeon out of 300 had come back, the intelligence would have been worth to the Parisians all the expense that was incurred by them.

MR. F. A. KEY (President of the London Columbarian Society): I agree, Sir, with what has fallen from the gentlemen who have addressed this meeting, with the exception, perhaps, of the statement made by Captain Hornby, who has told us that from 100 to 150 miles is quite far enough to fly birds. Should unfortunately the necessity arise for us to have to avail ourselves of the services of pigeons for military purposes, and those pigeons whose lofts were in London, and happened to be liberated at a greater distance than 100 miles, say from off the south-west or westerly coast, the chances would be very few would see their homes again. I can only state that we have on occasion flown pigeons from Penzance, a distance of 270 miles, and from the Scilly Islands, a distance of 300 miles, to London. With reference to a subsidy from the Government, I may say that the London Columbarian Society does not fly for any money prizes, which it has been urged might give rise to gambling—we simply fly for honour, to see if we can get a first, second, third, or fourth class certificate, and then there is an end of it, so far as we are concerned. I am sure, therefore, that if any gentlemen present who have it in their power would recommend to the Government how highly prized a subsidy would be in a pecuniary sense to the societies all over the kingdom, I am sure it would be heartily appreciated. It has been urged that the objection to the use of pigeons by the military authorities is that in bad weather they will not always find their way home. That I do not take to be an objection, simply because, in the case for instance of pigeons taken in cruizers some distance from the coast, it does not follow that because they may not find their way to their own loft in London, they would not find their way to another loft elsewhere. As a rule, whenever a pigeon fancier finds a stray pigeon in his loft, he looks on its wings to see if there is a name on them, so that if he be an honest fancier, he may return it to the right owner. The pigeon will undoubtedly find its way to some cote or the other, and of course if pigeons were employed in time of war for intelligence purposes, every pigeon fancier would

be on the *qui vive*. There would be the more reason to examine every strange bird, to see if it was the bearer of information that would be of assistance to the authorities.

Captain HORNBY: May I say one word with regard to what has been said about birds not being able to return in foggy weather? Any experienced person will know that the weather is not always in a condition for the birds to fly in. I had a bird of my own last year, which I sent over from Folkestone to Boulogne, to be thrown up there, but when it arrived there the weather was so thick that it was decided not to liberate it. It rested in the basket till the next morning, and then, the weather being tolerably clear on the French side, the bird was thrown up. My friend in Folkestone wrote and told me the weather was so bad there that he did not think I should ever see the bird again. When the steamer came back to Folkestone in the afternoon, the weather was so thick on this side of the Channel that the gun had to be fired at Folkestone to show the steamer the position, and it was delayed a considerable time before it could get in. But in the meantime my bird had flown right over the fog (as we supposed), and long before the gun was fired at Folkestone my bird had arrived safely in his loft in London. This shows that the birds do try to get home thick or fine weather. This bird must have come right over the fog which was floating about in the Channel on our side, although not on the French. As I am probably the only Officer who has ever visited the inside of a foreign military pigeon loft, I will just mention that I had an introduction to the French military authorities at Paris, and being an Officer, was courteously allowed to see one of their military pigeon lofts in Paris. The pigeons were kept in the attics of the barracks, and were as fine a lot of birds as I have ever seen. In this particular loft they had 500 birds, which were trained to fly from the different frontier fortified towns. That loft is only one of a number. I thought I would mention this as a practical fact connected with the subject of the lecture.

