

shooter's cry of the word "pull" to the opening of the trap and flight of the bird. This is so much the case that not unfrequently the gun is fired solely by calculation of time, and before a sluggish bird has flown. In game-shooting the bird may rise in front or at either side of the shooter, or even behind him. Very rapid lateral movement of the gun may therefore be required, and it appears not only probable in itself but experimentally true that this can best be made by the left arm when it has to describe a circle of the shortest diameter. For this the best and safest position is when the left hand grasps the gun immediately in front of the trigger-guard. In pulling the trigger the finger should be well crooked, so that the pressure may be directly backwards, and no lateral disturbance may interfere with the aim at the most critical moment.

If the eye takes in all the rib of the gun when raised to the shoulder in position for firing, so that the full length of its surface is seen, the stock is too straight. If the rib is not seen at all, the stock is too crooked. When a stock is of the proper curve, the eye will catch the rib about one-third of its length from the muzzle, i.e., all the rib in front of that point will be visible, and all behind it out of sight. A straight stock is, however, preferable to a crooked one, which makes the gun shoot low,—a bad fault. It is of first-rate importance that the delicate lateral setting of the stock, as distinguished from the perpendicular curve, should bring the centre of the rib exactly into the line of sight. This fine desideratum may be arrived at conjointly by the sportsman and the maker of the gun; the latter can be guided by information as to the sportsman's height, length of arm, and breadth of chest. If this point is satisfactory it is immaterial whether a bird flies to the right hand or to the left, and the neglect of it is the reason why some sportsmen are good shots in one only of these directions.

Prefer-
ent of
guns.

In cleaning breechloaders, including the inside of the barrels, neither oil nor water should be used, but solely spirits of turpentine. The gun should never be laid aside on full-cock, as this weakens the mainsprings. As hammerless guns are necessarily on full-cock when taken down, the triggers should be drawn, but with the careful proviso that the points of the hammers strike upon a block of hard wood held firmly in front of them. The lock should never be snapped unless there is a discharged or a "dummy" cartridge in the barrel. No hammer can be made of any metal or form of construction, that will not probably crack if it falls without something in front less trying than the hard and impassive breech. On sea voyages and in damp climates the barrels should be kept from the atmosphere by inserting into them wooden rods covered with woollen cloth, and in such cases the free application of turpentine will be found invaluable. Failing these rods, each end may be closed with wadding or corks. For oiling the locks the finest chronometer oil should be used, and only applied in minute quantities to the points of friction, not over all: oil dries up and if applied copiously frustrates the desired purpose. Raw linseed oil, frequently rubbed into a stock, hardens and preserves it. Explorers and travellers, whose lives may depend on their firearms, may usefully strengthen the weakest part of every gun, the handle of the stock, by wrapping it tightly round with whip-cord.

Shooting Game.—Space forbids entering at length on the modes of shooting the several varieties of game. All that is here possible is briefly to touch upon some of the salient points in the pursuit of the more common varieties.

Rabbits.

Rabbits, on which young sportsmen generally first essay their "prentice hand," dash off for the nearest shelter with great rapidity, and should be instantaneously fired at, the aim being taken slightly in advance. If a rabbit has disappeared among brushwood, it may be not unavailing to fire right in front of the line it was seen to take. In "ferreling" the sportsman should stand clear of the burrow (over which he should never tread), and never fire at a rabbit until it is well away from the "bolt-hole." Hares are less tenacious of life than rabbits, and, as it is an object not to mangle the body and so cause an effusion of blood, the eyes of the sportsman should be fixed solely on the tips of the ears in whatever direction the animal is going, when the shot is instantaneously fatal. A hare coming straight towards a sportsman should not be fired at; he should stand quite motionless until it comes within 30 yards, when on his making a slight sound or movement it will turn aside and give an easy shot. No other direction need be given on this head (save possibly that the shot is more easy when a hare is ascending a ridge across which it may be running than when it is descending from the crown to the furrow), seeing that the one principle of firing solely at the ears involves everything. Roedeer are usually killed with buckshot—although a small rifle is preferable—the "guns" being posted at the likely passes. The neck or shoulder should be fired at. They are easily killed when within fair distance, but are exceedingly clever in keeping out of range and in detecting the presence of the lurking sportsman. They also have the trick, in common with the elephant, of doubling back and passing round any knoll, coming out on its other side and then continuing their intended course. Of this instinctive habit the sportsman should avail himself.

Hares.

Success in grouse-shooting, probably the finest of all sports from

every point of view, depends mainly on vigilance and careful attention to the movements of the dogs, and following them well up as soon as there are indications of game being in front. Save that a cunning old cock will after rising immediately dip down to nearly the level of the heather and go off with wondrously baffling speed, there is no peculiarity in the flight of grouse calling for special remark. Like partridges, they generally fly straight and nearly horizontally. As the season advances, their wariness and the matured strength of the young birds make their pursuit more difficult, but otherwise they afford fair shots. "Driving" is now quite a recognized branch of grouse-shooting. The "guns" being posted in artificial places of concealment in the line of flight known to be usually taken by the birds on being disturbed by beaters, the shots are taken as the birds are coming overhead. Their speed is so great that it is needless to fire if they have once passed the shooter, seeing that the aim must be taken some feet in front.¹

It has been found useful for the sportsman to crouch without motion until the birds are coming within distance, when, suddenly showing himself, they are startled and throw their heads up, thus breaking their flight and giving the gun a fair chance. Perhaps the easiest and most fatal shots are at single birds coming straight towards the sportsman, taken at about 30 yards. The aim should be high, and it is aided by the recoil of a gun when fired, which throws the muzzle up in the line of flight. The pellets also strike the head and neck, and with such force that, when meeting the bird, No. 7 shot is most deadly when so discharged. The recoil of a gun when fired "high" is also useful in shooting with a rifle any large bird passing overhead; the shooter should face the bird. Driving is severe work if thoroughly carried out, as the sportsmen, as soon as one beat is over, have to find their way rapidly to the next position. It is therefore not an effeminate sport, and it probably indirectly maintains the number of the stock-birds by killing off the old leading cocks (which virtually are vermin). Setters are the proper dogs for grouse-shooting, their hairy feet being well protected from the heather; hence to maintain vigour they require to drink water frequently and even to squat in shallow pools. Pointers are preferable for dry moors, particularly in hot weather.

Partridge-shooting is akin to grouse-shooting in respect of the Par- mode of pursuit, the difference lying in its being carried on mostly tridgea upon cultivated or enclosed land. Both in partridge-shooting and in grouse-shooting one bird only ought to be singled out and shot at; no success will follow firing into the "brown" of a covey. Old sportsmen regret that shooting over dogs (pointers being preferable to the swifter and more dashing setters) is going out of practice; but the close cutting of the grain crops now in vogue leaves so little stubble that the approach of the dogs is seen by the birds, which, generally rising wild, afford few "shots to points." Hence the system of sportsmen walking in line (with no dogs save retrievers) and taking what birds rise before them, and so driving them into turnips or other covert, or of having them "driven" by beaters, is almost enforced. When driven into such coverts the birds are apt to run before the shooters and take their flight from the far end of the field. This may be prevented by the sportsman not advancing directly, but in a series of circuits; then the birds, becoming uncertain as to which way they should run, sit close and only rise on his very near approach. Of course this excellent but almost unknown system can only be well carried out by a single shooter, or by two at the most. In "driving" the "guns" are posted in a line at some distance from each other, under the concealment of a hedge some 20 yards in their front. Towards this the beaters (with a fagman on horseback, if necessary) drive the birds. The shots are generally very difficult, the birds flying with remarkable speed, and the shooter being also often bewildered by the number of smaller birds, such as the various kinds of thrushes, which precede or accompany the partridges; their sudden appearance on coming over the hedge is also trying, whereas the approach of grouse can be seen. These two systems—"driving" and the circular progression in covert—are of recent introduction. The former has developed greater skill in shooting.

