FEB 1918

FEB 1918

PRACTICAL HORSEMASTERSHIP IN THE FIELD.

By LT.-COL. P. T. C. HERBERT, D.S.O., R.A.

(From the *Journal of the Royal Artillery*, by the courtesy and kindness of the R.A. Institution, Woolwich).

HORSEMANSHIP may be divided into two sections :—

A.—Control or Supervision.

B.—The care of horses whether in the lines or working.

A.—CONTROL OR SUPERVISION.

What everyone is looking for is to get the maximum of efficiency with the minimum of trouble. To attain this you must practice decentralization, *i.e.*, you must split up the horses of Units, Artillery, Infantry, Engineers, etc., into such small numbers as one man can easily control, and look after, and know all about. The maximum number that one man can be expected to control should never exceed 40, preferably 30. These numbers will actually depend on the Unit you are serving with. If you have 180 horses to look after, split them up into 30's, and give each 30 to an N.C.O. and tell him those are his command, that he will be held responsible for them, and that he will be judged by the condition in which these horses are kept. You serve two good ends in doing this. First you get the animals looked after. Secondly, you make a valuable N.C.O. Give a man his own show as early as possible in his career. A man with an incentive to work will generally do better than a man who has an allotted task and who knows that whether he does it well or badly the praise or the blame will be taken by someone else. For obvious reasons anything like a one-man-show is to be deprecated on service. You must start a system by which the loss of one man does not affect the running of the machine. If you have one man in charge of a large number of horses and something happens to him, it is very hard to replace him, and it takes a long time for his successor to pick up the threads. But if the unit is decentralized and broken up into small numbers, and the horses controlled in the way I will indicate, the loss of one or two men can be easily repaired. In the old days, 2½ years ago, when I was inspecting, some of the best units were what I call one-man-shows, and it was very hard to have to point out to the Commanding Officer that while we admired his work, the

idea of one-man-control was hopeless on service. Now, if you have taken my advice and have split your units up into such small numbers or sections that they can be readily controlled by one man, the system I want you to start will render any unit, quite independent of who is in command: in other words the officer in charge of horse lines should be like the O.C. of a Battalion, responsible for the whole, but not interfering with the individual Company Commanders. To give a practical illustration. If the O.C. Horse Lines of a Unit wants to find fault with a driver or wants to point out something, he does it through the man who is in charge of the small section of horses that the man belongs to. We all know that practice and theory are not the same thing and that often an officer will have to give orders to a man as there is no time for anything else. But I think you will follow me in my idea. I mean: the way to get the best work out of a young N.C.O. is to treat him as if he had a command of his own; praise him or blame him; both will be passed on you may be sure. This plan may sound hard to work out and not worth the bother; you try it and I expect you will tell me after a bit, how much easier it is to run your units. Now say you have suitably sub-divided your units. I never interfere with the actual subdivision, that is a domestic arrangement. (In my own Regiment the actual subdivision is into sub-sections). The horses of each sub-unit should be handed over to the N.C.O. detailed, and he should be provided with an A.B. 136 easily carried in the pocket.

The book should be kept in the transport or wagon lines and not taken to the trenches or gun positions, except when the entire sub-unit goes out. If the Commander of the sub-unit has to go out on duty he will hand over the book to the man whom he leaves in charge. One page will be devoted to each horse.

The name of the N.C.O. in charge of the sub-unit should be kept up in a page at the end of the book and initialled by an officer each time a change is made. A page at the end of the book should be kept for horses with special feeds and entries should be erased when the horse resumes normal feeding.

In the column under "Remarks" should be included any peculiarities—bad illness, date of clipping, etc., and most of all date of shoeing and examination of teeth.

The book should be examined weekly by an officer to see that it is up-to-date, and produced on all inspections.

By this system every single horse is known and gets individual attention. It is a trouble to start, but once started it will repay you. In the old days if I wanted to know anything about a horse, it took a long time before anyone was found who knew all about him. Start this sytem and there will always be a man with a book who will give you a complete detail of any particular horse. If it does nothing else it helps an Inspecting Officer. If he sees something

wrong with a horse and there is someone there who knows all about the horse and is ready to note anything of value in his book, he knows that, though there may be some temporary trouble, it will be speedily put right and he knows that the unit is being well cared for. By this plan a sub-unit can be handed over in five minutes, the man taking it over will know all there is worth knowing about any horse, what he does best and any other tips of value. Call horses by their pet names if you like, but also always have them numbered so that a stranger can soon know all about them. I think you will agree that this system provides some cure for the frequent changes in Command incidental to Active Service. I do not think there is anything more to be said about control. My system, I know, is a "counsel of perfection." Try it.

B.—Care of Horses.

This may be divided into two headings :—

1. Horses in lines.
2. Horses on the march.

1. *Horse Lines.*

These are now marked out and a Unit has to occupy a selected site. The only advice to be given under this heading is to be very careful when leaving lines to hand them over scrupulously clean, detail an experienced officer to stay behind with a sufficient party and remain until he is satisfied, and finally obtain a certificate from the incoming officer.

Lines should at all times be kept clean; encourage the N.C.O.'s in charge of small groups of horses to vie with each other as to who can keep his part of the lines cleanest.

Refuse should be burnt daily, care being taken not to mix mud with the other refuse, as this prevents proper combustion.

On the end post of each picket line fasten a tin and make men deposit in it any nails found in the lines. A frequent cause of injury to horses is that ·303 ammunition clips are dropped in the lines. I saw a case recently of a horse who had trodden on a round and punctured the sole of his foot.

Do not leave lying about the loose ends of wires taken from bales of forage.

When lines are taken over do not say to yourself "We shall only be here a short time, it is not worth bothering about comfort." Get the men to work hard for a day or two, it will well repay them later on. Make raised paths from where the men live to the horse lines; if you cannot get "duck walks" get rubble or the small branches of trees or anything that will tend to keep the men out of the mud; do all you can to keep the men grooming the horses out of the mud; let officers remember that for once they go into the lines

a man will go six times. Dig drains to run the water off and keep them clean.

Picket Lines.—If possible get posts high enough to support two lines, one breast high for the horses, and the top one for the hay net; you want to keep the hay net off the ground but you don't want the horse line too high as it may stop horses lying down and they will get under it.

If you are compelled to use a line joined to another line with a hook, frap the hook with cord, as it is a frequent cause of injury to horses eyes and nostrils.

Exits to Fields.—When in lines exposed to possible shell fire, never be content with only one way out. If you have to harness up in a hurry and get out, you will appreciate having several exits; it will probably only mean making a hole in a hedge or bridging a ditch.

Wind Screens.—In winter in places where no stables or cover are provided, always erect a wind screen. Nothing starves a horse and tucks him up like a cold wind blowing on him all day; a screen erected to windward of the lines according to the direction of the prevailing wind, even if only 6 ft. high, will do much to shoot the wind over the lines. A few posts with branches of trees laced between them make a good screen.

If you are compelled to picket a horse away from the lines place him as close as possible to his own sub-section. Never fasten his head rope to a picket flush with the ground, as if he gets frightened he may get his hind legs caught and injure himself. Shackle his fore foot to a post driven flush with the ground, have the shackle about 2 ft. long, not longer, or tie him up to a post 3 or 4 ft. high, and he can run round that and not hurt himself. If the lines permit of it isolate cribbers and wind-suckers—the habit is catching. It is best to shackle a cribber by a fore foot.

Forage.—Build shelters for your forage and in winter always have something between the ground and the forage.

Harness.—Similarly as far as possible erect shelters for your harness and at any rate always have racks near your sub-sections, and keep harness out of the mud.

Food.—Oats.—Feed at least four times a day, and never give a corn feed without chaff. Encourage the young N.C.O.'s in charge of small groups to think of how each horse is doing, it makes all the difference to some horses if they can get their oats bruised; others want a great deal of chaff to stop them bolting their corn, some horses do better if 2 or 3 times a week they can get their evening feed soaked and mixed with a little bran if available, in short get the N.C.O. to study each horse and not to feed them all as if they were machines, he can always, through his officer, get advice and help from the Veterinary Officer.

Hay.—Where no other chaff is provided at least one-third, and better one-half, of the hay should be chaffed. Always give the remainder in a hay net, never feed off the ground. Give the bulk of the hay at night—it keeps horses quiet.

Watering.—Water four times a day. Never water if possible out of a bucket. If troughs are not provided, rig one up with waterproof sheets or canvas. Let the N.C.O. in charge of groups always see his own horses watered and fed.

Light draught horses are entitled to 12 lbs. of hay and only 10 comes to railhead, the remaining 2 lbs. are drawn from the supply. It may be straw for chaff, or linseed cake, or green grass, or roots in the winter. See that they get it every day. When possible draw a proportion of bran in lieu of corn, and give horses a bran and corn mash 2 or 3 times a week. If near a village try and get the Supply Officer to get you brewer's grains, it makes a good night feed for a horse, but never keep these grains more than a few hours as they get sour.

Too much value cannot be placed on chaff. It makes a horse eat slowly and makes him chew, which causes the flow of saliva which helps to digest the food. Salt is very valuable and can be supplied. A pinch of salt should be given with each evening feed.

If horses at first do not seem to like brewer's grains, do not be discouraged from giving it to them, they will soon get to like it—always add a pinch of salt.

Nose-bags.—These should be turned inside out and exposed to the air, and if possible the sun, for an hour every day (the latter advice would perhaps be more useful in a land where there was any sun) and once a week they should be scrubbed out.

If this is not done, and more especially if you are able to give the horses wet mashes now and then, the nose-bags become very foul. Try and keep a small surplus of hay nets and nose-bags, and remember that if you want anything from the Ordnance, you must ask for it a month in advance. If you are temporarily short of nose-bags a few supplementary ones can be made out of corn sacks by your saddlers, but do not make more of these than is absolutely necessary, because the sacks are valuable and have to be returned.

Thin Horses.—The most frequent cause of horses becoming thin and debilitated is malnutrition, and this very often is primarily due to horses not chewing their food. The action of chewing produces salivation, and it is this acting on the gastric juices which helps the process of digestion. One of the reasons that causes horses to bolt their food and not chew is that the edges of their grinders become sharp. Prevention is better than cure, therefore do not wait until the horse has become thin and debilitated before examining his teeth. Every time a horse is shod let his teeth be examined, and if they are rough, get the veterinary officer to attend to them. The

date of inspection of the teeth should be entered at the same time as the date of shoeing ; it is a trouble but if you only save one horse a month it is worth it.

As a rule do not give thin horses more corn. Their trouble is that they are probably not digesting the amount they are already getting, and if you add more you will only increase the trouble. Whether or not a horse is digesting what he gets, can only be told from his droppings. Get them as much of other extras mentioned above as you can, but always remember that the best food and best medicine you can give a horse is grass that he finds himself.

The best way to exercise all horses that have been doing hard work and want a rest, especially debilitated horses, is to keep the weight off their backs, and have them led out to crop grass. Always stand thin horses next each other, on the end of a line, a thin horse between two fat ones will get thinner, as they take his food.

When horses work at night especial attention must be paid to them when they return. Remember they will be tired, and when animals are tired their powers of digestion are at a low ebb.

If you can get bran for a hot bran and corn mash, it is very valuable at this time, add salt to it, and it is very palatable to a horse, and more easily digested than hard corn. If you cannot get bran try soaking the oats. Give them a small feed of corn and as much hay as possible. If you give a large feed of corn the horse will be too tired to chew it, and it will probably be undigested, and the next day the horse looks tucked up.

In one unit I commanded, we worked out a regular system of relief. When the sentry heard the wagons returning, he put on some water to boil, called the relief, some of them made a mash for the horses and others made something for the men, and when the horses had been watered, the drivers who had been out all night went away and a relief took the horses over. This is a little trouble to arrange, but when you are doing regular night work it is not difficult, and the men get to appreciate it ; always be thinking of the comfort of your men and horses, it will repay you.

Fitting Harness.—There are now plenty of experts about ; get the harness once properly fitted and never let one horse go into the harness of another horse ; a visit to any of the many horse shows will show people how harness ought to look ; these shows are most valuable as setting a very high standard of excellence. Harness should be frequently stripped and dubbed, it preserves the leather and prevents galls.

Shoeing.—This is, after the care of the teeth, the most important part of horsemastership. On service a horse should never go over a month without having his shoes removed or changed. The toes become long and if you suddenly have to go to a place where you cannot shoe horses for a week or so, this might happen at any time,

and when you have to march again, you will lose a lot of shoes, and on these pave roads, this means a lot of lame horses with bruised feet. Here comes in the value of the shoeing lists, if the Farrier happens to forget a horse, the N.C.O. in charge of a small section of horses will note by his book that such and such a horse's time is up and draw the Farrier's attention to it. Officers should frequently have out for inspection all horses shod the day before, this gives a rough idea how the shoeing is getting on, he should then inspect a certain number of feet. I have been asked by officers what is the good of their inspecting feet when they know nothing about it. It is part of their duties, a most interesting subject, and will repay a little trouble. The Veterinary Officer or the Farrier will always be only too glad to help young officers to acquire a certain amount of knowledge, no good farrier minds having his work looked at. There are four cardinal points in shoeing that an amateur after practice can understand and criticize :—

i. *The Preservation of the Frog.*—This is very important, it is a pad put in the heels to prevent concussion. The way to get a good healthy frog is to develop frog pressure on the ground, if there is no pressure the heels become wired in and contracted, and the frog gradually disappears.

ii. *The Length of the Heels.*—These should not be too short, especially in heavy draught horses, but they must not be too long, or when a horse is working in heavy going he is apt to overreach and tear off his shoes.

iii. Seat the shoe well in to prevent brushing or speedy cutting, *i.e.*, let the horn of the foot if anything slightly project beyond the shoe, so that if the horse does hit himself he will not do much harm.

iv. *Avoid Dumping the Foot.*—When the foot grows, it must be taken down from underneath by rasping. To make a shoe look a better fit sometimes the horn of the foot is rasped in front—this is fatal as it takes away what nature has put on the foot to keep it in health. Frequently examine feet in the lines—there are many nails about.

Brushing and Speedy Cutting.—These are largely obviated by careful shoeing. They are due either to weakness or malformation ; if due to the latter cause try to alter the shoe so as to remove the cause. Supposing the off fore is being injured, try to get the seat of injury further away from the foot that is causing the injury. Try very slightly raising the inside quarter of the shoe of the leg that is being injured ; this will tend to throw the fetlock a little out of the line of fire. Great care must be taken not to raise the quarter too much as it will tend to throw undue strain on the suspensory ligament and any dodges of this sort should be tried with the consent and under the eye of the Veterinary Officer, but do what you can to obviate brushing. If you must do so, wear a brushing boot, the best is the ordinary dealer's boot, a piece of cloth, secured to the leg by a piece

of tape, and then folded over. Try the dodge of raising the inside quarter very little, about $\frac{1}{8}$th inch at first, if the horse still brushes, wear a boot till his time of shoeing is up, and then raise the quarter a very little more. I have tried this with race horses with complete success, a horse only just touches himself, and a very slight alteration is all that is necessary.

Disease or Illness.—These are veterinary matters, and all we have to consider is the detection of trouble and reporting it. If an illness is taken in the earlier stages it is generally easier to cure. What aggravates ailments like coughing or slight lameness, is the animal being made to work while in this condition. It is criminal to work sick or lame horses.