General HASSARD, C.B.: When Captain Wharton (I think he is now the Hydrographer of the Admiralty) left Sheerness some few years ago, he had a surveying vessel called the "Fawn." He called upon me, knowing I knew a good deal about pigeons, and I think he called also on Mr. Tegetmeier. He said that some time ago, when they were surveying, they were very much delayed, sometimes for want of an angle, or other information, and he wanted to know if he could not take the birds on board, and let them go out in the boats, so that the information he wanted could be sent to him by the pigeons. Well, he was fitted out with baskets—we got them made at Sheerness—to go under the thwart of the boat, in order that the pigeons might be taken out surveying. Sometimes the boats did not come back at night, and he was very anxious to know about them. The arrival of a pigeon might explain the reason. Singularly enough he came round the Cape when I was at Capetown, and I asked him about these pigeons. He said they flew fairly well, but as far as his object of getting information from the surveying boats was concerned they were a failure. This was not on account of insufficiency of intellect in the pigeons, but the fact was Jack had made them so tame on board, that they could not get them to fly away from the boats, and when he turned them out they would sit on his shoulders. They could not frighten them away to the ship. If the attempt is again made to use them in marine surveys, Jack must be ordered not to make them so tame, then I think, if the ship is not too far off, they might be used for this purpose. Captain Hornby stated that pigeons know their own ships. Admiral Luard told me that if any ships went away suddenly from harbour, and that the pigeons were absent, on the return of that ship they came back again to their own vessel. This shows that they even recognize individual ships.

Major GUNTER: I have had no practical experience in the training of pigeons, but I have for some time taken great interest in this question, and from what I have seen and read of their employment, I should like to support what Captain Allatt has said in regard to the great utility of pigeons for military purposes. I think they might be found especially useful in our Indian frontier warfare, and that pigeon centres might be established at stations along the frontier, so that in our many little wars, which take us into country where telegraph lines cannot well be laid down, trained pigeons might be taken with the force, and communication thus

rapidly established. When Sir Donald Stewart marched in 1880 from Kandahar towards Ghuznee and Kabul, to join hands with Sir Frederick Roberts, we were practically without communication of any kind until after reaching Ghuznee we were able to heliograph to the troops coming to meet us. The Kandahar force had been established in and about Kandahar for more than a year, and pigeons could have been trained during that period. When General Burrows moved on to intercept Ayoub Khan, the news of the latter's immediate approach could have been conveyed in about an hour to Kandahar from Maiwand. The weather in India is generally favourable to pigeon-flying. Pigeons were in ancient times a good deal used in the East as means of communication, and I have no doubt that the messenger pigeon would be found of especial use for military purposes in India as supplementary to other means of communication.

Mr. TEGETMEIER: Some five or six years ago I sent out through the India Office 50 pigeons to India, but I do not know whose hands they were put into, or what use was made of them. I sent them out at the request of the India Office.

Colonel BAYLIS: May I ask what time it takes for a pigeon to acquire a home that it will return to? I think it is a very interesting question.

Major GUNTER: Somebody asked as to the time of flight. I have a note here in regard to the Ceylon Pigeon Post mentioned by Mr. Tegetmeier. They took from one and a half to two hours flying from the Point de Galle to Colombo. During exceptionally heavy monsoon weather they took longer—but arrived. In fact this pigeon post was continuous and regular.

Captain ALLATT: Some allusion has been made to pigeons flying to homes that are movable. You will find in my lecture—although I did not read it because time was running short—an account of some experiments which have been made in Germany in that direction. I should, however, not like to place much reliance upon the services of birds that were intended to fly back to a home which had moved any considerable distance whilst they were on their journey. Their return I should say would be uncertain. I know that birds have been trained, not to "fetch and carry," but to fly from one place to another, and back again. It has been done in this way: the bird has been homed in one loft where after a time it has been fed as usual, but water has been withheld. It was then taken to another loft where only water was given it. It was then allowed to fly back to its old loft. When this process had been repeated a few times the bird would fly backwards and forwards between the two lofts for food or water. This can never be but an unreliable method of communicating, as food or water might be obtained in the country during a journey. With reference to the distance separating military lofts, I quite agree with what Mr. Tegetmeier has said, viz., that from 90 to 100 miles is sufficient.¹ The advantage of having military pigeon stations at such intervals would be, in the first place, young birds of four or five months old could be trained to fly 90 miles without a very large percentage of loss. If the pigeon lofts were further apart it would be necessary to employ older birds—birds of a couple of seasons. There is no advantage in training young birds over long distances. My own experience—which is not very great—and the experience of others whom I have consulted in the matter, leads me to believe that the best birds we fly in their second season are those which have been trained somewhere about 30 miles in their first year. If you train young birds 150 or 160 miles in their first season, I believe their constitution becomes affected, and they are not so good in their second year. I believe, as a general rule, that will be found to hold good. As to birds kept for stockbroking purposes, in 1836 there were 600 pigeons in three pigeon-lofts at Dorset kept by stockbrokers for the purpose of communicating with Paris and Antwerp. I know the houses where the lofts were, and have frequently conversed with an old man who had charge of one of them. They had stations near Arras, at Boulogne, Dover, Canterbury, and two or three other intermediate stations up to London. In those days, you must remember, one great difficulty was to train the birds—because they had to be sent by coach. These birds were used by stockbrokers who received their information in London a long time before others who had not the advantage of pigeons, and in that way they were able to transact business much to their own