The art of shooting pheasants depends upon the fact that, unlike partridges or grouse, the birds generally steadily ascend in their flight; hence the tendency is to shoot under them. This upward flight is greatest in coverts, until it sometimes becomes almost perpendicular, birds rising in this way being called "rocketers." The inexperienced shooter is also misled by the manner in which the tail is spread out like a fan, concealing the body, and thus diverting the aim from the body upon the tail feathers. To aim high, therefore, is the golden rule. The shooter should face birds which fly rapidly overhead, in the way described above.

To kill snipe well one must hunt down the wind—an exceptional practice—and on the bird rising fire at once, or, failing that, give it time to change its few preliminary zigzag motions into a steady flight.

¹ A carrier pigeon can fly a little over 4 miles 5 furlongs in four minutes,—an average of nearly 102 feet a second. Assuming the distance to be 40 yards (a long shot), the aim taken at a bird flying across the shooter at that speed should be more than 5 feet in advance, the flight of the shot to a distance of 40 yards requiring one-nineteenth of a second.

As the least touch of shot brings a snipe down, it is very unlikely to have passed out of range before the direct line of flight is assumed. This is the only sport followed on land "down wind." Shot No. 9 or 10 should be used.

Although greatly different in character, black-game and woodcock may be well coupled together as being eccentric in their movements. The former are most easily shot very early in the season, especially over a steady old pointer, when the broods are yet on the more open ground, under the maternal charge, like so many domestic chickens; but, when they have broken up the family ties, congregated, and betaken themselves to the coppices, they become so irregular in their habits and uncertain in their mode of taking flight that no exact rules can be laid down for their pursuit. The sportsman, using one steady old pointer and a retriever, had best be guided by an experienced attendant, who should take care to beat out any bird lurking in a thick bush from the opposite side and towards the gun. A few shots may also be got at the dawn of day on the edges of stubble-fields; but black-game shooting is generally disappointing. The female birds, "grey hens," are not shot at; the young males, which greatly resemble them, are distinguished from them by the white feathers in the tail. A solitary blackcock may often be seen to take up a prominent position, usually in the centre of one of the small fields to be found on the side of hilly ground, where he maintains a vigilant watch. With some experience in shooting matters, the present writer knows no pursuit more interesting and invigorating than stalking such a bird: without causing undue fatigue, it exercises one's patience, vigilance, and coolness of nerve. Shot for this purpose should not be of a smaller size than No. 4. Woodcock newly arrived may be readily killed, especially near the sea-coast. After recruiting, they frequently betake themselves to heathery moors if there are such near at hand, where they frequent the sides of rivulets and gorges. There they may be readily brought down; but in woods they have a knack of twisting, as it were, round the younger trees, in the branches of which they are mostly found, and so disconcert the aim. Being of nocturnal habits, their eyes are weak in the full glare of day, and they are fond of the sheltering shade of thickly foliaged trees, such as the holly. The only advice that can be given on this sport is to risk the shot at the merest glimpse of the bird through the branches, and trust to the spread of the pellets to kill, for the woodcock, like its congener the snipe, will fall with a touch, and even (apparently) through mere fright on being fired at, without being touched at all. The best shot to use is No. 8.

Ammu-
nition.

Ammunition.—In former times sportsmen carefully adjusted their charges of powder and shot to suit the weather (which affected the strength of the former) and the sport in hand. Now, almost everything is left to the purveyor of cartridges, which are usually charged on average proportions. The sportsman should be careful, therefore, to ascertain the charge best suited to his weapon, and to have his cartridges so loaded. When a gun recoils the charge of shot—not of powder, as is generally supposed—should be reduced; and it is always safer to use a light charge of shot. Breechloaders require large-grained powder, Messrs Curtis & Harvey's No. 6 being the typical size. Pyroxyline explosives, of which Schultze powder¹ is the normal type, are now largely used, especially in the first barrel, the other being charged with black powder. For almost all regular sport No. 6 shot is the best size; and it is better to use No. 7 in a smaller quantity than No. 5 for grouse and partridges. For pheasants and black game use No. 5, but of 1½ oz. in weight, with a somewhat reduced charge of powder. One oz. or at most 1½ oz. of No. 6 is ample; the former will travel with marvellous and far-reaching velocity. Any excess of shot merely falls to the ground, as may be seen by firing over a sheet of smooth water. For duck-shooting (for which the barrels should be of "10" gauge and 32 inches long) No. 4 shot is a good size; and for this sport it is well to reduce the weight of the shot and increase very considerably that of the powder, velocity being everything.

Rifle-
shooting.

Rifle-shooting.—The propriety of shooting with both eyes open is, if possible, more imperative in rifle-shooting than in shooting game, if rapidity is valued, as it must be. Firearms immediately followed the long bow and the cross-bow, and it has never been supposed that the archer discharged these with one eye closed. With both eyes open the "back sight" virtually becomes transparent, and forms no obstacle to the aim, while with one eye closed it certainly does, for, as the head and eyes must be kept fairly up in firing a shot gun, they must be kept well down in firing a rifle. The "express" rifle is the *chef-d'œuvre* of modern weapons, and when properly made will throw its bullet up to 200 yards without perceptible curve from one sight. This result is attained mostly by

¹ This explosive is the invention of Colonel J. F. E. Schultze, of the Prussian artillery service, and was introduced about 1866 into the United Kingdom by Mr J. D. Dougal. It is now being manufactured in Great Britain as well as on the Continent. The advantages claimed for it are that it does not require any special loading, such as hard ramming, there is a smaller recoil than with black gunpowder, and it has great propulsive power, with little or no flogging of the firearm.

an inordinately large charge of powder to a light and partly hollow bullet (see GUNMAKING, vol. xi, p. 282). The "pull" on the trigger should rather be a pinch than a direct backward pull, i.e., the trigger should be pinched between the forefinger and the thumb, which grasps the handle of the stock. If the sportsman has the presence of mind to inflate his chest with a long inhalation he will shoot all the better. There is a popular opinion that a single-barrelled "express" shoots more truly than a double-barrelled one. This is quite a mistake, unless the barrel of the former is made so thick and heavy at the muzzle (to prevent the metal quivering when the bullet leaves it) as to destroy the balance. In double-barrelled rifles the one barrel braces up the other, and they are also so adjusted as to shoot parallel. This common error has probably arisen from confounding "express" with long-range match rifles, which are quite another thing. The .450 calibre is best adapted for deer and antelopes, .500 for mixed shooting, and .577 for dangerous animals. But for these and the great pachyderms a "12" gauge, throwing an explosive shell, is the most effective of all firearms, the larger "area" of the wound telling at once.

All really useful information on the subject of shooting is contained in J. D. Dougal's *Shooting, its Appliances, &c.* (London, 2d ed. 1881); General W. N. Hutchinson's *Dog-breaking* (London, 1876); and W. Scrope's *Deer-stalking* (London, 1846).