2. *Horses on the March.*

Never let a wagon leave the lines without nose-bags and hay nets with a feed in them and a bucket for watering. When going into a waterless country try and carry enough water in tins to give the horses even a little water.

Halt as soon as possible after leaving the lines and especially after leaving ammunition dumps, to pick up and inspect horses' feet for nails.

Halt frequently as far as traffic conditions will allow and see that the N.C.O's in charge of the small groups of horses inspect them for harness galls and have their feet examined. Get the weight off the horses backs as much as possible. Never let men remain mounted when it is possible to dismount them, and never keep a pack on an animal's back when it is in any way possible to relieve it of its load.

Get officers to move about their commands and watch how horses work and how the men drive, a lot of debility is caused by bad driving, allowing one or two horses to do all the work.

HORSE BOOK.

UNIT.

INSTRUCTIONS.

1. This book should be kept in the Transport or Wagon lines. It should not be taken to the trenches or gun positions. In the case of Artillery when the Battery is not in action it should be in possession of, and kept up-to-date by, the proper No. 1 of the sub-section. At other times the acting No. 1 at the wagon line will keep it filled in up-to-date. In the case of other units it should be kept by the N.C.O. or man in charge of the sub-unit.

2. One page will be devoted to each horse. Entries will be made with a non-indelible pencil. The information under each heading must be complete.

3. The list of N.C.O's or men in charge of sub-units must be kept up and initialled by an officer every time a change is made.

4. A page at the end of the book should be kept for horses with special feeds and erased when normal feeding is resumed.

5. Under "Remarks" should be included peculiarities of horse, bad illness, date of clipping, etc.

6. This book should be examined weekly by an officer and produced at all inspections.

PRO FORMA "A."

Specimen Page for Bulk of Book.

Batty. No. or Unit.	Sex.	Place in team.	Date joined.
65	Mare.	No. 1 Charger.	5-8-15

Date last shod.	Teeth. Examined	Rasped.
6-7-17 9-8-17	6-7-17 9-8-17	6-7-17

DESCRIPTION AND COLOUR.

Black. White tip on heel O. Hind. Three White patches on back.

REMARKS.

Good out rider also draft horse, but should be pegged out as she kicks when feeding.

PRO FORMA "B."

Specimen Page Near End of Book.

N.C.O's, GUNNERS, DRIVERS, ETC.

Nominal Roll—"C" Sub-Section.

No.	Rank.	Name.	Religion.	How employed.
63829	Sergeant	Scutt, H. E.	C. of E.	No. 1.

PRO FORMA "C."

Specimen Page Near End of Book.

"C" SUB-SECTION RIFLES.

No.	Bolt No.	In charge of

PRO FORMA "D."

Specimen Last Page of Book.

LIST OF NOS. I.

Name.	Date taking over.	Date handing over.	Officer's Initials.
Sgt. H. E. Scutt	5-5-17	2-6-17	J.B.

PRO FORMA "E."

Specimen Inside Cover at End of Book.

FEED.

12 lbs. Oats.
10 lbs. Hay.
2 lbs. Straw (or green forage when available).

TIMES OF FEED.

7-30 a.m.	5-30 p.m.
12-30 p.m.	8- 0 p.m.

WEIGHTS AND MEASURES.

By THE O.C. OF A FIELD CO., R.E.

IT has occurred to me that the following table of weights of Field Company wagons may be of interest to many of your readers.

On the occasion of a recent march, the opportunity occurred of passing the company wagons over a weighbridge, after they had been loaded ready for the road. The following are the actual weights recorded :—

	Kg.
1. Wagon, Limbered, R.E., No. 1 Section	1475
2. ,, ,, No. 2 ,, ...	1495
3. ,, ,, No. 3 ,, ...	1435
4. ,, ,, No. 4 ,, ...	1535
5. Cart, Officers' Mess (used for Mts. Section and Headquarters' Cook's Gear)	985
6. Water Cart (filled)	1285
7. Tool Cart, No. 1 Section	2400
8. ,, No. 2 ,, ...	2475
9. ,, No. 3 ,, ...	2395
10. ,, No. 4 ,, ...	2535
11. G.S. Wagon	3205
12. Pontoon Wagon, No. 1	3750
13. ,, No. 2	3690
14. Trestle Wagon	3885

Two blankets per man, and leather jerkins were being carried on the tool carts. Each wagon carried the horse rugs for its train. The driver of wagon No. 5 was weighed with the wagon. The bridging wagons carried nearly all the iron work for adapting them for mechanical traction, and one day's forage for all the horses in the company.

The weather had been continuously fine and dry for some 10 days before the weights were recorded. The company had moved six times in this period.

It is noteworthy that the weights of the bridging wagons work out considerably heavier than those given in the Field Service Manual for the same wagons.

The company has been on Active Service abroad for two years and five months.

RAIL-CREEP AND CREEP OF RAILS.

Abstracts of Two Papers read at the Institution of Chief Engineers, on the 8th January, 1918.

1. "RAIL-CREEP." BY FRANK REEVES, M.INST.C.E.

IT occurred to the Author some years ago that light might be thrown on the cause of rail-creep by making a few simple experiments.

He began by passing a wooden wheel several times in succession, in one direction, over a planed white-pine lath resting on a hardwood bench, and found to his surprise the lath had moved bodily about 2 millimetres in the direction of travel, the total amount of the latter having been about 14 metres. Up to that time the Author, in common with many other railway engineers, had held the opinion that creep was probably in the main due to temperature changes, assisted by the movement of trains.

He, therefore, made a further series of experiments; and although he has not had time or opportunity to deduce, in a thorough and final manner, the laws which govern creep, he has come to certain conclusions which, as current literature on the subject almost wholly demonstrates that the cause of creep is not understood, he thinks it desirable to put on record.

The results of the further experiments, which were made not only with pine laths, but also with flat iron bars on side and on edge, and with a strip of india rubber, are given in a Table, and the conditions under which they were made are explained in detail.

The broad conclusions at which the Author arrived were :—

(1). Creep of rails is due primarily to deformation of the rail as the wheel passes over it. It may be likened to the movement of dough when rolled under a rolling-pin.

(2). The more violent the deformation, the greater the creep. That is to say, that creep is increased by (*a*) increasing the wheel load; (*b*) diminishing the rigidity of the rail, by either reducing its section or using a weaker material.

He then sets out in detail the evidence in support of these conclusions, and proceeds to discuss the influences of various factors as follows :—

Weight of Wheel.—This appears to be the most powerful factor affecting the amount of creep.

Rigidity of Lath.—In every case the creep was much greater with the lath on the flat than with the same lath on edge.

Continuous versus *Intermittent Support.*—With the pine lath, the creep was always greater—from twice to four times—when the lath was supported on sleepers resting on the naked bench. The effect was heightened when the lath was on the flat as compared with on edge, which again bears out the theory that creep is an effect of deformation in the rail.

Yielding of the Support.—From the experiments with the pine lath the general conclusion is that interposing a strip of rubber between the bench and the lath made little difference, even reducing the creep, if anything (except in one case with a heavy wheel on a lath on the flat). It would appear that with a light wheel load and a rigid rail the yield of the road bed has little effect, and that little rather negative than positive; but that with a heavy wheel-load on a flexible rail the creep is decidedly increased by a yielding road bed.

The Author suspects that the amount of creep produced depends on *the violence* of the distortion the rail suffers, rather than its total quantity.

The Author then advances a theory of the occurrence of creep in a rail under a rolling load, and finally sums up what is known about creep.

Creep, he concludes, is caused primarily by deformations of the rails under the rolling loads, assisted by temperature changes, which cause fish joints to slip and lessen the resistance. Where track is on a yielding road bed, creep is intensified, especially under heavy wheel loads. It is also accentuated by braking, in places where regular stops are made.

Creep is greater down hill than up hill, but is by no means absent on the latter.

It is usually asserted to be worse in hot weather than in cold. The Author thinks it would be more correct to state that the *effects* of creep are more troublesome in hot weather. It, however, comes to much the same thing from the practical permanent-way man's point of view. What probably happens is that the powerful expansion of the rails overcomes the resistance of the fish plates, and allows the creep, which before was kept within bounds by the resistances, to take effect and become troublesome at certain points.

Direction of Creep.—Creep is always with the traffic. On single lines there is normally no trouble with creep. But if there is a great preponderance of traffic in one direction, more or less creep takes place in that direction.

Remedies.—Creep can be resisted more or less completely by putting in enough anchorage or resistance.

The Author describes several devices for this purpose, including

one of his own design which is in use on the Buenos Aires and Pacific Railway.

Amount of Creep.—It is easy to reduce creep to a small amount by putting in anchors, but it is not easy to suppress it entirely on double lines under modern conditions.

Differential Creep.—In double track the outer rails (the rails near the edge of the ballast) run more than the inner. This differential creep is the most troublesome and expensive of all. In laying double track the Author's practice is to set the outer rail back 2 ins., and not until it has crept forward "into square" are the rail anchors applied.

Bad Effects of Creep.—There would be little harm in creep if all the track were "open track," and both rails "ran" equally. Where it compels preventive measures is at connections with other lines, junctions, sidings, cross-overs, level crossings with other lines (railway or tramway), swing bridges, etc. The only practical way to anchor track is over long stretches and through numerous sleepers.

Design of Structures.—Many railway structures are affected by creep, and their design should take it into consideration. This requires special emphasis in the drawing office.

2. "CREEP OF RAILS." BY HARRY POWELL MILES, M.INST.C.E.

This Paper states that one of the difficulties with which the railway maintenance engineer in this country has to contend is the creeping of rails in a longitudinal direction; and six chief factors in producing the movement are enumerated, only one of which factors tends to move the rails against the direction of the traffic, the other five producing a movement in the opposite direction.

The Author then describes briefly the effects which the direction and class of traffic, and the alignment and gradients of the line, have, in producing creep, the effect which the creeping rails have on the constituent parts of the permanent way, and the method of rectifying the positions of the rails after the creep has taken place.

It is observed that it is impossible to entirely eliminate creep, and the most efficient way of reducing it to a minimum is by keeping the road in good order and paying particular attention to having the rails tightly keyed up in the chairs; but, in connection with this, special attention has to be given to the keys and the fishing of the joints during high temperatures, to admit of the rails expanding.

The Author then describes investigations of the phenomenon of creeping rails, made by him for a period of five years, on a length of line in this country of which he had charge, consisting of 850 track miles of main and branch lines, over which various kinds of traffic passed.

He takes as a special instance a length of 50 miles of railway

where four lines of road run side by side, assigned to different types of traffic, which length of line rises about 330 ft. midway from its commencement, and falls nearly an equal amount to its termination.

Diagrams of this length of line are given, showing :—

(1). The gradients and alignment, and the points at which it was necessary to deal with the creeping rails during the five years mentioned.

(2). The percentage of rising and falling gradients, and the average annual percentage of the rails pulled back on each of the four lines on these rising and falling gradients.

(3). The percentage of lengths of straight and curves on two of the lines, and the average annual percentage of rails pulled back on these straights and curves.

(4). The maximum daily temperatures of the four summer months for the five years mentioned, and the total lengths of rails pulled back during each of these years.

The Author states what he considers the effect which each of these four cases had on the amount of creep which took place, and in conclusion gives generally the opinions he has formed of the effects which the class of traffic, and the gradients and alignment of the line, have in the production of creep.

MEMOIR.

COLONEL H. M. VIBART.

BY the death last November of Colonel Henry Meredith Vibart the Retired List of the Corps lost an officer of strong character, wide experience and varied attainments, one of the few then remaining of those who originally joined the Madras Engineers under the East India Company. Colonel Vibart's whole service was spent in the Public Works Department. Arriving in India shortly after the Mutiny, he was not fortunate enough to be selected for active service on any of the expeditions in which the Madras Sappers and Miners subsequently participated. His duties were throughout of a civil character, and were mainly connected with irrigation. Though it did not fall to his lot to plan and execute any grandiose scheme like a Godavari Anicut, a Ganges Canal or a Periyar Dam, yet he did much useful unostentatious work, and a slight sketch of his career may be of interest as illustrating the conditions under which engineers in the Madras Public Works Department performed their duties during the third quarter of the nineteenth century. By his intimates Colonel Vibart will be remembered for his manly, straightforward character, his hatred of injustice, his loyalty to his friends and his liberal hospitality. Combative and a staunch partisan, he yet possessed the saving grace of humour. He was ever ready to take up the cudgels either on his own behalf, or on the part of any of his friends or subordinates whose merits had not, in his opinion, been adequately recognized. He always spoke his mind, and spoke it very plainly. This trait occasionally brought him into conflict with his superiors, and may have militated against his attainment of the highest departmental rank. He was an ardent hero-worshipper, as some of his literary works attest. A keen soldier, he devoted much of his leisure, especially after retirement, to military history and biography. His voluminous writings, to which further allusion is made below, appeal to large numbers besides his friends, and will live after him. An enthusiastic admirer of the beauties of nature and art, Colonel Vibart was an inveterate traveller in search of them. His periods of short leave were devoted to visiting places of interest in India; his furloughs were spent in journeyings on the Continent and in his own land. In Great Britain few spots were unfamiliar to him. He dabbled in sport, and in his younger days played cricket,

Colonel H. M. Vibart.

and occasionally shot. He never missed a race meeting, a cricket match, a boat race or other athletic contest if he could possibly attend it.

Colonel Vibart claimed that his family name is to be found in the Anglo-Saxon Chronicle. It is certainly an ancient one, but the branch of the stock from which he sprang appears to have been domiciled in the Netherlands in the sixteenth century. He was eighth in descent from James Vibart (1590—1666), whose father is believed to have fled to England to escape the persecutions of the Duke of Alva. Colonel Vibart's immediate progenitors served the Crown or the East India Company for three generations: his great-grandfather, another James Vibart, who married a Meredith, was a Captain in the 29th Foot; his grandfather, James Meredith Vibart, of the Bengal Army, retired as Lieut.-Colonel in 1798 and settled at Taunton, where he built Amberd House and brought up a family of seventeen children; his father, Henry Vibart, who married a Campbell of Ballochyle, was a member of the East India Company's Madras Civil Service.