¹ This is the distance given by M. Lenzen.

advantage. With reference to the long-distance races alluded to, I think it will be found that the distance from Rome to Brussels is a good deal less than 900 miles.¹ I believe the longest-distance record we have, has been flown in America, where 1,040 miles has been done by one pigeon—and the Americans have several birds that have done over 900 miles. There is a newspaper called the "Homing Pigeon," published in America, which I occasionally get, and from which I get these particulars. Mr. Logan said he should hardly consider birds reliable to fly 100 miles on a bad day in a direction in which they had not been trained. The simple answer is they should not be sent in a direction in which they had not been trained. I should train them first, and then only send them in the direction in which they had been trained. Of course if the weather is very bad, birds are bound to be lost, but some always come home, even on very bad days. As to the time it takes to home a pigeon properly, you must get him as a young bird—about four or five weeks old. You keep him in his loft three or four days, and then let him out. The best time is in the evening. After he is fed he is not inclined to fly; he goes outside his loft, looks about, and comes in again. The next day you let him out, and he is sure to come back again. You never can rely upon homing old birds which have been trained in other countries or on other lines of flight; you never can depend upon homing them in any other place but the one in which they first saw the outside of their loft. I have now and again succeeded in homing old-trained birds. I have a bird which flew from Tours to Brussels—300 miles. He is homed at Sandhurst, and he flies out with the other birds, but that is exceptional. As a rule with trained birds, directly they are let out—even if they have been kept as prisoners two, three, or four years—the first time they are let out, away they go looking for their old home. As an instance, I may mention a case that occurred a few weeks ago. A gentleman had kept a bird confined from five to six years at Redhill, and then thinking it was pretty safe, he let him out. The bird went straight away, and he saw it no more. With reference to the length of time that pigeons will sustain their flight, that of course depends chiefly upon the weather. If the weather be favourable, birds will fly 250 miles without alighting. Over that distance it is generally found that the bird has alighted. This may be detected by looking at his feet and the end of his tail-feathers, which will generally indicate whether the bird has landed anywhere between the time of departure and the time of arrival.

The CHAIRMAN: Ladies and gentlemen, I think a very warm vote of thanks is due to Captain Allatt, not only for having furnished us with an extremely valuable lecture on this subject—which I am inclined to look upon as one of considerable importance—but also as having attracted to our theatre gentlemen who have furnished us with still further information. I have always thought that one of the great advantages of the lectures in this Institution is that the discussions attract gentlemen of all classes of life and of varying opinions, who afford us a very excellent addition to the lectures to which we listen. I must confess to knowing nothing about pigeons, excepting that as an article of food I look upon a pigeon as the meanest food that exists. I perfectly remember from my earliest youth I have always been told that a person who ate a pigeon daily for a month would die at the end of it. I do not know whether that meant a month of 28, 30, or 31 days, but such was always the saying, and, excepting in pie—and there the pigeon has been almost ousted by the young rook—I really do not know in what shape pigeon is fit to be eaten, excepting as a cutlet, and then he is very good: the breast just taken off and cooked as a cutlet eats very well. But I must say when I dine out, and find the only game to be had is pigeon, I make a very hearty dinner beforehand, because I do not much care about the end of the feast. I beg that you will allow me to tender, in the name of the present assembly, our very warm thanks to Captain Allatt, and also to those gentlemen who have so kindly favoured us with remarks.

¹ The distance in a straight line is 720 miles.