SHORE, JANE, mistress of King Edward IV., would have been unknown by name even to the studious antiquary but for the events which took place after the death of her royal paramour. She was the first of three concubines whom he described respectively as the merriest, the wildest, and the holiest harlot in his realm. A handsome woman of moderate stature, round face, and fair complexion, she was more captivating by her wit and conversation than by her beauty; yet Sir Thomas More, writing when she was still alive, but old, lean, and withered, declares that even then an attentive observer might have discerned in her shrivelled countenance some traces of its lost charms. She was born in London, and married before she was quite out of girlhood to a citizen named William Shore, who, though young, handsome, and well-to-do, never really won her affections; and thus she yielded the more readily to the solicitations of King Edward. Her husband on this abandoned her, and after Edward's death she became the mistress of Lord Hastings, whom Richard III., then duke of Gloucester, as protector during the minority of Edward V., suddenly ordered to be beheaded on 13th June 1483. According to the report given by More, Richard had accused Hastings at the council table of conspiring against him along with the queen-dowager and Shore's wife, who by sorcery and witchcraft had given him a withered arm. So having got rid of Hastings he caused Jane Shore to be committed to prison and spoiled her house, containing property to the value of 2000 or 3000 marks, equivalent to a sum of £20,000 or £30,000 at the present day. But having sought in the first place to charge her with conspiracy—a charge which apparently he could not substantiate—he thought better afterwards to get the bishop of London to put her to open penance at Paul's Cross for her vicious life. She accordingly went in her kirtle through the streets one Sunday with a taper in her hand, her beauty really enhanced by the blush which her humiliation called up in her usually pale cheeks; and many who detested her mode of life could not but pity her as the victim of a hypocritical tyranny. The penance certainly did not induce her to reform, for she immediately afterwards became the mistress of the marquis of Dorset; and, what is still more extraordinary, next year, having been taken again into custody, and her husband, it may be presumed, being by that time dead, she so captivated the king's solicitor, Thomas Lyncom, that he actually entered into a contract of marriage with her. This we know from a letter of King Richard to his chancellor on the occasion, desiring him to dissuade Lyncom from the match, as far as he could, by argument, but, if he found him determined, then, provided it was not against the laws of the church, he might convey the king's consent and meanwhile deliver Jane out of prison to her father's custody. Conduct so

unlike his previous severity shows that Richard knew how to be gracious as well as despotic. Whether the marriage actually took place is not known. Jane certainly lived to the year 1513, when More wrote his history of Richard III., but how much later we cannot tell.

SHORTHAND, or STENOGRAPHY, TACHYGRAPHY, &c., is a term applied to all systems of brief handwriting which are intended to enable a person to write legibly at the rate of speech. (For the ancient Latin and Greek tachygraphy, see the last part of the article on **PALÆOGRAPHY**.) In the 10th century all practical acquaintance with the shorthand systems of Greece and Rome faded completely away, and not till the beginning of the 17th can the art be said to have revived. But even during that interval systems of writing seem to have been practised which for speed approximated to modern shorthand.¹

Shorthand in English-speaking Countries.—England was the birthplace of modern shorthand, and at the present time there is no country in Europe, except perhaps Germany and German Switzerland, where the art is so extensively practised as in England. The first impulse to its cultivation may possibly be traced to the Reformation. When the principles of that movement were being promulgated from the pulpit, a desire to preserve the discourses of the preacher naturally suggested the idea of accelerated writing. It is certainly striking that in the early systems so many brief arbitrary signs are provided to denote phrases common in the New Testament and Protestant theology. Up to the present time (1886) not less than 483 professedly distinct systems of English shorthand have been published, and doubtless many more have been invented for private use. It is impossible here to notice even by name more than a very few of them. Indeed, if we reject all those systems which are imitations or reproductions of earlier ones, and systems which are so unpractical as to be little better than elegant toys, and a multitude of utterly worthless catchpenny publications, only a few remain. In Dr Timothy Bright's *Characterie* (1588) and Peter Bales's *Arte of Brachygraphie*, contained in his *Writing Schoolemaster* (1590), almost every word in the language is provided with an arbitrary sign. Only with gigantic memory and by unremitting labour could one acquire a practical knowledge of such methods. The first shorthand system worthy of the name which, so far as is known, appeared in England is that of John Willis, whose *Art of Stenographie* (London, 13 editions⁴ from 1602 to

1644) is substantially based on the common alphabet; but the clumsiness of his alphabetic signs, and the confused laborious contrivances by which he denotes prefixes and terminations, involving the continual lifting of the pen, would seem to render his method almost as slow as long-hand. Of the 201 systems which intervene between J. Willis's and Isaac Pitman's phonography (1837) nearly all are based, like Willis's, on the alphabet, and may be called a, b, c systems. But seven are, like phonography, strictly phonetic, viz., those by Tiffin (1750), Lyle (1762), Holdsworth and Aldridge (1766), Roe (1802), Phineas Bailey (1819), Towndrow (1831), and De Stains (1839). Of the 281 systems which have appeared since phonography a very large proportion are merely imitations of that system, or proceed on the same lines.

A few general remarks apply largely to all the a, b, c systems. Each letter is designated by a straight line or curve (vertical, horizontal, or sloping), sometimes with the addition of a hook or loop. *C* and *q* are rejected, *k* being substituted for hard *c* and *g*, *s* for soft *c*. Signs are provided for *ch*, *sh*, *th*. *G* and *j* are classed under one sign, because in some words *g* is pronounced as *j*, as in *giant*, *gem*. Similarly each of the pairs *f*, *v* and *s*, *z* has only one sign. A few authors make the signs for *j*, *v*, *z* heavier than those for *g*, *f*, *s*. Some class *p* and *b*, *t* and *d*, each under one sign. The stenographic alphabet is therefore—*a*, *b*, *d*, *e*, *f* (*v*), *g* (*j*), *h*, *i*, *k*, *l*, *m*, *n*, *o*, *p*, *r*, *s* (*z*), *t*, *u*, *w*, *x*, *y*, *ch*, *sh*, *th*. Letters which are not sounded may be omitted. *Gh*, *ph* may be counted as *f* in such words as *cough*, *Philip*; but the *th* in *thing* is never distinguished from the *th* in *them*. Thus the a, b, c systems are largely phonetic with respect to consonant-sounds; it is rather with regard to the vowels that they disregard the phonetic principle. No attempt is made to provide adequately for the many vowel-sounds of the language. Thus the signs for *like* and *lick*, for *rate* and *rat*, &c., are the same. In the case of vowel-sounds denoted by two letters, that vowel is to be written which best represents the sound. Thus in *meat* the *e* is selected, but in *great* the *a*. In some a, b, c systems, including the best of them (Taylor's), a dot placed anywhere does duty for all the vowels. This practice is, of course, a fruitful source of error, for *pauper* and *paper*, *gas* and *goose*, and hundreds of other pairs of words would according to this plan be written alike. In the early systems of Willis and his imitators the vowels are mostly written either by joined characters or by lifting the pen and writing the next consonant in a certain position with respect to the preceding one. Both these plans are bad; for lifting the pen involves expenditure of time, and vowels expressed by joined signs and not by marks external to the word cannot be omitted, as is often necessary in swift writing, without changing the general appearance of the word and forcing the eye and the hand to accustom themselves to two sets of outlines, vocalized and unvocalized. In the better a, b, c systems the alphabetic signs, besides combining to denote words, may also stand alone to designate certain short common words, prefixes, and suffixes. Thus in Harding's edition of Taylor's system the sign for *d*, when written alone, denotes *do*, *did*, the prefixes *de*, *des*, and the terminations *-dom*, *-end*, *-ened*, *-ed*. This is a good practice if the words are well chosen and precautions taken to avoid ambiguities. Numbers of symbolical signs and rough word-pictures, and even wholly arbitrary marks, are employed to denote words and entire phrases. Symbolical or pictorial signs, if sufficiently suggestive and not very numerous, may be effective; but the use of "arbitraries" is objectionable because they are so difficult to remember. In many shorthand books

Stenographie . . . wheremto is annexed a very easie Direction for Steganographie, or Secret Writing, printed at London in 1602 for Cuthbert Burbie. The only known copy is in the Bodleian Library.

the student is recommended to form additional ones for himself, and so of course make his writing illegible to others. The *raison d'être* of such signs is not far to seek. The proper shorthand signs for many common words were so clumsy or ambiguous that this method was resorted to in order to provide them with clearer and easier outlines. For the purpose of verbatim reporting the student is recommended to omit as a rule all vowels, and decipher his writing with the aid of the context. But, when vowels are omitted, hundreds of pairs of words having the same consonant skeleton (such as *minister* and *monastery*, *frontier* and *furniture*, *libel* and *label*) are written exactly alike. This is one of the gravest defects of the a, b, c systems.