The subject of this memoir, Henry Meredith Vibart, was the second son and fourth child of Henry Vibart. Born at Taunton on the 2nd March, 1839, he lost his father before he was a year old. With his elder brother Alexander he was educated at Cleveland House School, Brixton Hill. Both brothers eventually entered Addiscombe as cadets. H. M. Vibart received his nomination from Mr. Elliot McNaghten, a family connection, and joined the College early in 1856. In December, 1857, he obtained his commission as 2nd Lieutenant in the Engineers and went to Chatham for the prescribed course of 18 months, during which he was promoted Lieutenant. After a period of leave spent in Scotland and France he was posted to the Southern Presidency, and he embarked in the P. & O. steamer *Orissa*, of 1,200 tons, to travel to India by what was then called the overland route across the Isthmus. Landing at Gibraltar, Malta and Alexandria, he pursued his way to Cairo and thence to Suez, where he joined the *Madras* of the same tonnage. The voyage down the Red Sea occupied eight days, and that from Aden to Bombay ten days. He stayed a fortnight in Bombay, and was then permitted, after the liberal and leisurely practice of the East India Company, to go on leave and visit his brother at Ahmedabad. A tiny steamboat of 110 tons took him to Surat, whence he journeyed, mainly by bullock coach, through Baroda to his destination, experiencing much difficulty in crossing unbridged rivers. He spent a month at Ahmedabad, returned to Bombay by the same route, and there embarked for Madras by P. & O. *viâ* Galle, the railway across the peninsula being far from complete. He reached Madras in February, 1860, spent a month at the Club, and three weeks with the Brigadier commanding the Madras Artillery at St. Thomas's

Mount, who was a family connection. In April he left for the Coimbatore District, to which he was attached for training. The railway helped him only as far as Vellore, and he travelled thence by road to Bangalore, and so by the Sigur ghat to Ootacamund and Coonoor. Four months at Coonoor were devoted to the study of Tamil and inspection of the barracks at Jakatala or Wellington, then in course of erection. From Coonoor he went down to Coimbatore, and spent nine months in working at language and hydraulics, and in the inspection of irrigation works. In May, 1861, he went to Madras for further study, passed in Tamil in July, and two months later was posted to the Tinnevelly District as 2nd Assistant Engineer. The railway took him to Salem, whence he visited the Shevaroy Hills. The journey from Salem to Palamcotta by bullock cart occupied a fortnight. The Cauvery was crossed in a coracle. He assumed charge of his first responsible duties at the end of October, 1861, just two years after he left England.

Vibart's range extended along the Tambrapurni River for some 40 miles to the sea, and comprised roads, tanks and channels on both banks, and an anicut across the river. Travelling was incessant. He had no house, but lived in a tent, and usually moved his camp every second day. In the course of six months he was transferred to the Ambasamudram Range, which covered 1,000 square miles. It was watered by two rivers, on each of which were fine falls, that at Courtallum being specially famous. Vibart remained here for a year, charged with the upkeep of numerous anicuts and irrigation channels.

In May, 1863, he went on privilege leave, travelling by palki to Trichinopoly, transit to Salem and rail to Madras. Thence he took steamer to Bombay, and visited Kirkee, Ahmednugger and the magnificent ruins of Bijapur, formerly the capital of one of the independent Muhammadan kingdoms of the Deccan. After a stay with his sister, Mrs. Battye, at Kaladgi, where he learned that he was transferred to the Kistna District, he returned to Madras by the same circuitous route. Following an excursion to Bangalore, where he played in several cricket matches, he sailed from Madras in September for Coconada. He travelled thence by canal to Dowlaishweram, then the headquarters of the Madras Sappers, where he met many brother officers. Passing on by canal to Masulipatam, he took charge in October of the Duggirala section of the Western Delta as Assistant Engineer, 3rd class. His section was traversed by two important channels, the Nizampatam Canal, which ran from the headworks to the sea, a distance of 40 miles, and the Western Bank Canal following the line of the Kistna. Vibart constructed three locks on these navigation canals as well as numerous smaller works, and he was responsible for the supply of water for irrigation. He lived in a thatched bungalow containing two rooms and an office,

travelled constantly by boat and road for 20 days of every month, and rarely saw a European officer.

On the 1st November, 1864, the Masulipatam coast was visited by a cyclone, accompanied by a tidal wave which inundated 700 square miles of country and destroyed 30,000 people. The wind at its greatest violence blew from E.N.E. at the hour of high springs. The sea, driven into the bight of the coast, formed a wave 13 ft. above normal level, which penetrated 17 miles inland at farthest and 9 miles on an average. During its onrush and retreat it ruined the open "fort" as well as the town of Masulipatam, and swept away most of the adjacent villages. At Nizampatam—the Pettipolee of the East India Company's seventeenth century records—which was sheltered by the projecting coast line of the delta mouths, the water did not rise more than 5 ft. Vibart, in company with Colonel Anderson, the Superintending Engineer, left Duggirala by boat early on the afternoon of the 1st for Bezwada. At 8 p.m. the wind became so violent that they were obliged to tie up. They crept for protection into Anderson's palki, which was on board, but it afforded little shelter from the hurricane. They at length got ashore, intending to make for the nearest village, but on reaching the top of the canal bank, were thrown to the ground, had their pyjamas blown to shreds, and in this defenceless condition were bombarded with gravel. They were forced to spend the rest of the night in outer darkness, lying in mud and water. Towards dawn the wind abated, and the travellers succeeded in reaching the headworks on foot, half-naked and plastered with mud. Great damage was done to the canals. Vibart's kit had been sent on in a boat which went to the bottom, and he found his bungalow roofless when he returned to Duggirala.

Having passed through the three classes of Assistant, Vibart was promoted, in 1866, Executive Engineer, 4th grade. At the end of that year he obtained three months' privilege leave, which he utilized in making a tour in Northern India, visiting Calcutta, Benares, Allahabad, Cawnpore, Lucknow, Agra, Delhi, Roorkee and the Punjab, and inspecting the Ganges and Bari Doab Canals. He returned to his district in March, 1867, and shortly afterwards took charge of a range in addition to his own, with headquarters at Bezwada. Early in 1868 his eyes gave trouble, and he was granted sick leave to the Nilgiris. While at Ootacamund he was appointed to the charge of the Lake Reclamation Water Supply and Drainage scheme; but a medical board considered change to England necessary, and he sailed in July on long sick leave. After a period of travel in England and Scotland and on the Continent he was permitted, on the recommendation of Colonel Anderson, to visit irrigation and reclamation works in Italy. In company with Captain C. J. Smith, he spent two months in examining the canals of Piedmont and the works on the Po. This expedition was followed by a tour

in Wales, Scotland, and the English Lake district. During 1870 he travelled extensively in Germany, Austria-Hungary, Switzerland, and France, returning to England just before the outbreak of the Franco-German war. At the end of the year he sailed from Trieste by the overland route, reaching India after an absence of two years and a half, in the course of which he was promoted 2nd Captain. From Bombay he proceeded by rail to Madras, the gap between the Kistna and the Tungabhadra being traversed by mail-cart. He was again posted to the Kistna, where he took charge of the whole Western Delta, and prepared a project for the final completion of the irrigation and drainage of the delta. Suffering again from his eyes in 1872, he was granted three months' sick leave to the Nilgiris, and was thereafter posted by the Chief Engineer, Colonel G. W. Walker, to Bangalore as Executive Engineer, 2nd grade.

At Bangalore, a British enclave in a native state—though the state was at that time administered by a British Chief Commissioner during the minority of the Maharajah—Vibart remained upwards of five years. His duties and surroundings were of a different kind from those to which he had been accustomed. He was in charge of military works, including the fort, arsenal and barracks. In place of comparative isolation, he found himself in a large military station with ample society. For the first time in his service he was able to occupy a good house. The troops comprised a regiment of British Cavalry, a battery of Horse Artillery, three batteries of Field Artillery, a battalion of British Infantry, the Sappers & Miners, and two regiments of Native Infantry. New works constructed by Vibart included a recreation room and canteen, a bakery, and cisterns for water supply. On the social side there were gymkhanas, cricket matches, theatricals and regimental sports, numerous balls and dinner parties given by the regiments and the Chief Commissioner, entertainments by the Maharajah, and an annual race meeting and rifle meeting. Vibart threw himself with enthusiasm into both work and recreation, and thoroughly enjoyed life, giving as well as receiving much hospitality. In 1874 a Camp of Exercise was formed, which was inspected by Lord Napier of Magdala, and a small committee, of which Vibart was a member, drew up a defence project embracing a fort, arsenal and place of refuge for Bangalore. Vibart's duties enabled him to visit many places of interest, such as Mysore, Seringapatam, the Cauvery Falls, the cantonment of French Rocks and the hill fort of Nandidrug.

In March, 1875, he was promoted Major, and later in the year was occupied in improving the roads in anticipation of the arrival of H.R.H. the Prince of Wales. The visit did not take place owing to the occurrence of sporadic cases of cholera in the station; but Major Vibart went to Madras and attended the reception of the Prince and the festivities which were held during the week of His

Royal Highness's stay at the Presidency town. At Christmas Vibart visited Sadras and the rock-cut temples at Mahavelipur, commonly called the Seven Pagodas. In April, 1876, he went home on privilege leave, arriving in time to witness the Prince of Wales's entry into London. Returning to Bangalore, he obtained permission to exchange duties for three months with the Executive Engineer at Madras, in view to exploring the Government archives in connection with his projected history of the Madras Engineers. By desire of the Duke of Buckingham, but contrary to his own judgment, he began, in January, 1877, the erection of a timber pier to facilitate the landing of grain during the famine then prevailing. The work was approaching completion when it was completely destroyed by a storm. The famine at this period was very severe. The deaths in Madras City were between 4,000 and 5,000 a month during the first quarter of 1877, or at the rate of 135 per mille per annum. The numbers on relief works or in receipt of gratuitous relief in April were:—Madras Presidency, 807,000; Mysore State, 127,000; Bombay Presidency, 318,000; a total of 1,252,000. The Viceroy, Lord Lytton, came to Bangalore in September to concert further measures for relief, and appointed Colonel Colin Scott-Moncrieff to be Chief Engineer of the Mysore State to carry them into effect.

In November, 1877, Major Vibart was transferred to the Trichinopoly District. He remained at Bangalore, however, on special duty in connection with some official prosecutions, until February, 1878, when he was deputed to Madura to superintend the restoration of Tirumal Naik's palace. After a visit to Kodaikanal spent in enjoyment of the lovely scenery of the Pulney Hills, he took charge at Trichinopoly in July. There he remained nine months, travelling over the district. In March, 1879, he was appointed Under Secretary to Government in the Irrigation branch of the Department, and he moved to Madras.

Unlike Bangalore, Madras was not a great military station, but it was the seat of Government and an important commercial centre. Besides the troops in garrison there were numbers of military officers employed in civil or quasi-military capacities, and there was a large European civil population, official and non-official. In the Public Works Department nearly all the higher posts were filled by military engineers, most of them Addiscombe men, for "Stanley" engineers were few and Cooper's Hill was as yet young. The writer well remembers the pleasant coterie of Royal Engineers stationed at Madras about this period:—Richard Sankey, the talented and versatile Chief Engineer; J. H. M. Shaw Stewart, the courtly Consulting Engineer for Railways; John Mullins, Chief Engineer for Irrigation; Hew Prendergast, Superintending Engineer; H. T. Rogers, the witty and genial Principal of the Engineering College; A. de Courcy Scott, Superintendent of the Revenue Survey; L.

Conway Gordon, the clever if somewhat eccentric Examiner of Accounts; John Pennycuick, afterwards designer and builder of the Periyar Dam; C. J. Smith, most straightforward, and W. H. Coaker, most amiable of men; Herbert Wood, of Central Asian fame; Parry Lambert, P. Montgomerie, S. C. Clarke, H. M. Vibart, Ross Thompson and others.

A short time after becoming Under Secretary, Major Vibart was appointed to officiate as Superintending Engineer of the Madras circle, which comprised the districts of North Arcot, South Arcot and Chingleput, and the Buckingham Canal division. His duties then ceased to be executive and became administrative. During the nine months that he held this charge he travelled widely in his districts, visiting, among other places of interest, Pondicherry and the hill fort of Gingee. He also made extensive proposals for the completion and improvement of the Buckingham Canal. In March, 1880, he became Superintendent of Works, Presidency and Bangalore. After three months' privilege leave to England, which he spent in touring in Wales, Devon, and Cornwall, he returned to Madras, and at Christmas visited Hyderabad, Deccan. In April, 1881, Major Vibart took furlough, in the course of which he completed and published his *History of the Madras Engineers*, and made tours in various parts of Great Britain, returning to Madras in January, 1884. During his leave he was promoted Lieut.-Colonel. After a visit to Bangalore he was appointed Superintending Engineer of the 3rd Circle, with headquarters at Bellary. His charge embraced the districts of Bellary, Cudappah, Kurnool, and Anantapur, and included the Kurnool Canal. Spending the hottest season of the year on the hill of Ramandrug, where he leased and subsequently purchased a house, he gave the succeeding six months to constant travel, minutely inspecting the irrigation works of the circle. In the course of this tour he visited the extensive remains, at Hampi, of the capital of the ancient Hindu kingdom of Vijayanagar, inspected many hill-forts, and examined the diamond fields of Banganapalle, which were so celebrated in the time of Tavernier.

On the 24th December, 1884, Lieut.-Colonel Vibart married Miss Le Hardy, daughter of Lieut.-Colonel C. F. Le Hardy, of the Madras Pioneers, sometime Superintendent of Coorg, and member of an ancient Jersey family dating from the fourteenth century. The wedding took place at St. Mary's in Fort St. George, and Lieut.-Colonel and Mrs. Vibart, after a short stay on the Nilgiris, took up their residence in Bellary. There Vibart remained until 1888, spending the hot months at Ramandrug, and travelling throughout his charge during the rest of the year. On these tours Mrs. Vibart sometimes accompanied him. In 1886 he framed and submitted a comprehensive project for the irrigation of the Bellary district from the Tungabhadra River, and in the same year he became Bt. Colonel.

In August he went to England on privilege leave for three months, a period devoted to touring in Scotland, Devon, and Cornwall. At the end of the year he was offered an appointment to advise on irrigation in Burma, but fearing that acceptance might interfere with his departmental promotion, he declined it. Christmas was spent at Poona and Bijapur, and in May, 1887, he finally left Bellary on transfer to the 5th Circle. The headquarters were Madras, but Colonel Vibart was permitted to reside during the hot weather at Bangalore, which was within his charge. The cooler months he gave to the inspection of buildings, bridges and irrigation works in the plains, especially in the districts of North and South Arcot. At Bangalore the question of water supply, which had been discussed for many years, had become urgent. Rival schemes were in the field, and both the Madras Government, representing the cantonment, and the Durbar, for the pettah, were in favour of separate sources of supply. Colonel Vibart, however, advocated a combined supply from the Hesargatta Tank in the valley of the Arkavati, and drew up a preliminary report in 1887. At that time the scheme was considered too costly, but it was supported by the Viceroy, and was ultimately adopted and carried out.

As a Superintending Engineer of the 1st class since 1886, Colonel Vibart had looked forward to the position of Chief Engineer for Irrigation as his ultimate goal in the service. When, in 1888, he saw another officer selected to fill a temporary vacancy in that appointment, he realized that further departmental promotion was improbable, and he applied for six months' special leave. Sailing in November, he devoted part of this leave to a tour in Italy and France. On his return to India in May, 1889, he found himself posted to the 4th Circle, and joined the headquarters at Coimbatore, his last, as it was his first, station. After inspecting in the Salem and Malabar districts he was given a year's furlough, and he sailed from Bombay at the end of November, 1889. His leave was subsequently extended by 15 months on medical certificate, and he finally retired on the 12th December, 1891, after serving 35 years and 8 months, or 34 years from date of first commission.

Colonel Vibart spent the winter of 1889–90 in travelling about Italy and France, and the following summer in the English lake district and the midland counties. Early in 1891 he settled in Cornwall Gardens, S.W., where he remained 14 years. During this period he made annual tours in England, Wales, Scotland, and Ireland, as well as in Holland and other parts of the Continent. Always interested in his old College, he wrote a valuable history of the institution. He was active in promoting the yearly Addiscombe dinner, which was first held in 1892. A few years later he wrote and published a monograph on Colonel Baird Smith's share n the siege and capture of Delhi.

