The Basic Principles of Gregg Shorthand

Dr. John Robert Gregg
(1867–1948)

"Art must have a scientific basis. Shorthand not only has this scientific basis, but it is a science in and of itself."

—Isaac S. Dement

Preface

Confronted by a new invention an American almost invariably asks: "Will it work?" Until satisfied on that point, he is seldom interested in the mechanical principles on which the invention is constructed. But when the invention has been demonstrated to be a real advance, he wants to take the motor apart to see how it works.

This will explain why so little has been written about the scientific basis of Gregg Shorthand. The policy pursued in presenting the claims of the system was that of concentrating attention on the *results* accomplished by its students and writers. Even after Gregg Shorthand had achieved the most extraordinary success ever attained by any system in the history of shorthand, I was too busily engaged in the production of textbooks and magazines, and in the building of a publishing organization, to respond to the demand for a detailed explanation of the scientific principles on which the system was constructed. At odd moments, as opportunity offered and as the mood dictated, I made shorthand notations for a series of articles on the subject. A few of the articles were published in the *Gregg Shorthand Magazine* (England) some years ago, but the reduction in the size of that magazine on account of war conditions rendered it necessary to discontinue the series. Since then so many teachers and writers of the system, on both sides of the Atlantic, have urged me to complete the series that I decided to do so, and to publish them in book form.

The fact that the articles were first written for a magazine published in England will explain to American readers the numerous references to Isaac Pitman Shorthand, a system which is now little used in America outside of New York City and some parts of Canada, and also why so many quotations from well-known authors and writers of other systems are used in support of each principle expounded. In giving these quotations I had in mind the fact that in England there is more reverence for "precedent" and "authority" than is the case in this country.

After reading this book in proof form, one of the most capable supporters of our system said: "The explanation of curvilineal motion as a basic principle in the construction of the system was a revelation to me. What puzzles me is why you made that feature so prominent in the Preface of your very first edition and have practically ignored it in recent editions."

The explanation I gave was that for many years my problem was to "convert" teachers of other systems, and in doing this I found it best to move along the lines of least resistance by dealing chiefly with things that were familiar to writers and teachers of the older systems. In discussing the system question I began, for example, with the elimination of shading or thickening. As all teachers and writers of the old-style systems had experienced the difficulty of observing the distinction between thick and thin characters, and knew that the thickening of a character was an obstacle to rapid writing, they were willing to admit that the elimination of thickened characters would be an advantage, "other things being equal."

The next step was to explain that the vowels were written in the outline. The difficulty of inserting vowels after the "consonantal skeleton" had been written, and the difficulty of reading

shorthand when the vowels were omitted, were so obvious that most teachers were willing to admit with the *usual* qualifying expression that the insertion of the vowels would be an advantage.

The third step was to gain an admission that the placing of words in various positions with relation to the line was an obstacle to rapid writing and to phrase-writing. This generally elicited the most hearty expressions of concurrence of any principle presented.

Up to this point we were dealing with things that were familiar to them. When I attempted to go beyond these three principles, I found that Bagehot was right when he said, "One of the greatest pains to humanity is the pain of a new idea. It is so 'upsetting'—you do not know at once which of your old ideas it will or will not turn out."

Much experience convinced me that it was a mistake in tactics to dwell very long upon the other principles of the system, such as the Longhand Movement, Curvilineal Motion, or Lineality, except perhaps in an incidental way. Any stress placed upon features of the system that were absolutely new and unfamiliar to teachers and writers of the old-style systems would be so "upsetting" and confusing to them, and therefore so provocative of argument, as to nullify the progress made up to that point.

The objective to be gained was *the creation of a desire to study the system*. To accomplish this it was best to show them how the system eliminated certain specific difficulties or defects in the system they used. If they did study the system, the advantages obtained from the other features of the system would gradually, but inevitably, become clear to them as soon as they could write the system on connected matter.

In reading this, many hundreds of teachers and writers of the system who formerly wrote other systems will doubtless remember the various mental reactions which occurred during the period of transition from the Old to the New, and will smile appreciatively at this explanation of the process.

As these articles have been written at various times, and sometimes under pressure, they may lack the unity of plan and treatment which is desirable in a work of this kind. I believe, however, that those interested in shorthand as an art and a science will find them helpful in tracing the process of the evolution of the art of shorthand toward principles that are logical and natural to the mind and characters and movements that are natural to the hand.

John Robert Gregg

New York, 1922

Chapter 1
Longhand as a Basis of Shorthand

> “I am persuaded that the true progress of shorthand—the real solution of the difficulties surrounding it—is to be found in an attentive study of our ordinary longhand writing.”
>
> —Thomas Anderson, in *History of Shorthand* (1882)

In reading some of the letters which were received while I was on a trip to Australia, I found a very interesting paragraph in a letter from Mr. John A. Bell of Glasgow.