John Willis's system was largely imitated but hardly improved by Edmond Willis (1618), T. Shelton (1620), Witt (1630), Dix (1633), Mawd (1635), and Theophilus Metcalfe (1635). T. Shelton's system, republished a great many times down to 1687, was the one which Samuel Pepys used in writing his diary.¹ It was adapted to German, Dutch, and Latin.² An advertisement of Shelton's work in the *Mercurius Politicus* of 3d October 1650 is one of the earliest business advertisements known. The book of Psalms in metre (206 pages, 2 $\frac{3}{8}$ × 1 $\frac{1}{2}$ inches) was engraved according to Shelton's system by Thomas Cross. Metcalfe's *Radio-Stenography, or Short-Writing*, was republished again and again for about a hundred years. The 35th "edition" is dated 1693, and a 55th is known to exist. The inefficiency of the early systems seems to have brought the art into some contempt. Thus Thomas Heywood, a contemporary of Shakespeare, says in a prologue³ that his play of *Queen Elizabeth*

"Did throng the seats, the boxes, and the stage
So much that some by stenography drew
A plot, put it in print, scarce one word true."

Shakespeare critics would in this manner explain the badness of the text in the earliest editions of *Hamlet*, *Romeo and Juliet*, *Taming of the Shrew*, *Merry Wives of Windsor*, and *Henry V.* Perhaps a study of J. Willis's system and of E. Willis's (which, though not published till after Shakespeare's death, was practised long before) may shed light on corrupt readings of the text of these plays.⁴ Rich's system (1646, 20th edition 1792) was reproduced with slight alterations by many other persons, including W. Addy, Stringer, and Dr Philip Doddridge (1799 and three times since). The New Testament and Psalms were engraved in Rich's characters (1659, 596 pages, 2 $\frac{1}{2}$ × 1 $\frac{1}{2}$ inches, 2 vols.), and Addy brought out the whole Bible engraved in shorthand⁵ (London, 1687, 396 pp.). Locke, in his *Treatise on Education*, recommends Rich's system; but it is encumbered with more than 300 symbolical and arbitrary signs. In 1847 it was still used by Mr Plowman, a most accomplished Oxford reporter.

In 1672 William Mason, the best shorthand author of the 17th century, published his *Pen pluck'd from an Eagle's Wing*. The alphabet was largely taken from Rich's. But in his *Art's Advancement* (1682) only six of Rich's letters are retained, and in his *Plume Volante* (1707) further changes are made. Initial vowels are written by their alphabetic signs, final vowels by dots in certain positions (*a*, *e* at the beginning; *i*, *y* at the middle; *o*, *u* at the end), and medial vowels by lifting the pen and writing the next consonant in those same three positions with respect to the preceding one. Mason employed 423 symbols and

¹ See a paper by J. E. Bailey, "On the Cipher of Pepys' Diary," in *Papers of the Manchester Literary Club*, vol. ii. (1876).

² See Zeibig's *Gesch. u. Lit. d. Geschwindschreibkunst*, p. 195.

³ *Pleasant Dialogues and Drammas* (London, 1637), p. 249.

⁴ See M. Levy's *Shakespeare and Shorthand* (London), and *Phonetic Journal*, 1885, p. 34.

⁵ This curiosity is described in the *Phonetic Journal*, 1885, pp. 158, 196. The Bodleian Library has a copy.

arbitraries. He was the first to discover the value of a small circle for *s* in addition to its proper alphabetic sign. Mason's system was republished by Thomas Gurney in 1740, a circumstance which has perpetuated its use to the present day, for in 1737 Gurney was appointed shorthand-writer to the Old Bailey, and early in the 19th century W. B. Gurney was appointed shorthand-writer to both Houses of Parliament. Gurney reduced Mason's arbitraries to about a hundred, inventing a few specially suitable for parliamentary reporting. The Gurneys were excellent writers of a cumbrous system. Thomas Gurney's *Brachygraphy* passed through at least eighteen editions, but the sale of the book has now almost ceased.

In 1767 was published at Manchester a work by John Byrom, sometime fellow of Trinity College, Cambridge, entitled *The Universal English Shorthand*, distinguished for its precision, elegance, and systematic construction. Byrom had died in 1763. Having lost his fellowship by failing to take orders, he made a living by teaching shorthand in London and Manchester, and among his pupils were Horace Walpole, Lord Conway, Charles Wesley, Lord Chesterfield, the duke of Devonshire, and Lord Camden. Shorthand, it is said, procured him admission to the Royal Society. He founded a stenographic club, to the proceedings of which his journal,⁶ written in shorthand, is largely devoted. In the strangers' gallery of the House of Commons in 1728 Byrom dared to write shorthand from Sir R. Walpole and others. In 1731, when called upon to give evidence before a parliamentary committee, he took shorthand notes, and, complaints being made, he said that if those attacks on the liberties of shorthand men went on he "must have a petition from all counties where our disciples dwell, and Manchester must lead the way." Thomas Molyneux popularized the system by publishing seven cheap editions between 1793 and 1825. Modifications of Byrom's system were issued by Palmer (1774), Nightingale (1811), Adams (1814), Longmans (1816), Gawtress (1819), Kelly (1820), Jones (1832), and Roffe (1833). Byrom's method received the distinction of a special Act of Parliament for its protection (15 Geo. II. c. 23, for twenty-one years from 24th June 1742). To secure lineality in the writing and facility in consonantal joinings he provided two forms for *b*, *h*, *j*, *w*, *x*, *sh*, *th*, and three for *l*. *A*, *e*, *i*, *o*, *u*, he represented by a dot in five positions with respect to a consonant. Practically it is impossible to observe more than three (beginning, middle, and end). With all its merits, the system lacks rapidity, the continual recurrence of the loop seriously retarding the pen.

In 1786 was published *An Essay intended to establish a Taylor Standard for a Universal System of Stenography*, by Samuel Taylor (London). This system did more than any of its predecessors to establish the art in England and abroad. Equal to Byrom's in brevity, it is simpler in construction. No letter has more than one sign, except *w*, which has two. Considering that five vowel places about a consonant were too many, Taylor went to the other extreme and expressed all the vowels alike by a dot placed in any position. He directs that vowels are not to be expressed except when they sound strong at the beginning and end of a word. Arbitraries he discarded altogether; but Harding, who re-edited his system in 1823, introduced a few. Each letter when standing alone represents two or three common short words, prefixes and suffixes. But the list was badly chosen: thus *m* represents *my* and *many*, both of them adjectives, and therefore liable to be confounded in many sentences. To denote *in* and *on* by the same sign is evidently absurd. Taylor's system was republished again and again. The

⁶ Byrom's private journal and literary remains have been published by the Chatham Society of Manchester. See, too, a paper by J. E. Bailey in the *Phonetic Journal*, 1875, pp. 109, 121.

¹ For instances, see Zeibig's *Geschichte u. Lit. der Geschwindschreibkunst* (Dresden, 1878), pp. 67-79. For John of Tilbury's system (c. 1175), see especially *Shorthand*, No. 5, and *Hermes*, viii. p. 303.

² The Bodleian Library contains the only known copy of Bright's book. For a description of the system, see *Phonetic Journal*, 1884, p. 86; *Circulars of Information of the Bureau of Education* (Washington), No. 2, 1884, p. 8; and *Notes and Queries*, 2d ser., vol. ii. p. 394. *A* is represented by a straight line, the other letters of the alphabet by a straight line with a hook, circle, or tick added at the beginning. Each alphabetic sign placed in various positions, and having some additional mark at the end, was used to indicate arbitrarily chosen words beginning with *a*, *b*, *c*, *d*, &c. There were four slopes given to each letter and twelve ways of varying the base, so that forty-eight words could be written under each letter of the alphabet if necessary. Thus the sign for *b* with different terminal marks and written in four different directions signified a number of words commencing with *b*; 537 such signs had to be learned by heart. By adding certain external marks these signs were applied to other words: thus by writing a dot in one of two positions with respect to a sign the latter was made to represent either a synonym or a word of opposite meaning. Under *air* are given as synonyms *breath*, *exhalation*, *mist*, *reek*, *steam*, *vapour*. The best account of Bright is given in the *Dictionary of National Biography*, vol. vi. (1886).