At the beginning of 1905 Colonel Vibart gave up his house, and, accompanied by his wife and son, began a comprehensive tour of the Continent, which lasted 18 months and embraced visits to a multitude of places in Italy, Austria-Hungary, Germany, Denmark, Sweden, and Belgium. The years 1907 and 1908 were given up to wanderings in England and expeditions to the Riviera and Switzerland, until, at the opening of the year 1909, he leased a house at Henley-on-Thames, where he spent his remaining years. He entertained numerous friends at his pleasant country residence, took much interest in the National Service movement, and devoted himself more and more to literary work. In 1916 he suffered from a severe attack of influenza, the effects of which he was unable to shake off. He gradually lost strength, and expired on the 1st November, 1917, leaving a widow and one son. The latter is now serving with the British Expeditionary forces. Two daughters died in infancy.

This sketch of Colonel Vibart's career would be incomplete without some detailed notice of his writings. His literary work began when he was stationed at Bangalore in the 'seventies with contributions to the *Madras Mail* on military and engineering subjects. He wrote a series of articles on the Russo-Turkish War, a defence of Hodson, of Hodson's Horse, against the strictures passed on that officer in Kaye's *Sepoy War*, and, somewhat later, papers on Famine Policy in Mysore. His next undertaking, a history of the Madras Engineers, was more ambitious. To the collection and verification of materials for this work he devoted his leisure hours for several years. He was granted access to the Government records in Fort St. George, for the exploration of which he employed a small staff of searchers and copyists. The work, begun in 1876, was completed and published during his furlough of 1881—1883. Entitled *The Military History of the Madras Engineers and Pioneers from 1743 up to the Present Time*, it was issued by Messrs. Allen in two bulky volumes of 600 pages each, illustrated by some 50 maps and plans. The work, which was reviewed in the *R.E. Journal* for September, 1883, is a monument of laborious research. It is not only an accurate chronological record of the services of the Corps, but is practically a history of most of the wars in which British-Indian troops have been engaged. It is a book to consult rather than to read, and its value would have been enhanced by the provision of a more copious index.

After his final departure from India Colonel Vibart contributed further articles on professional subjects to the *Madras Mail* and *Indian Engineering*, notably on the Water Supply of Bangalore and on Irrigation in the Bellary District. He also wrote to both home papers and Indian journals on the Defence of London. His proposals embraced a girdle of 42 forts round the metropolis, covering a perimeter of 170 miles.

His next book was *Addiscombe: Its Heroes and Men of Note*, a handsome quarto volume of nearly 800 pages, published by Constable, profusely illustrated with views, plans, portraits, sketches and caricatures. The book was reviewed in the *R.E. Journal* for December, 1894. Colonel Vibart gave much time and infinite pains to the collection of materials for this work from the India Office records and many other sources. The volume, which was written at Harrogate in 1893, is divided into two equal portions. The first contains a complete history of the College, from its inception in 1809 to its extinction in 1861, interspersed with many amusing anecdotes of the professors and of pranks played by the cadets. The second portion comprises short biographies of officers who became specially distinguished in after years. The earlier part in fact describes the system of training the cadets; the later illustrates the splendid outcome due to—or, as some have cynically said, in spite of—that system. During the half century of existence of the College about 3,600 cadets passed through the establishment, of whom approximately one-seventh received commissions in the Engineers, two-sevenths in the Artillery, and the remainder in the Infantry.

In his book on Addiscombe Colonel Vibart had expressed views regarding Colonel Baird Smith's share in the capture of Delhi which provoked comment in one or two quarters. Although the leading historians of the Mutiny had fully recognized the brilliant services of the Chief Engineer, Colonel Vibart deemed it desirable to advance evidence in support of his contention that the chief credit for the capture belonged to Baird Smith. He accordingly published, through Constable, in 1897, a small volume of 172 pages entitled *Richard Baird Smith, the Leader of the Delhi Heroes in 1857*. A slight sketch of Smith's career is followed by a full description of his action during the siege and assault. The second half of the volume contains Baird Smith's contemporary letters to his wife at Roorkee, 75 in number. These are deeply interesting, as conveying an informal account of the siege. Owing, however, to the nature and purpose of Colonel Vibart's book, the author's attention is concentrated on his hero, and the Chief Engineer consequently stands so much in the limelight that other eminent actors in the great drama are thrown into the shade, and thus insufficient credit seems to be given to the aid and support rendered by Nicholson, Alexander Taylor, Reid, Chamberlain and others. The book contains a portrait of Baird Smith and a large-scale map of Delhi and its environs.

The last important work, and perhaps the best, to flow from Colonel Vibart's pen was *The Life of General Sir Harry Prendergast, V.C., G.C.B.*, published in 1914 by Eveleigh Nash. The volume, which covers 445 pages and contains 25 illustrations, chiefly portraits, was reviewed in the *R.E. Journal* for March, 1915. This

tribute to the memory of his distinguished friend, for whom he entertained the greatest admiration, was a labour of love to Colonel Vibart, who ably performed his task. The author gives a full account of Sir Harry Prendergast's career as gallant soldier and capable political officer, and an appreciative description of his fine character; but he devotes perhaps unnecessary space to certain criticisms which were made on the General's management of the successful expedition to Upper Burma in 1885—criticisms which were handsomely disposed of by the Viceroy, Lord Dufferin.

Besides the works above mentioned Colonel Vibart contributed eleven articles to the *Dictionary of National Biography*. The earliest, on Norman Pogson, astronomer, was published in Vol. 46. The remaining articles, on General Boswell, Sir F. Traill-Burroughs, Colonel W. Chase, Sir F. Forestier-Walker, Colonel L. Irby, General W. Massy, Sir J. Raines, Sir J. Ross, Sir E. Shaw and Sir E. Walter. are found in the Second Supplement.

Colonel Vibart also wrote memoirs for the *R.E. Journal* on Colonel Collier (March, 1898), Sir Richard Sankey (June, 1909), and Colonel A. Le Messurier (May, 1916).

H.D.L.

REVIEW.

PAGES D'HISTOIRE, 1914—1917.

Published by the Librairie Militaire Berger-Levrault, 5—7, Rue des Beaux-Arts, Paris.

The 138th number is entitled *La Vérité sur les Déportation Belges* and contains an examination, from the historical and economical points of view, by Monsieur Fernand Passelecq of the measures adopted by the German Government in connection with the removal of the civil population of Belgium. In an introductory note the Editors of the *Pages d'Histoire* series call attention to the indignation which was aroused throughout the civilized world by the barbarous treatment meted out to the people of Belgium, by the German Government, in 1916 and 1917.

Monsieur Passelecq has recently published an important work, dealing with the proceedings of the German Government, entitled *Les Déportations belges à la lumière des documents allemands*, a work which will rank as one of the best scientific publications on the subject of the Great War; No. 138 of the *Pages d'Histoire* series is an abridged edition of this work.

On the 27th February, 1917, Monsieur Emile Vandervelde, the well-known Belgian minister, delivered an address at the Nancy Town Hall. This address has been appropriately published as a Preface to the volume under review.

Monsieur Vandervelde, on the occasion referred to, after thanking his audience for the warmth of their welcome, stated that in addressing them he was fulfilling a duty which he owed to his countrymen. A few weeks previously he had received from the occupied territory of Belgium an extremely sad communication, which was dated 18th November, 1916. This communication contained the resolutions passed by the Belgian Labour Associations of every description; resolutions that raised an energetic protest against the deportations *en masse* then being carried out by Germany and which were pressing so heavily on the proletariat of Belgium.

Monsieur Vandervelde quoted the text of the decree issued from the German G.H.Q., on the 3rd October, 1916, in which it is stated that persons capable of working will be forced to work and that persons, summoned to undertake any work, on refusing to do so will render themselves liable to imprisonment and a fine not exceeding 1,000 marks. Provision is also made in this decree for punishing the Communes in

cases where two or more persons jointly refuse to obey the behests of the modern Huns.

Monsieur Vandervelde stated, during the course of his speech, that at the date in question thousands of Belgian citizens had already been removed from their homes. The numbers deported from the zone of operations were estimated at 50,000, whilst the grand total of the deported was thought to exceed 100,000.

In recent times the deportations had been proceeding more slowly, as the protests of neutral countries had had some effect. But although the people were no longer being removed in large masses, individuals were still being sent away; the selection of the victims being made on carefully studied lines. For example, the skilled workers who would be of use in German munition factories were being specially marked out for attention. These were offered a contract to sign which, if accepted, would have involved the betrayal by them of their own country, but, at the same time, in Von Bissing's words would have ensured them a *comfortable income*. On the other hand, if these workmen refused to bind themselves by such a contract exile and forced labour faced them as the alternative.

Germany's measures constitute three criminal acts combined in one. Firstly, a flagrant act of unjustifiable interference with the right of innocent individuals to choose their own domicile is committed. In the second place, a *régime* of forced labour is introduced. Finally, the forced labour is of a kind which compels men to act treasonably against their own country, the most inexpiable of all crimes.

The Germans have asserted that the deported population have not been directly compelled to undertake work of a military nature. In a few cases this is true. But indirectly the German Army has benefited, since the Belgian workmen have in such cases released Germans who have been sent to the front. However, there are many cases in which irrefutable testimony is available to prove that deported Belgians have been employed directly on works of a strictly military character, *e.g.*, on the construction of trenches, military railways, etc.

Not only in the matter of their conscience have these unhappy Belgians had to suffer, but in the matter of their food also; indeed, they have been treated as beasts of the field, having had to subsist on a mixture of corn and raw beetroot. In cases where individuals have refused to work they have had to suffer corporal punishment, and even the words of sympathy addressed to them by the sojourners in the lands to which they have been deported have been reckoned against them as offences committed by them meriting imprisonment; a punishment which they have, in consequence, had to undergo.

Having related his facts, Monsieur Vandervelde then proceeded to point out in what way the measures adopted by the German Government constituted violations of International Law. He admitted that probably there may be no express prohibition in that code against deportations *en masse*, for it was not for a moment dreamt that acts of this nature could ever be perpetrated in the age in which we live. For a similar reason, parricide was not forbidden in express terms by the laws of the ancients. In spite of the silence on the subject in the Hague Con-

ventions, the deportations are an undeniable, flagrant and self-evident violation of express engagements entered into in writing by German officials.

On the day after the fall of Antwerp, nearly the whole of the population of that city took refuge in Holland; they had not forgotten the experiences of their unfortunate compatriots of Visé, of Termonde, and of Louvain. The Dutch Government, disturbed by the overrunning of their country by this human flood, communicated on the subject with the German Government. The latter replied giving an assurance that Belgians could re-enter their own country and would not be disturbed there. The Archbishop of Malines also entered into correspondence with von der Golz, the then Military Governor of Belgium, urging that Belgians who might return to their own homes should not be called upon for military service or to undertake any work in Germany; von der Golz called personally at the Archiepiscopal Palace and in the presence of his own A.D.C.'s and of the entourage of the Archbishop formally promised that Belgians would be neither compelled to work in the military interest nor to serve as soldiers. The Military Governor of Antwerp also addressed to the Archbishop a letter, which was read in all Belgian churches on the 18th October, 1914, wherein the following promise occurred:—"The young men need not be in the least afraid of being conducted into Germany either for the purpose of being enlisted in the Army or for the purpose of being employed on forced labour."

It was on the faith of the foregoing promises that Belgian refugees, encouraged by their priests, by their magistrates, even by the Dutch authorities, by degrees, drifted back to their own hearths and homes. By degrees also, barriers of electrically charged wires, etc., were put round their country by the invaders, who finally converted it into an immense cage to which there is only one door and that opens an exit into Germany and into the invaded territories of France, and nowhere else.

The people of Belgium have not taken their ill-treatment at German hands lying down. Deputies, senators, bishops have all at various times made suitable representations to the German Military Authorities and have reminded them of their promises, asking them, at the same time, how they could reconcile their acts with these promises! The German replies have been characteristic of the nation; their measures have been taken, they say, not in the interests of Germany, but in that of Belgium and of Belgian workmen, to remove them from the temptation to "keep holiday" and to cure them of habits of laziness. The pretext invoked by Germany that there are hundreds of thousands of shirkers and that compulsion is necessary to drive them to work in order to earn their living is the weakest of excuses; many of those deported are not labourers at all, but men who have occupied administrative posts in their own country. For example, among the deported are the whole of the Members of the Supplies Committee of Arlon. That there is unemployment in Belgium is, alas, too true; more than half-a-million men are without work and are dependent for their sustenance on the bounty of the American Committee and of the Belgian Committee. These men cannot be ranked among the idlers nor among

ordinary strikers. The German invasion has naturally brought many workshops and industries to a standstill, and, hence the widespread unemployment that prevails in what was formerly looked upon as one of the human beehives of the world. Not only the German invasion, but also the subsequent acts of the German authorities in levying enormous contributions on the occupied territories are alone responsible for the existence and continuance of the industrial truancy in which half-a-million souls are participating. At the time Monsieur Vandervelde spoke (25th February, 1917) the War contributions levied in Belgium by the German authorities had already exceeded £40,000,000. In some cases, where factories might have been kept going and thus have provided employment for Belgian workmen, the Germans have seized the raw materials and have had machinery dismantled and sent into Germany. It was made impossible for men to work and, at the same time, they were reproached for not working.

The municipal authorities of Belgium had decided to provide employment for those out of work, but the German authorities forbad the adoption of this course, stating that as these bodies had already to bear the burden of heavy War contributions there was no money to waste on those out of work. Summing up Monsieur Vandervelde stated that the real reasons for so large a number of men being without employment were :—

The prohibition placed on the execution of municipal work.

The confiscation of machinery, raw material and the means of production.

The War contributions, which exceed the amount which the country is capable of raising.

Lastly, the war itself, which, so to speak, started the industrial truancy.

The Belgian workmen, Monsieur Vandervelde told his audience, could find work and that at high rates of wages. But such work would be of a nature to benefit Germany and to prejudice their own country. To the eternal honour of the Belgian proletariat, be it said, they have refused all temptations to betray their country's interests ; their strike has been one against War, and to those that have offered them bread as the wages of treason, they have replied with firmness ; of such bread we will have none.

Because they will not undertake work of this kind, since they have entered into a solemn obligation not to work for the invaders, is it that they have been requisitioned ; those possessing the amplest proportions and greatest robustness have been selected for expatriation as was the case ages ago when negroes were shipped to the slave markets.

Monsieur Vandervelde proceeded to describe the methods employed by the Germans in dealing with the population in a region near Wavre. The Germans started their abominable proceedings by posting notices at 7 a.m., at an hour when the greater part of the workmen had already started on their daily labours in the workshops ; these notices ordered every one in a particular district to report at a given hour at Wavre. The women and children, realizing the situation, went off, with tears in their eyes, to the workshops in search of their menkind. Whole families then set out in the wet, on a foggy November morning, for the

rendezvous named by the German authorities. On arrival at Wavre they were shut up in the school buildings. German officers then proceeded to interrogate and examine their prisoners. Those whom they considered unsuitable for their requirements were made to file to the right, the others to the left. To the latter were then presented papers for their signature, the affixing whereof would have been an act of treason. The immense majority refused to sign these papers and were thereupon led between rows of bayonets to railway trains which had been got ready for their conveyance to unknown destinations. The women, children and the patriarchs looked on the meanwhile. Those to be deported were bundled into cattle trucks and could be heard shouting: "We will not sign! We will not sign!" Occasionally, the better to give expression to their defiance and to the spirit of rebellion there was in them, some began to sing the *Brabançonne* and then the *Marseillaise*. In order to drown the audible manifestations of defiance against their authority the Germans brought on to the scene a military band. The latter responded to the flourishes of the conductor's baton with redoubled energy, but there came forth directly from the lungs of men the sounds of the *Marseillaise* striking notes in the air louder than the vibrations produced in instruments of brass and by the beating of drums, big and small. The strains of the hymn of Liberty overpowered the music of Tyranny.

Monsieur Vandervelde informed his audience that Belgian workmen had recently addressed an appeal to their friends, to neutrals and to their enemies regarding the treatment which the civil population of Belgium was experiencing at German hands. They had said to the German Socialists: "This is not war; whatever may be your opinion as to the causes of the War in this matter, it is your duty to raise a protest with us." The minority group of German Socialists had, to their credit be it said, duly entered an emphatic protest. Others there were who had associated themselves in a half-hearted way with these German Socialists. But these others qualified their protest, and to them the Belgian workmen accordingly addressed a biting retort, saying to them: "We did not ask from you words of sympathy, but we asked for deeds; on that day when you display your manhood, we will thank you."

Neutrals had been moved by the appeal addressed to them and had responded to the request made to them. If their protests, said Monsieur Vandervelde, had the appearance of timidity, the excuse existed that they were living in a state of terror, a state which would only come to an end with the termination of the War. It was to her own efforts, to those of her Allies and to those of a coalition of all free peoples that Belgium was looking to put an end to this state of terror. They have all one common aim in view: to exact respect for the rights of mankind, those elementary rights, the imperishable glory for securing whereof belongs to the French Revolution. These rights can be summed up in the words: liberty, property, safety and resistance to oppression.

Liberty! There is to-day in Belgium only that liberty which remains in the marshes of the Yser and in the trenches of W. Flanders.

Property! Of this the invaders have helped themselves by War

contributions and other exactions in kind. The people of Belgium did for a time retain that property which it valued most: the *habeas corpus*, the property in their own bodies, the property in their own labour. To-day, their rights even in respect of this last form of property have been taken from them.

Safety! Solemn treaties had promised Belgium security against aggression. Undertakings given in writing, and subsequent to the outbreak of War, contained a promise that the people of Belgium would not be torn from their hearths and homes, and that they would not be compelled to work, and particularly would not be required to do so against the interests of their native land. The documents on which these undertakings were recorded have, however, proved to be but "scraps of paper," and have been treated in the same manner as more sacred writings.

To those who live under the shadow of the German terror there have been denied liberty, property, safety. But one supreme right remains to them: the right of resistance to oppression!

Monsieur Vandervelde concluded his speech by drawing attention to the closing words in the appeal of the Belgian workmen: "So far as we are concerned, even if force should succeed for a time in reducing our bodies to servitude, never will we surrender our souls. And one word more: whatever may be the tortures that we may be called upon to suffer, the peace we are wishing for is one which will bring with it the independence of our country and the triumph of justice." And he added: "This is their last word. We would be unworthy of them, if this were not also our own!"

The portion of the volume contributed by Monsieur Passelecq consists of ten short chapters.

Chapter I. is entitled *Les Déportations d'Octobre, 1916, à Février, 1917*. We are reminded of the surprise, coupled with indignation, and in some cases even with incredulity, caused throughout the civilized world when it was learnt in October, 1916, that the German Government had decided to subject the civil population of Belgium to the same treatment, deportation with forced labour, as that meted out to the population of Lille, Roubaix and other towns in N. France in the previous April. The first announcement of what was in the air was made in a semi-official communication sent from Brussels to the *Kölnische Zeitung* and published in its issue of 13th October, 1916. Later, the full text of the proclamation dealing with the matter was made public; it was learnt therefrom that the German G.H.Q. were responsible for having inaugurated this reign of terror. The proclamation was dated 3rd, 1916, and in its preamble an attempt was made to justify the measures proposed to be adopted on the ground that they were inspired by solicitude for the social welfare of the people and rendered necessary in the interests of public order. In the references to the matter in the German Press, these aspects of the subject were emphasized, and an attempt was made to create the belief that the German Government was faced with a crisis in Belgium owing to the truancy of the working classes and in consequence of the stoppage of the entry of raw materials into the country, owing to the British Naval Blockade. It was stated that

only in Germany could work be found for the Belgian masses and it was for this reason that it had been decided to remove them from Belgium.

A German Proclamation dated the 3rd October, 1916, provided for the enforcement of the above measures in the zone of operations only, *i.e.*, in the regions under the immediate control of the German military authorities and wherein Martial Law was in force; in the case of the remainder of Belgium, the deportations *en masse* were carried out on the basis of a new interpretation of an earlier Proclamation (dated 15th May, 1916) which had made persons alleged to have committed the offence of refusing to work amenable to the German Military Tribunals.

The Belgian people had already for the space of two long years been subject to oppression, crushed by War contributions and requisitions, deprived of all liberty and cut off from the world; they had endured the German despotism without being cowed into subjection. The Germans now bethought themselves of another plan for breaking their spirit, viz., by striking them in their most tender part, by depriving them completely of their personal liberty and by destroying all family ties.

In carrying out their dastardly work, the Germans demanded the assistance of the Belgian municipal authorities, ordering them to prepare lists of those alleged to be playing truant. The Belgian constitution prohibits any such interference with the liberty of the subject; on the contrary it provides for the safeguarding of the inviolability of a man's home and of his domestic life. The Burgomasters and municipal authorities, in consequence, resolutely refused to associate themselves with the German authorities; the Germans therefore seized by force all the information concerning the civil population that they were able to obtain in the municipal offices and compiled their own lists. That they acted in a most arbitrary fashion almost goes without saying. The local military authorities were given very considerable latitude in carrying out the orders given to them, no regard was paid either to the age, to the social class or to the occupations of the unhappy victims; 24 hours' notice, accompanied by threats, was, as a rule, the only warning a man received of the order for his deportation. Thus, a sword of Damocles was suspended over every home in Belgium. The rule was that everyone was *deportable*, unless proof to the contrary could be produced by any particular person wanted by the German authorities. As a matter of fact, the final decision on the matter was entirely in the hands of those detailed to give effect to the decrees of the German military authorities.

The working classes were affected far and away more than any other class, though many young men and married men in comfortable circumstances were drawn into the net together with those in receipt of relief from the public authorities; nor were the sick and those feeble in body spared. It would seem that in certain places women too were deported.

The deportations *en masse* were carried out district by district; beginning in W. Flanders, it extended stage by stage eastward and continued throughout the months of October, November and December, 1916, and of January and February, 1917. The exact numbers of men

removed is not known, but there were between 300,000 and 400,000 unemployed in Belgium; the Germans announced their intention to deport all of them.

In a note published by the German Legation at Berne in the *Journal de Genève* of 3rd April, 1916, it is stated that, at that date, 60,000 Belgians had been deported. Monsieur Passelecq states that, large as this number is, it does not disclose the full numbers, he estimates that more than 100,000 of his countrymen had been sent to Germany by the date in question.

Some details are given by Monsieur Passelecq of the heartrending scenes that took place at certain of the Belgian towns in connection with the carrying out of the deportation orders. He points out that one would have to go back to the times of the Mongol and Turkish invasions to find a record in history of acts showing a similar contempt of the rights and liberties of the human race. Extracts are also given from the cry of alarm raised on the 7th November, 1916, by the Belgian bishops, who found themselves helpless spectators of this terrible drama.

The Belgian Government addressed a memorandum on the subject of the deportations to the other Powers on the 1st February, 1917, and described therein the refinements of cruelty with which those unwilling to sign the German contracts of hire were treated. It is stated that reliable reports had reached the Belgian Government in relation to the indescribable sufferings of the thousands of innocent victims collected by the Germans in their camps and that the nature of the reports is such as to raise feelings of intense indignation in the breast of every civilized being.

The main responsibility for this abominable system of deportations rests, says Monsieur Passelecq, on the shoulders of the German military authorities, and ultimately on those of the Kaiser.

Protests have been raised against these deportations by the judiciary, by scientific societies, by the episcopate, by the Municipal Councils, etc., etc.

The German Governor-General has in some cases definitely refused to receive the documents containing the protests in questions, in others he has made no reply.

It is stated that official protests were lodged at the Wilhelmstrasse by the United States of America, Holland, Spain, Switzerland, and the Vatican. The German Foreign Office met these by giving shuffling answers and by telling lies, in the meantime the deportations continued to take place. The universal silence on the subject, which existed in the German Empire, was broken in the Reichstag in November, 1916, by the Socialists. Three members of the minority group denounced the acts of the military authorities with considerable vehemence; the denunciations of the majority group were pitched in a lower key. Nevertheless the majority group of the Socialists in spite of their protest, joined with the other parties in the Reichstag in voting into Law on the 2nd December, 1916, the Bill for the mobilization of the Man Power, etc., of the German Empire, although this measure included a provision for the mobilization of deported Belgians, Lithuanians, and Poles; the Socialist minority alone voted against the Government on this occasion.

After repeated protests on the part of Holland, Spain, and more particularly of the Vatican, the Kaiser, after a delay of five months, was reported by the Wolff Agency to have provisionally suspended the deportations and to have promised to return to Belgium those who *had by a mistake* been deported for *truancy*, of which as a matter of fact they were not guilty.

It was believed that the tragic experiences of the poor Belgians were now about to come to an end. This, however, proved to be a cruel illusion.

Chapter II. is entitled *Les Déportations à partir de Février*, 1917, and continues the story begun in the preceding chapter. It would appear that the deportations of Belgians which had been proceeded with on the pretext of *solicitude for their social welfare* practically ceased about the 15th February, 1917. Further, it is now certain that 12,000 out of the 60,000 Belgians admitted by the German Government to have been deported *by mistake*, on the ground that they had been playing truant, were repatriated (*vide* reference made earlier to the Note published by the German Legation at Berne in the *Journal de Genève* of 3rd April, 1917).

But this was, Monsieur Passelecq points out, only a deception practised by German officialdom, for:—(*a*). The major part of the deported Belgians were still retained in Germany for employment in connection with the Teutonic *corvée*.

(*b*). The Belgians repatriated were only those whose health had failed owing to the bad treatment received by them in Germany and were persons no longer capable of performing a good day's work.

(*c*). The Kaiser's promise did not apply to the thousands of unhappy people employed in the German War zone in France.

(*d*). Generally speaking, the Kaiser's promise was not binding on the German *military authorities*, who could continue to requisition and to deport Belgian subjects *under the plea of military necessity*.

Semi-official notes were published in the German newspapers on the 6th and 13th May, 1917, which, read between the lines, indicated the limitations referred to in the two last paragraphs above.

However, at the time that the deportations ceased to be carried out under one pretext, they were recommenced *under new pretexts*. On the 12th May, 1917, the Belgian Government received information that *a fresh round up of the whole of the male population in the Province of Luxemburg, and also a census and the requisitioning of all women had been put in hand*. In the communication received by the Belgian Government it was stated that all males, between 15 and 65 years of age, were required for work on the frontiers of France and Germany. The instructions issued by the German authorities laid it down definitely that one burgomaster, one priest, and one notary per commune were alone to be allowed to remain. The women are divided into three categories:—

1. The healthy ones; these were to be employed on agricultural work in order to replace men.

2. Mothers of infants in arms; these were to be allowed to remain at home.

3. Those not included in the two preceding categories; these were to

remain at the disposal of the German Government, for purposes not made known.

Social rank was to be entirely ignored. Later, similar measures were adopted in the district of Mons, at Tournai, at Alost, etc. Towards the middle of May, 1917, hundreds of men were also rounded up in the suburbs of Brussels. The Germans now tore down the mask which they had put on when the deportations first began. They now openly admitted that *the measures being adopted by them had no other object than to serve directly the interests of the German Army; the people of Belgium were to be roped in, and to be made by force to co-operate in the operations and in the execution of the military works of the German Army.*

The *excuse* was different but the *crime* remained as before; indeed, the crime may even be said to have become more heinous. Contempt was now openly heaped by Germany on the whole body of International Law. The first kind of deportation, the deportations made on the pretext of solicitude for the social welfare of the people, had been strongly supported by the German Press which devoted considerable attention to the subject and also by persons holding official positions in the German Empire who were continually making public references thereto. The apologies of the sophists and the arguments of the apologists in relation to these deportations imposed upon the credulity of the ill-informed in neutral countries and for this reason it is necessary to throw some light on the proceedings of the German authorities.

Chapter III. is entitled *La thèse allemande et ses contradictions*, and in it is briefly investigated the defence of the German Governor-General. It is pointed out that four closely-printed columns of matter published in the *Norddeutsche Allgemeine Zeitung* of the 14th November, 1916, scarcely suffice for the Statement of Defence prepared on behalf of Governor-General von Bissing (this Statement had already been furnished to the Berlin correspondent of the *New York Times*). In it some typical phrases occur, *e.g.*, the economic and implacable stranglement of Belgium by the British blockade is condemning half-a-million Belgians to look for their support to the Public Authorities; all remedial measures attempted have failed owing to want of raw material; public works have had to be stopped, owing to the fact that unproductive undertakings were weighing heavily on the financial resources of the Municipal Authorities, etc., etc. A certain number of Belgians had, the Defence proceeds, voluntarily gone to Germany to work there, but the enemy's propaganda, which urged patriotic objections based on wrong conceptions, had stopped the immigration into Germany. It had become imperatively necessary therefore, for the Government to compel those who were wavering and hesitating to adopt a definite course to save them from themselves.

Germany, that is to say, protested that the Teutonic *corvée* and the deportations were by no means in the nature of acts of repression nor were they reprisals; rather were the measures in question, they claim, precautionary, philanthropic, nay even paternal; whilst being to the advantage of those deported they reflected honour on the conscientiousness of the German Administration. The complete *dossier* relating to the proceedings of the German authorities in Belgium will

be found in Monsieur Passelecq's *Les Déportations belges à la lumière des documents allemands*; a brief outline of the contents of this work is given in the volume under review.

Dealing with the reasons which caused the German Government to adopt the drastic measures to which reference has been made earlier, Monsieur Passelecq points out that if the true explanation for the deportations is that there was a complete stagnation of industry in occupied Belgium, as alleged by the Germans, then it was an injustice to charge Belgian workmen with truancy owing to pure laziness. On the other hand, if the complaint is that Belgian workmen were really merely loafing and idling away their time, then it is necessary to assume that there was enough work for them *in Belgium*; in the latter case the deportation of workers *to Germany* was nothing more than an arbitrary act and one which it was not necessary to justify by bringing the stagnation in the Belgian industries so prominently into the foreground.

That the greater part of the industries of Belgium are at a standstill is a fact which unfortunately is incontestable. But what is contestable is Germany's argument that this condition of affairs is imputable to the state of War, in face of which the benevolence of the invaders is powerless.