³ Bales's method was to group the words in dozens, each dozen headed by a Roman letter, with certain commas, periods, and other marks to be placed about each letter in their appropriate situations, so as to distinguish the words from each other. For an account of Bales, see Wood's *Athen. Ozon.*, vol. i. col. 655, and the *Dict. of Nat. Biog.*, vol. iii. (1885).

⁴ The first edition, published anonymously, is entitled *The Art of*

latest editions are those of J. H. Cooke (London, 1865) and A. Janes (London, 1882). In Harding's edition (1823 and at least twelve times since) the vowels are written on an improved plan, the dot in three positions representing *a*, *e*, *i*, and a tick in two positions *o*, *u*. Several other persons brought out Taylor's system, in particular G. Odell, whose book was re-edited or reprinted not less than sixty-four times, the later republications appearing at New York. The excellence of Taylor's method was recognized on the Continent: the system came into use in France, Italy, Holland, Sweden, Germany, Portugal, Roumania, Hungary, &c. In England at the present day no method excepting Pitman's phonography is more popular than Taylor's, although the systems which have appeared since Taylor's are far more numerous than those which preceded it.

The *Universal Stenography* of William Mavor (1780 and nine times since) is a very neat system, and differs from Taylor's in the alphabet and in a more definite method of marking the vowels. *A*, *e*, *i*, are indicated by commas, *o*, *u*, *y*, by dots, in three places with respect to a letter, namely beginning, middle, and end. Other systems by J. H. Lewis (1812) and Moat (1833) are still used to a small extent.

The vast mass of a, b, c systems are strikingly devoid of originality, and are mostly imitations of the few that have been mentioned. Nearly all may be briefly described as consisting of an alphabet, a list of common words, prefixes and suffixes expressed by single letters, a list of arbitrary and symbolical signs, a table showing the best way of joining any two letters, a few general rules for writing, and a specimen plate.¹

Pitman's phonography.

Pitman's phonography, on account of its enormous diffusion in Great Britain and the colonies, and in America, its highly organized and original construction, and its many inherent advantages, merits a more extended notice than has been given to the systems already mentioned. In 1837 Isaac Pitman, then teacher of a British school at Wotton-under-Edge and an excellent writer of Taylor's system, composed at the invitation of Samuel Bagster a short stenographic treatise of his own, which Bagster published under the title of *Stenographic Sound-Hand*. The price was fixed at fourpence, for the author had determined to place shorthand within the reach of everybody. He had won the friendship of the Bible publisher by voluntarily verifying the half a million references in the *Comprehensive Bible*, and Mr Bagster for nine years published Mr Pitman's shorthand books. In 1840 a second edition appeared in the form of a penny plate bearing the title *Phonography*, the principal feature of the system being that it was constructed on a purely phonetic basis. The name of Bagster helped the enterprise, and the author was indefatigable in spreading the knowledge of his system by lectures and gratuitous teaching through the penny post, then just established. In December 1841 the first number of what is now known as the *Phonetic Journal* appeared at Manchester in a lithographed form. It was then called the *Phonographic Journal*, and subsequently in turn the *Phonotypic Journal*, the *Phonetic News*, and the *Phonetic Journal*. The chief instruction books issued by the author at the present time from his press at the Phonetic Institute, Bath, are the *Phonographic Teacher*, a little sixpenny book for beginners, of which 1,030,000 copies have been published; the *Manual of Phonography* (470th thousand), in which the art is sufficiently developed for the purpose of correspondence, private memoranda, and easy reporting; and the *Phonographic Reporter* (133d thousand). The weekly circulation of the *Phonetic Journal* is about 20,000 copies. A part of it is printed in the

¹ For early English systems, see especially some careful papers by Mr A. Paterson in *Phonetic Journal* (1886).

phonographic character from movable types. The system has been warmly taken up in America, where it has been republished in more or less altered forms, especially by the author's brother Benn Pitman, and by Messrs A. J. Graham, J. E. Munson, E. Longley, and Eliza B. Burns. A large number of periodicals lithographed in phonography are published in England and America. The *Shorthand Magazine*, monthly, has existed since 1864. Of standard English books printed or lithographed in phonography may be mentioned, besides the Bible, New Testament, and Prayer Book, *The Pilgrim's Progress*, *The Vicar of Wakefield*, *Pickwick Papers*, *Tom Brown's School-Days*, *Macaulay's Essays* and *Biographies*, *Gulliver's Travels*, *Blackie's Self-culture*, *Bacon's Essays*, and a long list of tales and selections. Numerous societies have been formed in all English-speaking countries for the dissemination of phonography. The largest is the Phonetic Society with 3350 members, who have all certificates of a knowledge of the art and engage to teach through the post gratuitously. Most important towns in the United Kingdom have a phonographic association. London has three. Phonography has been adapted to several foreign languages, but not so successfully as Gabelsberger's German system. Mr T. A. Reed's *French Phonography* (1882) is intended only for English phonographers who wish to report French speeches. Other adaptations to French are by A. J. Lawson and J. R. Bruce. A society for the adaptation of phonography to Italian was organized at Rome in 1883 by G. Francini, who has published his results (Rome, 1883, 1886). Phonography adapted to Spanish by Parody (Buenos Ayres, 1864) is practised by half the stenographers employed in the senate and chamber at Buenos Ayres. It has been adapted to Welsh by R. H. Morgan (Wrexham, 1876), and to German by C. L. Driesslein (Chicago, 1884). Phonography is steadily driving all other English systems out of the field. Mr T. A. Reed stated in the *Phonetic Journal*, 1883, p. 62, that of the 61 writers employed by the *Times*, *Standard*, *Telegraph*, *Morning Post*, and the Press Association 31 were using phonography, 18 Taylor's, 5 Gurney's (i.e., Mason's), 4 Lewis's, and 3 other systems; of the 67 members composing the Institute of Shorthand Writers, chiefly practitioners in the law courts, 26 were using phonography, 29 Taylor's, 7 Gurney's (i.e., Mason's), 3 Mavor's, and 2 Lewis's; while of the 80 members of the London Shorthand Writers' Association, chiefly employed in business offices, at least five-sixths were phonographers. According to a recent (1882) history of shorthand, of 291 professional stenographers in London 134 used phonography, 89 Taylor's, 35 Gurney's, 8 Lewis's, 8 Mavor's, and 17 other systems (Byrom's, Graham's, Moat's, &c.).

The main features of Pitman's system must now be described. Pitman's system. The alphabet of consonant-sounds is—*p*, *b*; *t*, *d*; *ch* (as in *chip*); *f*; *g* (as in *gay*); *v*; *th* (as in *thing*); *dh* (as in *them*); *s*, *z*; *sh*, *zh* (as in *vision*); *m*, *n*, *ng* (as in *thing*); *l*, *r*; *w*, *y*, *h*. The sounds *p*, *t*, *ch*, *k* are represented respectively by the four straight strokes ; and the corresponding voiced sounds *b*, *d*, *g*, *gh* by exactly the same signs respectively written heavy. *F*, *th* (as in *thing*), *s*, *sh* are indicated by respectively; the same signs written heavy and tapering to the ends are used for *v*, *dh*, *z*, *zh* respectively. *M*, *n*, *l*, *r* are denoted by respectively. *R* is also represented by written upwards and in a more slanting direction than the sign for *ch*. The signs for *sh* and *l* may be written up or down when in combination, but standing alone *sh* is written downwards and *l* upwards. The signs for *w*, *y*, *h* are all written upwards. *H* has also down. *Ng*, *mp* (or *mb*), *rch* (or *rf*), *lr*, are represented by the signs for *n*, *m*, *r*, *l* respectively written heavy. Signs are provided for the Scotch guttural *ch* (as in *loch*), the Welsh *ll*, and the French nasal *n*. *S* is generally written by a small circle. The long-vowel sounds are thus classified—*a* (as in *ball*), *ā* (as in *bat*), *ee* (as in *feet*), *aw* (as in *law*), *ō* (as in *coal*), *ōō* (as in *boat*). The vowels *ā*, *ē*, *ē* are marked by a heavy dot placed respectively at the beginning, middle, and end of a consonant.