The unfavourable position in which the Belgian industries find themselves at the present time does not arise from any accident or from some *force majeure* in which German volition has played no part. The German authorities on the contrary are personally responsible for this state of affairs and their responsibility in the matter is indeed of a two-fold nature :—

It is by the direct action of the German Government that the crisis in the German industries and labour market have been caused.

It is by the deliberate acts of the German Government that the Belgians have themselves been prevented from applying the necessary remedies which they have been ready to do.

Governor-General von Bissing's Statement of Defence only lightly touches upon the legislative measures adopted by the invaders in the occupied territories and then alone to support the claim that the German Government has devoted itself seriously to the task of rehabilitating the economic situation of Belgium.

Truth and German claims are, however, in direct conflict here. It can be positively stated that the German authorities have been principally, if not exclusively, concerned in exploiting, and most methodically exploiting, the resources of Belgium in the interests of the German Empire and for the direct benefit of its War measures.

Chapter IV. is entitled *Le Plan Rathenau et son application à la Belgique* and deals with the vast organization of the economic forces of the German Empire adopted by Von Falkehayn, the Prussian Minister of War, almost as soon as hostilities began. The scheme put in force emanated from the brain of one of Germany's greatest industrial magnates, Dr. Walter Rathenau, the President of the *Allgemeine Elektrizitäts Gesellschaft*. Mr. Swing, the Berlin correspondent of the *Chicago Daily News*, published more than a year ago an article (reproduced in

the *Basler Nachrichten* of the 5th January, 1916) based on information derived from German official sources; in it he gave an account of the *Kriegsrohstoffabteilung in Kriegsministerium* (Raw Materials Directorate of the German War Ministry), which was in control of the 36 industrial departments, known as the *Kriegsrohstoffgesellschaften*, concerned with all products necessary for Germany's Munition Works.

The replenishment of raw materials in Germany and the removal of the same from the occupied territories occupied a foremost place in Rathenau's programme. The official plan for the systematic exploitation of the resources of the occupied territories was put into operation at the earliest possible moment in Belgium, which was not only a manufacturing country, but possessed also large accumulations of imported raw materials, apart from what it produced.

Monsieur Passelecq, leaving on one side the acts of aggression committed against Belgium and the question of the vast war contributions levied in this country by the German Military Chiefs and Governors, proceeds to deal with legislative enactments, relating to the economic situation, published from time to time, in the *Gesetz-und Verordnungsblatt* of Brussels. This German official gazette is close packed with notices relating to sequestrations of property, taxation, inventories, restrictions, interdictions, etc., etc. Industry, commerce, agriculture, finance, labour are all passed through the sieve winnowed, fanned and garnered in succession and with reiteration. One knows that when a swarm of locusts settles on the land it devours every blade growing thereon until no green thing is left in the locality visited by it. German Colonial Science has an expressive word to denote that particular method of exploitation *à outrance* which resembles the locusts' method of dealing with the harvest of the fields; it is called *Raubwirtschaft*, the economics of squeezing dry. In the publication referred to above, during the two years 26th October, 1914, to 20th October, 1916, sixty-six distinct ordinances were promulgated dealing with sequestrations, requisitions, the creation of commercial monopolies in favour of a German Central Mart, etc., etc. Many of these ordinances were modified and stiffened up by successive supplementary ordinances, so that the number of legislative measures affecting the industries, agriculture, finances and internal commerce of Belgium promulgated reached the grand total of 96 in the period mentioned.

Simultaneously, other legislative measures were enacted to impede, to suspend or to regulate the export, import and transport of merchandise; from the beginning of 1915 to the 12th September, 1916, eleven principal ordinances relating to these matters were promulgated and twelve supplementary ordinances modifying and stiffening up the principal ones. Among materials the import of which was forbidden were those of which Belgium was much in want, but the stocks of which existing in neutral countries Germany did not wish to draw upon (*e.g.*, sebacic acid, fats, soap and saponified oils, etc.).

Attention is also called to the fact that the removal of machinery and plant from the factories in Belgium was in many cases confided to the representatives of German firms which had been directly competing against the Belgian industries in which this machinery,

etc., was employed; in this manner many Belgian trade secrets have come to the knowledge of the Germans.

Since December, 1914, the Belgian provinces have been under the necessity of paying into the German Treasure Chest a monthly contribution at first amounting to 1½ million sterling, raised in November, 1916, to 2 millions, and in June, 1917, to nearly 2½ millions sterling; the ordinary taxes have, at the same time, been maintained and in some cases increased. The German authorities have refused their own currency in payment of the contributions and taxes levied by them, but have insisted on such payments being made in Belgian coinage. The rate of exchange for the mark has been fixed at a minimum of 1fr. 25c. The use of German currency is forbidden even for the purpose of paying for food supplies purchased for the civil population. When the foregoing measures had brought about the results intended—the inflation of the value of the mark and the accumulation of the German coinage in the banks—the German authorities set to work to appropriate the specie in Belgium. This campaign was opened by the arbitrary arrest and deportation of Carlier, the Belgian Bank Director; the banks were then forced to surrender the keys of their cellars and strong rooms under the threat that if they refused to do so these institutions would be immediately and summarily wound up. The Germans confiscated thus 650 million marks belonging to the State and private banks of Belgium.

The foregoing examination proves conclusively that the legislative enactments of the German authorities affecting Belgium must have had one object alone in view; to put in force, *as completely as it was possible to do so*, the Rathenau plan for squeezing Belgium dry.

Chapter V. is entitled *Confirmations allemandes* and deals with the confirmatory evidence relating to the situation in Belgium available in German documents. Monsieur Passelecq deals with only three of these documents in the volume under review. In the first place he refers to the series of articles written by Dr. Ludwig Ganghofer, an intimate friend of Wilhelm II. and the special envoy of the *Neueste Münchner Nachrichten*, a Bavarian official organ. The articles in question are accompanied by numerous statistical tables and attempt to describe the work of the German administration (on the whole extent of the Western Front). The principles on which the German authorities have been acting are, he tells us, as follows:—"*Draw as little as possible from Germany for the use of the Army; draw as much as possible from the conquered enemy country; and all that may be surplus to the requirements of the Army, but may be of use to the country, remove to Germany.*"

Dr. Ganghofer states that *during three months, the conquered territories had furnished four-fifths of the needs of the German Army*, and that although at the time of writing a scarcity had begun to show itself in the conquered regions in many commodities, nevertheless *these regions were still able to meet two-thirds of the wants of the German Army in the Western Theatre.* At a moderate estimate Germany was saving 3½ to 4 million marks a day by the adoption of this procedure.

According to Dr. Ganghofer the *benefits derived from the German*

victory had added notably to the profits of the economic War which Germany was waging in conformity with International Law (!) against the conquered territories, i.e., by the utilization of the property of the State (?), such as *corn, wool, metal, valuable timber and other products*, which had been *transported in enormous quantities* from Belgium and Northern France into Germany. "*Germany economizes and gains by this economic War conducted in a commercial spirit, an additional sum which may be put at 6 to 7 millions per diem.*" Thus the total profit realized by the German Empire on the Western Front, since the beginning of the War *may be estimated to amount to about 80 millions sterling;* a striking victory for Germany, representing as it does a saving and an increase in her economic resources; whilst at the same time a crushing defeat for the enemy, *amounting to the complete exhaustion of all the financial resources in the occupied territories.* This should put an end to the saying that *the Germans are not a practical nation.*

A year later, on the 16th January, 1916, confessions of a similar nature to the above fell from the lips of General von Wandel in the Reichstag. When acting as Minister of War, von Wandel rose in his place to reply to the criticisms of the Deputy Stucklen against the Commissioners who were enforcing the Rathenau plan. "If large quantities of supplies had been transported to the country (*i.e.* to Germany)," he said, "this was due, in very large measure, to the prudent and indefatigable activities of the Economic Commissions. They have merited well of the Fatherland."

In a Memorandum (published posthumously) by General von Bissing, written in 1915, and regarded as his "political testament," the General claims that "the supplementary advantages that we have obtained from the Belgian industries by the seizure of machinery, etc., must be assessed at as high a value as the harm done to our enemies by the deprivation they have suffered of the means of increasing their fighting power."

To all which Monsieur Passelecq retorts: "Then, we will, in our turn, say if the economic activities of Belgium are dead, it is neither the War, nor the blockade but the German authorities themselves that have killed them. It is Germany who, by her legislative and administrative measures, has brought industry to a standstill in Belgium, paralyzed commerce, put an end to the raising of crops and ruined public and private finance. *It is she who, by her deeds, has brought about or thus aggravated this social calamity of industrial truancy, which she hypocritically now lays to the charge of the Belgian workmen when she accuses them of idleness and evil intentions.*"

It must be remembered too, that Germany acted thus at the very time when her official representatives, Marshal von der Golz and General von Bissing, had promised their collaboration in the task of promoting the economic resuscitation of Belgium and called upon Belgians, in the interests "of a patriotism of a really healthy kind," to co-operate with them in the work of administration.

Chapter VI. is entitled *Les Belges s'efforcent d'enrayer le chômage: l'allemagne les en empêche et cherche à étouffer la concurrence belge* and deals with the efforts of the Belgians to make the best of a bad situation

and the measures the Germans adopted to checkmate Belgian competition.

Monsieur Passelecq reminds us that the Germans made no serious efforts to keep within bounds the curse of non-employment and the misery arising from their egotistical acts; a situation with which, by their own admissions, they were unable to cope. On the other hand, the Belgians struggled against the great peril threatening their country only to be thwarted at every turn by the German authorities.

The martyrdom suffered by Belgium in 1914 brought to her widespread sympathy, the sacrifices which she made to defend her independence and, at the same time, to fulfil her treaty obligations won for her the admiration of the whole world; however, if the resistance which Belgium has continued to offer in the trying circumstances in which she has been placed were better known, she would rise still higher, were that possible, in the esteem of all right-thinking peoples. An appreciative account of the stoical spirit with which Belgium has met military misfortune and of the fortitude with which her people have borne themselves whilst in captivity has recently appeared in a volume by a Scandinavian publicist bearing the catching title:—*The Country which does not wish to die.*

Many neutrals have spoken in praise of the magnificent qualities of fraternity which the Belgians have been exhibiting in their day of trial; they have also called attention to the remarkable spirit of ingenuity, of order and of method which the local authorities of Belgium have displayed in providing their compatriots with assistance and in organizing measures for reprovisioning the country. The "Comité National Belge," ably seconded by the American Commission for providing aid to Belgium, has been able to extend its benefactions to the invaded regions of Northern France. But not a single *pfenig* has been contributed by the Germans to the enormous expenses which have been incurred in this work.

In addition to the direct assistance which the Belgian local authorities gave to the unemployed, they also attempted to provide indirect relief by carrying out public works of a nature on which much unskilled labour could be utilized. They also started technical classes. The German authorities took advantage of this situation; in order to bring about a change of opinion in foreign countries in relation to the complaints which were rife as to the disastrous effects on the Belgians of the legislative measures mentioned above, during a period of 18 months, they flooded the German Press and the neutral Germanophil Press with articles containing most extravagant claims regarding the economic recovery of occupied Belgium. But the real situation could not be conjured away by any measure of German dialectics.

The lot of the lower classes living in occupied Belgium has not, at any time, been too happy; but thanks to private charity, to the contributions made by the Belgian local authorities, to the generosity of foreigners and to the help given by the American Commission and the Belgian Government, some 36 millions sterling have been spent, between October, 1914, and the autumn of 1916, in providing them with the bare necessities of life, so that they have been spared at least starvation.

General von Bissing, in the interview which he gave to the correspondent of the *New York Times*, to which reference has been made earlier, claimed the credit for having initiated the public works started for the unemployed by the Belgian local authorities. But a countryman of his, Dr. von Behr-Pinnow, sheds a light on the late Governor-General's works which unconsciously puts a totally different complexion on the situation. Von Behr-Pinnow had the opportunity of seeing the work of the German administration from a position of vantage behind the scenes, in May, 1915, when he visited Belgium, in Professor Langstein's company, as one of the delegates of the "Kaiserin Victoria Haus," of Charlottenburg. The following is an extract from an article which he contributed to the *Kölnische Zeitung* of the 26th May, 1915:—

"But there are other reasons which have actuated the Governor-General in acting as he has in this matter; it was necessary, *even in the interests of Germany*, that Belgium should not be completely exhausted, or exposed to famine, a situation that might have had to be combated with German money or—what might have been still more burdensome—by German food stuffs; on the contrary, it had to be arranged that the country should, in some way, be able to live on its own resources. This is why the Governor-General has not been content alone to admit American supplies into Belgium, but has cleverly made attempts, which were attended with success, to reduce industrial truancy by a progressive re-starting of those industries which are of most importance in the country. *But this was done in such a way, be it understood, that German industry* could not in any way suffer thereby."

Here we have the German ideals with regard to the moral and social obligations of the Governor-General towards the people whose welfare was temporarily under his care. In his conduct Von Bissing had to subordinate everything to the interests of German industry. The occupation of Belgium was to be made the weapon for defeating the Belgian competition with German industry. The German authorities have in their dealings with the territories occupied by them fully availed themselves of the opportunity which existed for framing measures having for their main object the killing in Belgium of all industrial and commercial competition with German trade. Although not authorized in legal form, nevertheless, it has come to the knowledge of the Belgian Government that the following taxes have been imposed and are being collected by the German authorities on exports from Belgium:—

1. A duty of 1 per cent. *ad valorem* on all exports.

2. A duty of 30 florins (50 shillings) per ton on all metallurgical products exported to Holland.

3. A duty of 10 per cent. *ad valorem* on glass wares and other merchandise exported for consignment overseas.

The above fiscal and other measures directed against the industries of Belgium have brought her internal and export trade to a complete standstill. There appears to be little doubt that in thus killing Belgian competition the Germans have all along had in view the intention of ultimately getting hold of Belgian labour for employment on munition works in Germany.

Chapter VII. is entitled *Le Chômage forcé institué par les Allemandes*

and contains a continuation of the story dealing with Germany's responsibility for the existence of unemployment in Belgium. By Germany's economic policy, the German authorities have made the Belgian workmen *chômeurs forcés* in the interests of German industry and the German Army. By Germany's social policy, she has attempted to make these "*chômeurs forcés*" into *travailleurs forcés*, for which purpose she has deported and enslaved them.

In its Memorandum of 1st February, 1917, the Belgian Government definitely charged the German Government with having brought about a stagnation in the commercial activities of Belgium with the express design of enrolling the *chômeurs forcés* in the munition factories of Germany and in the Belgian workshops requisitioned by the German military authorities.

Monsieur Passelecq gives a brief list of the class of public works which had been started by the Belgian *Comité de Secours* and the Local Authorities for the unemployed. Although the work had, in many cases, been begun, the German Government suddenly issued an order prohibiting their continuance in virtue of the provisions of a proclamation dated 2nd May, 1916. The reason for this drastic step was stated to be that these works provided employment for *chômeurs, i.e.*, those alleged to be playing truant. The Germans, however, offered to employ the workmen, who would have to be dismissed by the Belgian Committee and Local Authorities, either in Belgium or in Lorraine, or in Germany.

A certain number of men belonging to the Province of Luxemburg continued at work in the communal workshops still kept open, but as soon as the German authorities discovered this, they peremptorily forbad the employment in any particular commune of men other than those belonging to that commune.

It is clear then that it is *by order of the German authorities* that the Belgian workmen have crossed their arms. No blame can attach to them for having refused the offers of work made them by the invaders of their country, since by doing so they would only be supplying the needs of the German Army and furthering the interests of their enemy. It was owing to the check which their manœuvres met with that, in obedience to the behests of their own military authorities, the German Government perpetrated the supreme iniquity; a proclamation was issued on the 3rd October, 1916, which aimed no longer at the institution of the *corvée* in Belgium, but at its institution in Germany and in France, so far as Belgian labour was concerned.

Chapter VIII. is entitled *Les Arguties du Gouverneur-Général von Bissing*, and in it attention is more particularly concentrated on the quibblings of General von Bissing. The General has persistently denied that the deportation scheme was in any way connected with the design of compelling the Belgian people indirectly to co-operate with the Germans in their War measures; he insisted that the steps taken were forced on him by the economic conditions due to the British blockade and to the War itself; the budgets of the Belgian local authorities were, according to him, so heavily burdened as no longer to be able to bear the ever-increasing expenses in connection with the unproductive works on which the labour of the unemployed was being utilized; there

remained therefore only one thing to be done and that was to send the Belgian workmen to that locality where they could be offered remunerative work and where they could be properly fed, *i.e.* to Germany.

As regards the excuse that the deportations were due to the British blockade, Monsieur Passelecq points that, at the end of the summer of 1915, a Belgian Industrial Committee acting in concert with the *Commission for Relief in Belgium* presented to the German authorities the draft of a contractual arrangement. The scheme outlined in this draft had been agreed to by the British Government and was intended to provide for the admission into Belgium of raw materials required by the Belgian factories and the subsequent export of the articles manufactured therefrom; the profits arising from the operations contemplated were, under this scheme, to be lodged and locked up in a neutral bank.

The scheme, it will therefore be seen, was one which, whilst it permitted the Belgian industries to continue in operation, provided for the safeguarding, from the requisitions and levies of the invaders, of the surplus between selling prices of Belgian commodities and the costs of their manufacture. It had been intended to put the scheme into force under the control of the *Commission for Relief in Belgium* which was itself under the patronage of representatives of Belgium, the United States of America, Spain and Holland; there was, in consequence, a prospect that the interests of all concerned would be protected.

However, the German authorities showed no inclination to accept the scheme; they allowed five months to slip by without even acknowledging its receipt and, needlessly to say, they did not put up a counter-proposition. It was not till the Memorandum of the 7th February, 1916, prepared by the British Foreign Office, criticizing the strange indifference of Germany to public opinion, was issued that the German Government deigned to reply (official notes of 22nd February and of 9th March, 1916) and then they only twisted and distorted the proposals put forward. What does, however, stand out clearly is that the German Government refused to give the indispensable guarantees which were necessary before Belgian industries could be exempted from the operation of the blockade; an exemption which Great Britain was perfectly willing to concede.

Dealing next with von Bissing's alleged anxiety with regard to the safeguarding of public order, Monsieur Passelecq points out that as great as is the antipathy of the Belgian people for the nation that so treacherously invaded their country, they have maintained a complete mastery over their own conduct. During the two years and more that their country has been under the rigours of the harsh *régime* instituted by the enemy not a single *émeute* nor any trouble of any sort has broken out. All Belgians in authority have ceaselessly preached the need for calmness and patience to their suffering compatriots.

The Germans can surely have nothing to fear from a populace which is unarmed, whose constitutional liberties have been suspended, whose Press has been suppressed, whose rights of social intercourse and of public meeting have been restricted and whom they have caged in behind a wire fence charged with high-tension electricity. They practically

admit as much, for they have only small military garrisons in those parts of Belgium not actually in the zone of trench warfare.

Von Bissing explains his measures in a general way as being necessary because *we are living in times of War.* Monsieur Passelecq takes the General's arguments *seriatim* and points out that the *permanent* War contribution of 40 million francs per mensem levied by Germany since December, 1914, is less *productive* and would be a lighter burden on the budgets of the Belgian local authorities than would be the works organized by the latter for the unemployed. Admitting for a moment that the British blockade and the War have been affecting the economic life of Belgium, he asks in what way the conditions in blockaded Germany are so different from that in blockaded Belgium as to provide in the former country remunerative work in abundance whereas in the latter country no work exists?

He also asks, whence comes the strange inequality in the matter of food supplies available in the two countries? What has become of the crops raised by Belgium, of the food stuffs sent for the Belgians by the United States of America?

Monsieur Passelecq continues: "In any case, I want to know how does your alluring description (*i.e.* von Bissing's) of the food supplies of the German workmen agree with that given in the letter of 27th September, 1916, from Marshal von Hindenburg to Chancellor von Bethmann Hollweg (*Norddeutsche Allgemeine Zeitung* of the 17th November, 1916, 1st Edition), particularly in the case of the Rhine regions to which the deported workmen are being sent, wherein it is said:—It is impossible for our workpeople to remain in full vigour if we do not succeed in distributing equitably to them fats in sufficient quantities. As to the coal basins of Ruhr, of the Siegerland (near Cologne) and other industrial regions, I am informed that *they have not yet succeeded in making an issue in sufficient quantities, much less on an equitable basis.* In the Siegerland, it would seem that, *for two months past, only ridiculously small quantities of fats have been available.*" Monsieur Passelecq accepts von Bissing's admission that whilst Germany has raw materials for her industries, at the same time Belgium has not. Again he asks, what is the explanation for this new difference in the situations in the two countries?

Germany may be obtaining raw materials, he says, from certain neutral countries: Holland, Scandinavia, and Switzerland. If so, why is Belgium not likewise able to import from the same countries?

And this abundance of employment that Germany offers the Belgian workpeople, is it not employment either in connection with munition supplies or that for which German labour is not available owing to the workers having been conscripted into the Army? Monsieur Passelecq leaves it to the German authorities to say to which of these two alternatives an answer in the affirmative would be a veracious reply to his question.

All the steps taken by Germany in mobilizing her civil population, and in organizing her economic activities, have been directed towards the conversion of that Empire into an *Institution of War.* The deportations represent, without a shadow of a doubt, the last phase in the

execution or extension of the Rathenau plan; *these deportations constitute then the violent incorporation of the whole of Belgium, with its population and all their effects, into the War organization of the German Empire.*

Chapter IX. is entitled "*Fides teutonica*" and treats of the breaches of faith of which Germany and her officials have been guilty in relation to the treatment of the civil population of Belgium, who were induced to return to their homes from Holland, whither they had fled in October, 1914, in the days preceding the fall of Antwerp. Matters which have been fully dealt with in the reference made to the speech of Monsieur Vandervelde, at Nancy, which forms the Preface to the volume under review.

The text of undertakings given by the German military authorities to respect the liberty of Belgian citizens is set out by Monsieur Passelecq in this chapter. On the faith of this undertaking and of written and verbal assurances given to Cardinal Mercier by General von Huehne, Military Governor of Antwerp, the clergy in the Province of Antwerp were directed, as explained by Monsieur Vandervelde, to make known the German promise from their pulpits.

The Dutch authorities at the request of Germany posted up notices inviting Belgian refugees to return to their homes under the promise referred to above. In order to bring pressure to bear on the absentees, who owned property in Belgium, to comply with the foregoing invitation, the German authorities threatened them with a tenfold increase in the taxes and contributions, which they were levying in the invaded territories, in the event of their not returning to their homes.

The Belgian people had not at this time fully realized that modern Germany has adopted a code of honour which is not based on the ethical notions by which other civilized peoples regulate their intercourse with nations and individuals; they had, in consequence, to rue their lack of perspicuity. As soon as Germany's perfidy in the matter of the deportations manifested itself Cardinal Mercier at once entered a strong protest on behalf of his fellow countrymen; von Bissing, however, put him off with a reply full of casuistry.

The Municipal Authorities, too, refused to assist the German Government in carrying out their designs, as already explained. They had not long to wait in order to learn that the Zabern spirit is still alive. *What order soever the German Military Authorities may promulgate to that command must all civil authorities outside the German Empire, as within it, render immediate and complete obedience.*

Tournai for its recalcitrance received a demand from the German Military Authorities for the payment to them of a fine of £10,000 sterling within six days, with an additional £1,000 sterling per diem in respect of each day's default in meeting this demand.

It is methods of administration of the kind described above that to-day meet with the most complete approval in Germany. In an article which appeared in the *Frankfurter Zeitung* of the 29th October, 1916, it is stated that *all those who have seen the officials of the Fatherland at work in the occupied territories cannot fail to be struck with the fact that they are carrying out their duties with the scrupulous conscience of a German.*

Chapter X. is entitled *Conclusion* and contains a final extract from the Memorandum of the 1st February, 1917, prepared by the Belgian Government in relation to the deportations. In this extract, after recounting the outrages suffered by the unfortunate Belgian people at the hands of the invaders of their country, the enemy as well as the friends of Belgium are informed that "No abuse of force will break down the resistance of the Belgian people to the yoke of their oppressors. History bears witness to their inextinguishable desire to maintain their independence and to the enduring spirit with which they are ready to combat every form of tyranny."

W. A. J. O'MEARA.

NOTICES OF MAGAZINES.

REVUE MILITAIRE SUISSE.

No. 9.—September, 1917.

THE ITALO-AUSTRIAN THEATRE OF OPERATIONS.

The first part of the article dealing with the above subject was published in the number of the *Revue* for April, 1917 (*vide R.E. Journal* for August, 1917). The text is accompanied by a sketch-map of the front on which the Battle of the Isonzo was fought in May, 1917.

Some writers dealing with the operations of the Italian Army have contrasted the present situation with that which prevailed during the War of 1866. The favourable opinions already formed concerning the handling of the Italian Army in the Great War have, if anything, been considerably enhanced by the comparison of to-day's situation with that of half a century ago, which ended so disastrously.

In 1866, Garibaldi received orders from General La Marmora immediately to vacate the Trentino at a time when the main body of the Italian Army was being prepared for employment in another theatre. The situation of the Italian Army was, 50 years ago, unfortunate in every way; the Battle of Custozza had completely disorganized it. In consequence, Austria was in a position to impose her own terms, knowing well that they must be accepted. This is what she did do. When Italy entered upon this War in 1915, she had, so to speak, to take up the threads at the point she had to drop them some half a century ago.

The Italian G.H.Q. on the 9th July, 1917, issued an official statement in which the strategy of the Italian plan of campaign is indicated. It was as follows:—"At first to engage the enemy on the whole front from Tolmino to the sea by an intense artillery fire which would leave him in uncertainty as to the real point of the decisive attacks; next to assail him on his right wing, N. of Gorizia, then to strike a second violent blow against his positions on the Carso." Considering all the difficulties that the Italian Army has been up against, the results that they have obtained, viz., the seizure of the summit of the Cucco and the immediate approaches to Hermada, must undoubtedly be considered as eminently satisfactory. On the other hand, the Austrian counter-offensive has failed to achieve the results aimed at.

The positions along the line of ridges Cucco-Vodice gave the Italians an enormous advantage, as therefrom they were able to command all the ground in front of them and the approaches thereto. Every minute gained in attaining the positions in question was of inestimable value to them, and the nature of the country they were thus able to occupy lent itself admirably to the construction of defences tending

to make the territorial gain permanent. Having succeeded so far the Italians assumed a localized defensive attitude. They had to make the whole of their front equally strong, since the piercing of their position at any point would probably involve the retreat of the whole of their troops. The piercing of a front in a mountain region is a more serious matter than a similar break in the case where troops are fighting on ordinary undulating country; in the former case the extreme difficulties of lateral movement render it almost impossible to repair, by force of arms, the disaster of a break in the line; such however is not generally the case when fighting in the plains.

During the month of May, the Austrians made violent efforts to retake the Vodice, and on the 28th May were temporarily in possession of their objective, but had finally to withdraw. Subsequent attacks by the Austrians in this position shared a similar fate and, in consequence, the Italians were left masters of the region in front of the Bansizza plateau and in close proximity to M. Santo and M. San Gabriele.

The failure of their offensives in the north stimulated the Austrians to try their luck on another part of the front. During the first days of June, therefore, the Austrians got ready for a counter-offensive on the Carso. The Italians took note of this and made preparations to beat off their opponents.

On the 3rd June the Austrian artillery opened a perfect hurricane of fire on the Italian positions extending from Hermada to S. Marco. The situation is an easy as well as a difficult one to describe. Easy where the peculiarities of the features of the Carso are familiar to those addressed; difficult where the accidented and wooded nature of this region cannot be pictured in the mind by those addressed.

Bombardments and reconnaissances by patrols alternated until the following day (4th June) when the Austrians launched their attack.

The situation was a critical one for the Italians for a few hours; had the *morale* of their troops broken down, they would have lost all the advantages obtained by their arduous labours of preceding days. Had the Italian front been pierced at any point, say Castagnavizza or Jamiano, this would have involved the withdrawal of the whole of the Italian troops on to the position on the Isonzo, whence they had originally advanced. They however held on to their positions. In spite of the heavy attacks made on the Italian salient at Faiti and in the neighbourhood of Brestovizza, no ground was yielded on these parts of the front; however, further south, near Flondar, the Austrians managed to drive the Italians back a few hundred yards. This small Austrian success did not materially effect the general situation; the Italians continued to cover and to hold the entire region of the Vallone and of Monfalcone, with their right resting on the sea. It would appear that a War correspondent in an article contributed to the *Basler Nachrichten* of the 16th June, 1917, looks upon the Austrian counter-offensive on this occasion as having been a success. The author of the *Revue* article, however, contests this view and points out that in order to have been an entire success the Austrian counter-offensive ought to have driven the Italians back on to Isonzo and to have carried the Austrians to the Vallone.

In the case of operations on a widely extended front correct strategy requires a co-ordination of effort along the whole of that front during the progress of an attack on some particular portion thereof. The author of the original article is of opinion that the Italians were guilty of an error in not attacking in the High Alps simultaneously with the launching of their offensive on the Carso, so as to prevent the transfer of Austrian troops from one part of the front to another.

The battle had scarcely died down on the Carso, when the artillery began to belch forth on the high plateau of the Seven Communes, in the region of Arsiero and of Asiago, the scene of the Austrian offensive of 1916.

The Austrians had, since 1916, remained in occupation of Italian territory N. of the Asiago Conch which acted as a kind of spring-board to help them to get on to the plateau of the Seven Communes.

The Austrian left rested on the chain of hills which separated the watershed of the Nos Valley from that of the Galmarara. The Mont Ortigara (6,900 ft.) situated at the end of the chain constituted the junction between the retrenchments of the high plateau and those of the Val Sugana. It was attacked by the Italians on the 10th June and finally carried by them; on the 13th *idem* the Austrians had commenced a series of powerful counter-attacks and the issue was in doubt for some time; success and failure had alternated on the two sides for some time.

On the remainder of the front considerable activity existed. Italians and Austrians came to grips in the positions at Colbricon, the Trois Cimes, on the Zugna, on the Lagazuoi, on the Adamello and elsewhere; the actions which took place were only of local importance and had no influence on the general situation. The region of the Carso and the plateau of Bansizza continued to be the points of primary importance.

In the spring of 1917 a period of active operations was again expected. The Italians credited the Austrians with the intention of assuming the offensive in the Trentino; but this did not come off.