sign; *aw*, *ō*, *ōō* by a heavy dash in the same three positions, and generally struck at right angles to the direction of the consonant. The short vowels are *ū* (as in *put*), *ē* (as in *pet*), *i* (as in *pit*), *ō* (as in *pot*), *ū* (as in *but*), and *ōō* (as in *put*). The signs for these are the same as for the corresponding long vowels just enumerated, except that they are written light. Signs similarly placed are provided for the diphthongs *oi* (as in *boil*), *ōi* or *ōē*, *ōi* (as in *Boanerges*, *poet*, *coincide*), for the series *yā*, *yē*, *yee*, &c., and for the series *wā*, *wē*, *wee*, &c. The signs for *ei* (as in *bite*) and *ou* (as in *cow*) are and may be placed in any position with respect to a consonant. A straight line may receive four hooks, one at each side of the beginning and end, but a curve only two, one at each end in the direction of the curve. Hooks applied to a straight line indicate the addition of *r*, *l*, *n*, and *f* or *v* respectively, thus—. Hooks applied to a curve denote the addition of *r*, *n* respectively, thus—. Vowel-signs placed after (or, in the case of horizontal strokes, under) a consonant having the *n* or *f*, *v* hook are read between the consonant and the *n* or *f*; thus *cough*, *fun*, but *crow*, *pray*. A large hook at the commencement of a curve signifies the addition of *l*, as . The hooks combine easily with the circle *s*, thus— (where the hook *r* is implied or included in the circle), (the hook *n* being included), &c. The halving principle is one of the happiest devices in the whole history of shorthand. The halving of a light stroke—that is, writing it half length—implies the addition of *l*; the halving of a heavy stroke that of *d*, the vowel placed after (or under) the halved stroke being read between the consonant and the added *t* or *d*, thus—. By this means very brief signs are provided for hosts of syllables ending in *t* and *d*, and for a number of verbal forms ending in *ed*, thus—*ended*. The halving of a heavy stroke may, if necessary, add *t*, and that of a light stroke *d*, thus—*beautify*. By combining the hook, the circle, and the halving principle, two or three together, exceedingly brief signs are obtained for a number of consonantal series consisting of the combination of a consonant with one or more of the sounds *s*, *r*, *l*, *n*, *f*, *t*, thus—. This distinction limits the number of possible readings of an unvocalized outline. A large hook at the end of a stroke indicates the addition of *-sion* (as in *fashion*, *action*, &c.). This hook easily combines with the circle *s*, as in *actions*, *positions*. The circle *s* made large indicates *ss* or *sz*, as in *pieces*, *losses*. The vowel between *s* and *z* may be marked inside the circle, as in *exercise*, *subsistence*. The circle *s* lengthened to a loop signifies *st*, as in *step*, *post*, while a longer loop indicates *str*, as in *minster*, *minister*. The loop may be continued through the consonantal stroke and terminate in a circle to denote *sts* and *strs*, as in *boasts*, *minsters*. The loop written on the left or lower side of a straight stroke implies the *n* hook and so signifies *nst*, as in *against*, *danced*. A curve (or a straight stroke with a final hook) written double length implies the addition of *tr*, *dr*, or *thr*, as in *father*, *letter*, *kinder*, *fender*, *render*. This practice is quite safe in the case of curves, but a straight stroke should not be lengthened in this way when there is danger of reading it as a double letter. The lineal consonant-signs may stand alone to represent certain short and common words as in many of the old *a*, *b*, *c* systems, with this difference, that in the old systems each letter represents several words, but in phonography, in almost every case, only one. By writing the horizontal strokes in two positions with respect to the line (above and on) and the others in three positions (entirely above, resting on, and passing through the line) the number is nearly trebled, and very brief signs are obtained for some seventy or eighty common short words (e.g., *bc*, *by*, *in*, *if*, *at*, *it*, *my*, *we*, &c.). A few very common monosyllables are represented by their vowel-marks, as *the* (remnant of), *of* (remnant of), *on* (remnant of).

A certain number or longer words which occur frequently are contracted, generally by omitting the latter part, sometimes a middle part of the word, as in . The connective phrase of *the* is intimated by writing the words between which it occurs near to each other. *The* is often expressed by a short slanting stroke or tick joined to the preceding word and generally struck downwards, thus for *the*.

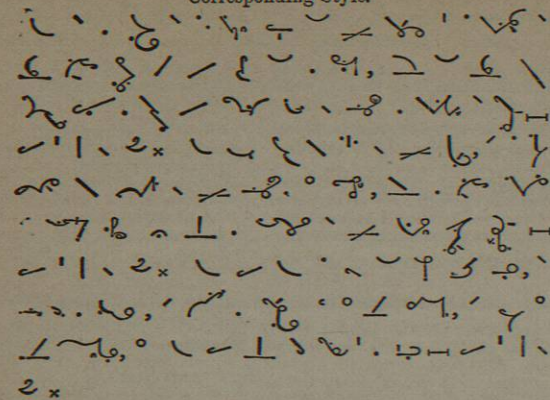
Three principles which remain to be noticed are of such importance and advantage that any one of them would go far to place phonography at the head of all other systems. These are the principles of positional writing, similar outlines, and phraseography. (1) The first slanting stroke of a word can generally be written so as either to lie entirely above the line, or rest on the line, or run through the line, thus—. In the case of

words composed wholly of horizontal strokes the last two positions (on and through the line) coincide, as . These three positions are called first, second, and third respectively. The first is specially connected with first-place vowels (*ā*, *ā*; *aw*, *ō*; *t*; *oi*), the second with second-place vowels (*ē*, *ē*; *ō*, *ū*), and the third with third-place vowels (*ee*, *i*; *ōō*, *ōō*; *ou*). In a fully vocalized style position is not employed, but in the reporting style it is of the greatest use. Thus the outline (*tm*) written above the line () must be read either *time* or *Tom*; when written resting on the line () *time* or *tame*; when struck through the line () *team*, *tean*, or *tomb*. By this method the number of possible readings of an unvocalized outline is greatly reduced. That word in each positional group which occurs the most frequently need not be vocalized, but the others should. In the case of dissyllables it is the accented vowel which decides the position; thus *methought* should be written first position () method second position () (2) Another way of distinguishing between words having the same consonants but different vowels is to vary the outline. The possibility of variety of outline arises from the fact that many consonant-sounds have duplicate or even triplicate signs, as we have seen. For instance, *r* has two lineal signs and a hook sign, and so each of the words *carter*, *curator*, *creature*, and *creator* obtains a distinct outline. A few simple rules direct the student to a proper choice of outline, but some difference of practice obtains among phonographers in this respect. Lists of outlines for words having the same consonants are given in the instruction books; the *Reporter's Assistant* contains the outline of every word written with not more than three strokes, and the *Phonographic Dictionary* gives the vocalized outline of every word in the language. Aided by a true phonetic representation of sounds, by occasional vocalization, variety of outline, and the context, the phonographic verbatim reporter should never misread a word.¹ (3) Lastly, phraseography. It has been found that in numberless cases two or more words may be written without lifting the pen. A judicious use of this practice promotes legibility, and the saving of time is very considerable. Words written thus should be closely connected in sense and awkward joinings avoided. Such phrases are *I am*, *I have*, *you are*, *you may*, *it would*, *it would not*, *we are*, *we have*, *we have not*, *we have never been*, *my dear friends*, *in a very short time*, *as far as possible*, *for the most part*, and many thousands of others.

For the sake of obtaining a good phraseogram for a common phrase, it is often advisable to omit some part of the consonant outline. Thus the phrase *you must recollect that* may very well be written (you must recollect that). Lists of recommended phraseograms are given in the *Phonographic Phrase Book*, the *Legal Phrase Book*, and the *Railway Phrase Book*.

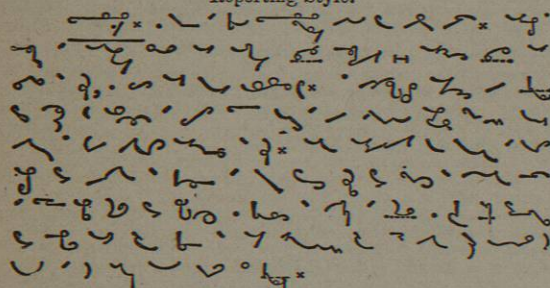
¹ Phonography is so legible that the experiment of handing the shorthand notes to phonographic compositors has often been tried with complete success. A speech of Richard Cobden, on the Corn Laws, delivered at Bath on 17th September 1845, and occupying an hour and a quarter, was reported almost verbatim, and the notes, with a few vowels filled in, handed to the compositors of the *Bath Journal*, who set them up with the usual accuracy. A notice of the occurrence appeared the next day in the *Bath Journal*, and was immediately transferred to the columns of the *Times* and other newspapers. Mr Reed has tried the same experiment with equal success, the notes being handed to the compositors in their original state (*Phonetic Journal*, 1884, p. 387). In Mr Pitman's printing-office at Bath more type-setting is done from shorthand copy than from longhand. Of course it is generally unadvisable to print a speech verbatim, but much time would be saved if the reporter could write his copy in the "corresponding" or less brief and more vocalized style of phonography. Compositors could acquire the faculty of reading phonography in a very short time.

Specimens of Phonography. Corresponding Style.



KEY.—If all the feelings of a patriot glow in our bosoms on a perusal of those eloquent speeches which are delivered in the senate, or in those public assemblies where the people are frequently convened to exercise the birthright of Britons—we owe it to shorthand. If new fervour be added to our devotion, and an additional stimulus be imparted to our exertions as Christians, by the eloquent appeals and encouraging statements made at the anniversaries of our various religious societies—we owe it to shorthand. If we have an opportunity in interesting judicial cases, of examining the evidence, and learning the proceedings with as much certainty, and nearly as much minuteness, as if we had been present on the occasion—we owe it to shorthand.

Reporting Style.



KEY (the phraseograms being indicated by hyphens).—CHARACTERISTICS OF THE AGE.—The peculiar and distinguishing characteristics of the present-age are—in every respect remarkable. Unquestionably an extraordinary and universal-change has commenced in the internal as-well-as-the-external-world—in-the-mind-of-man as-well-as-in-the-habits-of-society, the one indeed being-the-necessary-consequence of the other. A rational consideration of the circumstances in-which-mankind are at-present placed must-show-us that influences of-the-most-important and wonderful character have-been-and-are-operating-in-such-a-manner-as-to-bring-about-if-not-a-reformation, a thorough revolution in-the-organization of society. Never in-the-history-of-the-world have benevolent and philanthropic institutions for-the-relief-of-domestic and public affliction; societies for-the-promotion-of-manufacturing, commercial, and agricultural interests; associations for-the-instruction-of-the-masses, the advancement-of-literature and science, the development-of-true-political-principles, for-the-extension-in-short-of-every-description-of-knowledge-and-the-bringing-about-of-every-kind-of-reform,—been-so-numerous, so efficient, and so indefatigable in-their-operation as at-the-present-day.

Of the numerous systems published since the invention of phonography the principal are A. M. Bell's *Stenophonography* (Edinburgh, 1852), Professor J. D. Everett's (London, 1877), Pocknell's *Legible Shorthand* (London, 1881), and J. M. Sloan's adaptation of the French system of Duployé (1882). Of these Professor Everett's must be pronounced much the best. The author claims to have adhered to the phonetic principle more strictly than Mr Pitman. Thus he distinguishes the *o* in *home, comb*, from that in *so*, and treats *ur, er* as a diphthong. The alphabet is very like Mr Pitman's in construction, light and heavy sounds being represented by light and heavy strokes. The chief feature of the system is that all vowels are marked in. This is done by joined signs, by lengthening the preceding consonant, by separating the preceding from the following consonant, by lifting the pen and writing the one consonant attached to the other, and by intersection. Mr Pocknell, in his somewhat bewildering system,

seeks (like Mr Melville Bell) to provide a method of indicating whether a consonant is preceded or followed by a vowel or vowels. To this end he gives to each consonant three linear signs (two curves and a straight line), the requisite number of signs being made up by using three lengths of stroke. The selection of the right sign is determined by the length and class of the words represented. Much energy is devoted to indicate where a vowel stands, but not to what it is. The vowels, when expressed, are disjointed, as in phonography and most systems. Though Mr Bell's too elaborate classification of vowels is adopted, the phonetic method of representing consonants is frequently discarded in favour of the alphabetic. Thus, no sign is provided for *zh* (as in *vision*), and the barbarous *gh* (as in *bright*) is often retained "for the sake of legibility." Mr Pocknell goes back to the antiquated device of pictorial and arbitrary signs. The Sloan-Duployan system has been vigorously propagated; but it does not provide alphabetic characters for all the vowels and consonants in the language, contents itself with representing not actual but "approximate" sounds, does not always indicate the order in which the characters should be read, recommends the frequent omission of consonants and syllables at the "discretion" of the student, avoids angles, and introduces three slopes, instead of one, between the perpendicular and the horizontal, and therefore is not likely to meet with general acceptance.

A considerable number of American systems, as well as systems based on Taylor's and Gurney's, were issued during the early days of the republic. Since the introduction of phonography into the States in 1845, the dissemination of the art has gone steadily forward, and its use since 1880 has been greatly on the increase, shorthand being now taught in a large number of schools. From elaborate statistics given in Mr Rockwell's *Circular of Information* it appears that during 1882 10,197 persons received instruction in schools and classes and 2273 by correspondence. But these figures probably bear no proportion to the number of persons studying without a teacher. In almost every case phonography, or a modification of it, was selected for instruction. American shorthand societies are very numerous, most of them having been formed since 1880. Two are devoted to the Stolzean system. Of the fourteen shorthand magazines which Mr Rockwell enumerates eleven are phonographic.

In nine cases out of ten phonography will be found admirably adapted to the purposes of verbatim reporting. But to be legible it must be written with care. This necessity arises from its brevity and its use of light and heavy, halved and double-length strokes. Hence a clumsy scribe may find a longer system, such as Gurney's, answer his purpose better. A theoretical knowledge of most systems may be gained in a few hours. Pitman's method is not so easily acquired, but an intelligent person can master its details in a few weeks. Shorthand writing is, however, mainly a matter of practice. Few can make any considerable use of it with less than six months' assiduous practice. The average rate of public speaking is very slightly over 120 words a minute. Some speakers average 150. The slowest utterance is now and then exchanged for a rapid flow of words, and 180 or 200 words a minute is no uncommon speed in certain styles of speech such as the conversational,—a speed which many persons would never acquire.¹ Most persons of average intelligence may

¹ Phenomenal rates of speed are recorded in the *Phonetic Journal* for 1885, p. 338. Mr T. A. Reed, the veteran phonographer, had been engaged to report a well-known American divine preaching at Westminster Abbey. The sermon was carefully timed, and the words in the printed report counted. The average came out at 213 words a minute. A photographed specimen page of Mr Reed's notes on this occasion is given in the *Reporters' Magazine*, September 1885.

American systems.

by perseverance write with certainty at 150 words a minute. The best method of practice in the early period is to write at dictation from a book; in public speaking the frequent pauses help the writer to regain lost time. The student should write on ruled paper, which checks the tendency to a large sprawling hand when following a rapid speaker. Taylor's, Gurney's, and Lewis's systems can be written without lines, but Pitman's only at a disadvantage. Ink is preferable to pencil.