It was the Italian Army which started the ball rolling this time, by launching an attack on the Carso. Volumes would have to be written to describe the various episodes which took place. One of the remarkable things in the Italian theatre is the enormous amount of engineering work that has been done in the mountain regions. A great part of this will be a net gain after the War; it will render habitable a region which formerly was tenantless or nearly so.

A Trench Raid.

The materials for the *Revue* article were, it is stated, obtained from an account of the episode in question contributed by an American eye-witness to the *Infantry Journal* for June, 1917.

Objective.—The raid was undertaken by French troops for the purpose of taking prisoners in order to ascertain what German formations and units were holding certain positions. The French and German trenches were about 50 yards apart at the point selected for the raid.

Preparations.—A scheme for securing the ends in view was prepared by the Regimental Commander whose troops were to carry out the raid;

it provided for the sudden outburst of extremely violent artillery fire against a salient in the German line, so as to form a "curtain" in its rear and on its flanks with the object of isolating the German troops holding it; an infantry detachment, about one hundred strong, was subsequently to issue from its trenches for the purpose of entering the salient in question and of bringing back prisoners. The Divisional Commander having approved the scheme, a system of trenches was constructed, the trace of which was a replica of the salient in the German line (based on aerial photographs), in rear of the French lines and the infantry detachment detailed for the raid practised for some days the execution of the task allotted to it, until every man was familiar with his exact duty on the appointed day. A sketch is given in the original article showing, in outline, the French and German trenches in the neighbourhood of the point of attack.

The French raiding party was divided into four groups:—

(*a*). The *first group* consisted of 1 officer and 18 other ranks; their task was to enter the German first line trenches and to push patrols along these trenches in order to block them off on the left flank of the raiding party.

(*b*). The *second group* consisted of 2 officers and 37 other ranks; their task was to advance to the German second line trenches, and to clean up the third line trenches and those extending to the right; in the case of the latter they were to push out to a distance of at least 60 yards from the communication trench allotted to them.

(*c*). The *third group* consisted of 1 officer and 16 other ranks; their task was to clean up the German second line and maintain connection between the left and right groups ((*a*) and (*b*) above) and to cover their withdrawal.

(*d*). The *fourth group* consisted of 1 warrant officer and 39 other ranks; their task was to remain in the French trenches and to act as a support in case of need.

The Company Commander told off to direct the raid was to remain with the *fourth group*. It was arranged that as soon as any German prisoners had actually reached the French trenches he should send up a signal light to recall the remainder of the raiding party.

Artillery.—The French had installed 12 mine-throwers (throwing 90-lb. projectiles) in two groups of six each; these were placed 200 and 300 yards respectively in rear of the French first line trench. The left group was ordered to make a breach in the enemy's entanglements at a point where it was nearest to the French trenches; the right group was ordered to make a second trench in the entanglements some 450 yards to the right of the one referred to earlier.

In addition to the mine-throwers, 6 batteries of "75" guns and 3 batteries of 6-in. howitzers were also brought into action.

Two aeroplanes were employed, one for the purpose of "spotting" the fire of the French Artillery and the other for keeping the Divisional Commander in touch with the progress of events. Both of these machines came under the fire of the German A.A. guns, but they continued to carry out their duties.

Execution.—The artillery was ordered to open fire at 3.30 p.m. A few

minutes before the infantry were to go over the "top," they were inspected by their C.O. Each man wore a white brassard and carried two smoke grenades; the numbers and distinctive marks were removed from their uniforms, they wore no great coats and all papers were removed from their person which would give any information whatever to the enemy.

The observing officer took up a position in a look-out post some 350 to 400 yards from the enemy's first line trench; the O.C. mine-throwers occupied the same post.

Guns, howitzers and mine-throwers came simultaneously into action at 3.40 p.m.; the guns putting up a "curtain" 100 yards in rear of and on the flanks of the German salient to be attacked; the howitzers directed their fire against the German batteries and machine guns and the mine-throwers set to work to destroy the entanglements. The attack was a complete surprise to the Germans; they do not appear to have located the position of the French mine-throwers. The German artillery replied, doing some damage to the French first line trenches.

By 4.40 p.m. the French mine-throwers had succeeded in cutting the German entanglements and at 5.10 p.m. turned their fire against the enemy's first line trenches and particularly against the flanks of the salient.

Orders were given for the infantry detachment to go forward at 5.20 p.m. At the hour mentioned the "curtain" of the "75" guns in rear of the salient was carried further, by 150 yards, to the rear; the German position was now surrounded by a box-barrage. The howitzers remained in action. At 5.22 p.m. the infantry detachment advanced from their trenches, a few of the men only doubled, the others simply quickened their pace. The German first and second lines were entered, but not the third line. Three unwounded Germans were taken prisoners and conducted back to the French lines. On the way back, a German machine gun opened fire on the prisoners and their guard from a hidden position on the latter's left, but no one was hit. The German prisoners being safely back in the French trenches at 5.28 p.m., the signal light was sent up for the return of the raiding party; by 5.33 p.m. they were all safely back again; smoke grenades were used to cover the withdrawal. At 5.35 p.m., a second light was sent up to let the French artillery know that the infantry had returned from the German trenches.

Counter Measures.—At 5.25 p.m., the Germans sent up a red-and-green light as a signal for their artillery to put up a barrage. The German artillery responded to this request at 5.35 p.m., *i.e.* a few minutes after the last of the French soldiers had got back into their lines. The German barrage formed a very dense curtain between the German and French first lines; 6-in. howitzers were used for the purpose.

Conclusion.—During this raid the French mine-throwers fired 1,212 rounds; the "75" guns 6,340 rounds; the howitzers 1,690 rounds.

The raid was considered to have been a complete success.

The report of the Divisional Commander on the raid, it is stated, concludes with the following observations:—

(*a*). In order to provide for the success of such a raid the troops to take part therein should receive a week's special training in a locality

the features of which correspond as nearly as possible to those in which the enemy's trench system to be raided are situated.

(*b*). The closest co-operation between the artillery, infantry and flying corps is of the highest importance.

(*c*). In an enterprise of such short duration, it is difficult to get the prisoners away from their shelters.

(*d*). Machine guns should be placed at some point wide of the flanks so as to be as far as possible out of the way of the positions which the enemy's artillery are likely to make their principal target.

(*e*). Infantry taking part in such enterprises should carry their gas-helmets slung in the 'Alert' position.

(*f*). The support of their own artillery is of considerable moral value and gives the infantry the necessary confidence to enter the enemy's trenches and to bring back prisoners without suffering any casualties.

Notes and News.

Switzerland.—The death is announced of Colonel Treytorrens de Loys, a Divisional Commander. An outline of his career is given in the *Revue.* The deceased officer began his career in the cavalry and was for some time on the Instructional Staff of the Swiss Cavalry; in 1895 he became a Professor at the Senior Officers' Central School. He had a high reputation as a teacher. Colonel de Loys was also an occasional contributor of articles on tactical subjects to the *Revue Militaire Suisse.* He was devoted to his profession and put its interests before all things else.

Belgium.—A special contributor points out that the calling of a military correspondent is in these days a very trying one. Events follow one another with amazing rapidity, but the announcements concerning them are delayed and sometimes skimmed of their cream.

It is stated that Belgium, like France and Spain, has also had its Ministerial Crisis. Baron de Broqueville suddenly resigned his portfolio as War Minister to take over that of the Belgian Foreign Office; this event naturally gave rise to speculations on the part of the public.

The military situation in 1912, when Baron de Broqueville entered on his duties as War Minister, was deplorable. He, at once, set himself the task of bringing about the necessary reforms and although he met with much opposition, yet by degrees, he brushed all obstacles aside. Finally, he succeeded in getting the new Military Law passed which provided for increased establishments in the Belgian Army. Baron de Broqueville exercised a most wholesome influence and it was largely due to him that the Belgian Army was as well prepared as the German Army found it to be in August, 1914. Lieut.-General de Ceuninck who has succeeded to the post of War Minister has for some months past been in command of the 6th Belgian Division; he has a reputation for great energy, remarkable endurance and great personal bravery. He is moreover a strict disciplinarian and the question is asked whether he is by temperament suited for a political office. The appointment of General de Ceuninck to the charge of the War Ministry has revived in Belgium the discussion on the familiar topic whether a soldier or a layman should have political control of the destinies of an

army. As in many other mundane affairs it does not seem possible for the opinions of the public of any nation to be unanimous on this subject. Whether a soldier or a civilian is the proper person to have charge of a Ministry of War is a question which it is futile to discuss in the abstract; the personality of the supreme head of a Government Department is the factor which counts most from the point of view of a nation's interests and not that of the particular profession or calling in which he may have been brought up.

At the same time that the change in the constitution of the Belgian Cabinet took place, a War Committee was formed. This Committee is composed of five Ministers with portfolios, one without and the Belgian Minister at the Court of St. James; the War Minister is not serving on the Committee.

The suggestion is thrown out that Belgium, in view of the size of its mercantile marine and of the extent of the Belgian Congo, should possess a Navy of its own. It is one of the questions that will have to be dealt with in connection with the reconstruction of the Kingdom after the War.

Although Belgium has not, in the present War, acquired a military status on the deep waters, many of her sons have, on the other hand, participated in the brilliant feats in which the Western Allies have played a part for securing military supremacy in the air.

INFORMATION.

The death is announced of Lieut.-Colonel Eugene Vicarino, commanding the 38th Infantry Regiment at Friburg, from wounds received at bombing practice.

This number of the *Revue* concludes with a bibliography containing brief notices of books of military interest. A list is also given of some works recently received for review.

W. A. J. O'MEARA.

RIVISTA DI ARTIGLIERIA E GENIO.

July—August, 1917.

TACTICAL USE OF CAPTIVE BALLOONS.

Characteristics of Captive Balloons.—Captive balloons firstly permit of the observing of the ground being superior in elevation to the ordinary terrestrial observers; secondly, there is a permanent telephonic communication between the cars and the earth; thirdly, they can remain from hour to hour in the air in the same position and can be conveyed by carriages to positions more convenient for the observation of determined points of the ground. They may then be used (*a*) as observers for the artillery; (*b*) for tactical observation.

Employment of Captive Balloons for Artillery Observation.—Given the range of modern artillery of medium and large calibre over level and hilly ground observations on the ground are not sufficient for ordinary operations. Captive balloons also have an advantage over aeroplanes

in being able to hold telephonic communication with the artillery command. During the adjustment of the artillery fire they can signal the shots in the target zone, without causing confusion to the shots from other batteries. It is necessary that the observer should know (*a*) the precise position of the pieces that fire; (*b*) the colour of the smoke of the projectiles. After observing the arrival of the shots in the zone of the targets the observer communicates the direction—left, or right—and the range—short, or long—with regard to the line that joins the balloon with the target. It is useful that the commanders of artillery detachments should make ascents in balloons so as to determine the zone assigned to their own guns and to settle the duties for the captive balloons.

Employment of Captive Balloons for Tactical Observations.—Captive balloons can be useful for these in the following cases:—(*a*) To give notice of the movement of troops and transport within the zone of surveillance; (*b*) to individualize batteries and the enemy's guns; (*c*) to signal the nature of the enemy's fortifications including the trenches, barbed wire, new positions, observatories, etc.; (*d*) to observe the direction of the ordinary roads and railways which may not have been marked on the topographical maps, or of those under construction; (*e*) to observe barracks under construction. (*a*). The movements of troops and transport may be inferred from the dust thrown up by the auto-cars; if it is low and persistent it may be argued that it is caused by the movement of troops on foot; if still low and rapid it may be from cavalry or carriages, if high and moving swiftly it may be from automobiles. (*b*). To distinguish separately batteries or the enemy's guns special attention must be paid to the shots on arrival, and to the general direction of the enemy's forces, and the zone from which the fire is directed. When the conditions of visibility are favourable it is possible to discover the flashes from the guns, and with the special knowledge of the ground by the observers they can at once mark the spots on a topographical map and communicate with the ground. (*c*). The observations of the enemy's fortifications should constitute one of the most important duties of captive balloon observers. The observer should follow daily the progress of the enemy's fortifications; the construction of concealed positions and observatories, trenches, barbed wire, and other obstacles; the advance of our troops; the masking of the roads; the explosions of mines that reveal the construction of trenches and roads. All the above should be marked on a topographical map and should be communicated daily to the command of the great unit to which is extended the aerostatic sections. (*d*) (*e*). For observing the roads not yet reported on the maps, and the works in progress for the construction of barracks. For the employment of balloons for tactical observations the approach should be made as near as possible to the enemy's lines with the manœuvring car. The approach should be within a limit of six kilometres, nearer than this it is not possible to remain in observation on account of anti-aerial artillery. The advantages in the case of observing from balloons from a height over aeroplanes are the following:—Firstly, the possibility for the observer to fix his attention continually

on the points of tactical importance, roads, bridges, camps, etc.; secondly, the possibility of signalling immediately to the ground movements of troops and transport, etc., and for directing the artillery fire; thirdly, in localities in which the ground is densely wooded it is not always possible for aeroplanes to discover movements, for on sight of the aeroplane there is generally time to conceal under cover the troops and wagons; with the continual observations that can be made from the stationary balloon on the glades and roads that traverse the localities and ground thickly covered, movements of troops and carriages can be seen which were not revealed to the observers in aeroplanes. To be able to carry out such duties with security it is necessary that the balloon should be escorted and guarded during the manœuvre of approach by one or two aeroplanes which should fly at about 1,000 metres above the balloon. The balloon should rise as high as is compatible with safety from the enemy's artillery—from 1,000 to 2,000 metres.

Rules for the Employment of Captive Balloons.—The Drake balloon of about 1,000 m.—capable of ascending to 2,000 m. may be usefully employed. It should be assigned to a great unit with its balloon section composed of the material and personnel. The personnel for a Drake balloon should be taken (*a*) from the artillery command as observer for artillery; (*b*) from the command of the great unit or tactical observer. The duties of an artillery observer in a Drake balloon are to mark and adjust the ranges in the zone visible from the balloon but not visible to the observers on the ground. It is necessary that the aerostatic station should be connected telephonically with the central telephones of the various groups so as to be able by this means to have direct communication with the commanders of the batteries. In addition to this the artillery commander should assign to the aerostatic station one or more batteries who should adhere to the requirements on the zone in which the observer specially notes movements of troops, or transport, flashes from the enemy's guns which molest the fire from our lines, the construction of fortified works, roads, barracks and manœuvres of the enemy's aerostats on the ground, etc. The commander of the great units, armies, army corps, and divisions should assign to the Drake balloons duties of tactical exploration especially during the devolution of the operations. It is indispensable that the aerostatic sections should be constantly informed on the situation and on the phases of the strife so as to be able to draw useful consequences from their aerial observation and not be under false interpretations. The natural enemies of aerial observation are strong winds;—that is more than 10 metres, or gusts from various directions—electrical discharges, rain and mist. In the employment of balloons, as in all kinds of aerial methods, it should be well considered by the command, whether the risk corresponds with the utility of the operation.

Commanders of aerostatic sections should not be called upon to make ascents in foggy weather, or under unfavourable conditions of visibility, during which the observer is unable to make any useful observations, and the aerostat merely becomes a mark of reference for the enemy.

E. T. THACKERAY.