Shorthand was first employed officially in the service of Parliament in 1802, when a resolution was passed that "the evidence given before all committees inquiring into the election of members should or might be reported by a person well skilled in the art of writing shorthand." and shortly afterwards W. B. Gurney was appointed shorthand-writer in this capacity to both Houses of Parliament. In 1813 a further resolution was passed by both Houses that the official writer "should attend by himself or sufficient deputy when called upon to take minutes of evidence at the bar of this House or in committees of the same." The lucrative office of shorthand-writer to both Houses of Parliament is still held by the Gurney family. Of course most of the work is done by deputy. Some of the most efficient members of Messrs Gurney's staff are phonographers; others use Taylor's system. The amount of evidence given in the course of a tolerably long day's sitting may amount to 400 or 500 folios (72 words make a folio), which would occupy from 12 to 15 columns of the *Times* in small type. The whole must often be transcribed and delivered to the printers in the course of the night, and copies, damp from the press, are in the hands of the members and "parties" at the beginning of the sitting on the following day. Since parliament abolished election-committees and committed to judges the duty of inquiring into petitions against the return of a member, an official shorthand writer has to be in attendance upon the judge appointed to hear any particular case. He has often a small staff of assistants. Messrs Gurney or their representatives are also required to attend the sittings of the House of Lords as a court of appeal to take the judgments of the law lords. Finally, Government shorthand-writers are often employed in taking notes of important state-trials and inquiries conducted by the various departments of Government, as well as of the proceedings of Royal Commissions, whenever the evidence of witnesses is taken.¹ The transcription of the notes may be accomplished in several ways, as by dictating from different parts of the notes to several longhand-writers simultaneously.² Not all the newspaper parliamentary reporters can take a perfect note, and cases occur in which the reporter enters the gallery without being able to write shorthand at all.

FOREIGN SHORTHAND SYSTEMS.

German.—C. A. Ramsay's *Tachographia* (Frankfort, 1679, and several times afterwards until 1743) was an adaptation of T. Shelton's English system. Mosengeil (1797) first practically introduced short-

¹ There is no full official report of the debates in the British Parliament (as in most other countries), and technically no person has a right to report them. The House may be cleared at any moment of all strangers, including representatives of the press, by an order of the House as a whole. On seven occasions of note resolutions have been passed prohibiting the reporting of the proceedings of the House of Commons, the last on 25th March 1771. But times have changed, and members now frequently complain that their speeches are not reported. To supply the deficiencies of the newspaper arrangements have been made by the House with Mr Hansard for the special reporting of debates in committee and those occurring at an early hour in the morning, which are given only in the most summary form in the daily papers. Formerly all Hansard's reports were collected from those appearing in the newspapers. See further Mr S. Whitaker's *Parliamentary Reporting in England, Foreign Countries, and the Colonies, with notes on Parliamentary Privilege* (Manchester, 1878).

² On the best methods of transcribing and dictating, see Mr T. A. Reed's papers in the *Phonetic Journal*, 1886, pp. 10, 33, 45.

hand writing into Germany in an adaptation of the Taylor-Bertin method. Reischl's (1808) is a modification of Mosengeil's. On Horstig's (1797) are based those of an anonymous writer (Nuremberg, 1798), Heim (1820), Thon (1825), an anonymous author (Tübingen, 1830), Nowack (1830), Ineichen (1831), an anonymous author (Munich, 1831), and Binder (1855). Mosengeil published a second system (1819) in which Horstig's alphabet is used. On the Mosengeil-Horstig system are based Berthold's (1819) and Stärk's (1822). On Danzer's (1800), a close imitation of Taylor's, is based that of Ellison v. Nidlef (1820). Other systems are those of Leichtlen (1819); J. Brede (1827); Nowack (1834), a system in which the ellipse is employed as well as the circle; Billharz (1838); Cämmerer (1848), a modification of Selwyn's phonography (1847); Schmitt (1850); Fischbäck (1857), a reproduction of Taylor's; and that of an anonymous author (1872), based on Horstig, Mosengeil, and Heim. Nowack, in his later method of 1834, makes a new departure in avoiding right or obtuse angles, and in endeavouring to approximate to ordinary writing. This system Gabelsberger considered to be the best which had appeared down to that date. F. X. Gabelsberger's *Anleitung zur deutsche Redewissenschaft* (Munich, 1834) is the most important of the German systems. The author, an official attached to the Bavarian ministry, commenced his system for private purposes, but was induced to perfect it on account of the summoning of a parliament for Bavaria in 1819. Submitted to public examination in 1829, it was pronounced satisfactory, the report stating that pupils taught on this system executed their trial specimens with the required speed, and read what they had written, and even what others had written, with ease and certainty. The method is based on modifications of geometrical forms, designed to suit the position of the hand in ordinary writing. The author considered that a system composed of simple geometrical strokes forming determinate angles with each other was unadapted to rapid writing. He does not recognize all the varieties of sound, and makes some distinctions which are merely orthographical. Soft sounds have small, light, and round signs, while the hard sounds have large, heavy, and straight signs. The signs too are derived from the current alphabet, so that one can find the former contained in the latter. Vowels standing between consonants are not literally inserted, but symbolically indicated by either position or shape of the surrounding consonants, without however leaving the straight writing-line. The proceedings of the chambers in Austria, Bavaria, Baden, Württemberg, Saxony, Saxe-Weimar, Coburg-Gotha, Silesia, and the Rhine provinces are reported solely by writers of this method, and half the stenographers in the German reichstag use it. There are in Germany and Austria more than 540 societies containing over 20,000 members devoted to it. It is officially taught in all the middle class schools of Bavaria, Saxony, and Austria. It has been adapted to foreign languages to such an extent that legislative proceedings are reported by it in Prague, Agram, Pesth, Sophia, Athens, Copenhagen, Christiania, Stockholm, and Helsingfors. On Gabelsberger's system is based that of W. Stolze (1840). There are nearly 400 Stolzean associations with over 8000 members. The system is officially used in the Prussian, German, and Hungarian parliaments, in the last two along with Gabelsberger's. Faulmann (Vienna, 1875) attempted in his *Phonographie* to combine the two methods. While Gabelsberger's system has remained unchanged in principle, Stolze's has split into two divisions, the old and the new. These contain many smaller factions, e.g., Velten's (1876) and Adler's (1877). Arends's (1860) is copied from the French system of Fayet. Roller's (1874) and Lehmann's (1875) are offshoots of Arends's. Many other methods have appeared and as rapidly been forgotten. The schools of Gabelsberger and Stolze can boast of a very extensive shorthand literature. Gabelsberger's system has been adapted to English by A. Geiger (Dresden, 1860 and 1873), who adhered too closely to the German original, and more-successfully by H. Richter (London, 1886), and Stolze's by G. Michaelis (Berlin, 1863).

French.—The earliest French system worthy of notice is that of Coulon de Thévenot (1777), in which the vowels are disjointed from the consonants. The methods practised at the present day may be divided into two classes, those derived from Taylor's English system, translated in 1791 by T. P. Bertin, and those invented in France. The latter are (a) Coulon de Thévenot's; (b) systems founded on the principle of the inclination of the usual writing,—the best known being those of Fayet (1832) and Sécocq (1842); and (c) systems derived from the method of Conen de Prépéan (5 editions from 1813 to 1833). Prévost, who till 1870 directed the stenographic service of the senate, produced the best modification of Taylor. Many authors have copied and spoilt this system of Prévost. The best known are Plantier (1844) and Tondeur (1849). Zeibig thinks well of A. Delaunay's improvements on Prévost's system. On Conen's are based those of Aimé-Par's (1822), Cadrés-Marmet (1823), Potel (1842), the Duployé brothers (1868), Guénil, &c. Among amateur writers the Duployan method is best known, owing largely to vigorous pushing, but the profession class it among the least efficient of all. Of the forty writers in the official service of parliament