As the paragraph in Mr. Bell's letter suggests an interesting topic, I am going to use it as a text, as it were, for the first of a series of articles on the scientific principles underlying the system. Mr. Bell writes:

> “In reading over this month's Magazine I could not but admire the beautifully written page on the Fauna of the Alps. I remember when I was studying architecture for an art certificate a number of years ago being struck by a remark made by a writer who was comparing Greek and Roman architecture. He said that the reason why Greek architecture was more beautiful than Roman was that it was based on the ellipse, which, on account of its variety, is impelling to the eye. Do you see the point? That is the reason for the pleasure which a page of Gregg gives if one has looked over several pages of Pitman.”

It is needless to say that, like Mr. Bell, every writer of the system finds delight in the artistic beauty of its forms and in the easy, natural character of the writing. These qualities are commented on again and again in the letters we receive. But doubtless few writers have tried, as Mr. Bell has done, to find definite *reasons* for either the artistic qualities of the system or its easy-writing qualities.

As the derivation of them may be interesting to our friends, I am going to discuss them in a series of articles. In doing this I intend, first, to explain the general basic principles of the system, and, second, to show how these fundamental principles have been applied in the selection and arrangement of the alphabet. It is necessary to have a clear understanding of the entire plan of structure as a whole to appreciate the working out of the details. I hope, therefore, that if you are interested in the subject, you will read the explanation of each basic principle, and carefully weigh its relative importance to the whole plan. If you do this I believe you will find a new interest in the system, and be able to give convincing reasons for the faith that is within you.

The Fundamental Difference

The fundamental difference between geometric shorthand and Gregg Shorthand is this: Geometric shorthand is based on the *circle* and its segments; Gregg is based on the *ellipse*, or oval.

As geometric shorthand is based on the circle, its characters are supposed to be drawn with geometric precision, and are struck in all directions. The characters, being struck in all directions, necessitate continual change in the position of the hand while writing.

As Gregg Shorthand is based on the ellipse or oval, it is written with a uniform slope, as in longhand. Its characters are, therefore, familiar and natural to the hand, and like longhand do not require a change in the position of the hand while writing. When we say, "with a uniform slope as in longhand," we do not mean any particular slope; we simply mean that whatever slope is adopted the writing is uniform in slope—not zigzag. This is understood by all writers of the system, but I consider it advisable to include the statement here, as an effort is being made to represent us as insisting upon a particular slope.

Short-*Writing* or Short-*Drawing*?

Geometric shorthand has been described as a rapid drawing of characters, while Gregg Shorthand has been described as a rapid writing. That the affinity of geometric shorthand to drawing is fully recognized by the advocates of that style will be clear from the following quotations.

Isaac Pitman, in the seventh edition of his Manual said:

> "The student should be careful not to hold the pen as for common writing, for this position of the hand is adapted for the formation of letters constructed upon a totally different principle from those of Phonography. The pen should be held loosely in the hand, *like a pencil for drawing*, with the nib turned in such a manner that the letter "b" can be struck with ease."

In a series of articles on "Aids and Hindrances to Shorthand Writing" in *Pitman's Shorthand Weekly*, Mr. Alfred Kingston said:

> "I have frequently noticed that the shorthand student skilled in drawing always makes the best start upon the shorthand alphabet. The student should be encouraged, therefore, to treat the preliminary work of mastering the simple geometric forms, and especially the curves, *as something really in the nature of a drawing lesson*, and to draw them as carefully and accurately as possible at the start."

Andrew J. Graham, author of the most successful American modification of Pitman's Shorthand, in the Introduction to Part Two of his "Standard Phonography," said:

> "The position given to the pen and hand in backhand writing seems best adapted for the easy and graceful formation of phonographic characters. The pen should be held very loosely, so that the nib may be readily turned and suited to the execution of characters made in various directions."

These quotations will prove that the geometric style of shorthand is admitted to resemble a drawing—not a writing—of characters.

Although they do not bear directly on the question of the drawing or the writing of the characters, the views expressed by very prominent Pitman reporters about 'the comparative facility of the back slope and forward slope characters' may be of interest at this point.

Mr. Henry M. Parkhurst, one of the most prominent of the early pioneers of "Pitman's Phonography," and the "Spelling Reform" in America, said:

> "The stroke for *p* [a back-slope character in Pitman] cannot be struck with the same ease as *ch* [a stroke like our *j*] because the *muscles of the fingers naturally move in the direction of the latter stroke*, and not in the direction of the former. The cords, muscles, *et cetera*, all strain from the inside of the limbs; and consequently all those who use the right hand in writing can write with greater rapidity and endure longer in writing from right to left than they can in writing from left to right."

Mr. George R. Bishop, for many years an official reporter of the New York Stock Exchange, and formerly President of the New York State Stenographers' Association, in discussing the various shorthand characters, said:

> "The directions or slopes of some strokes are quite different from any to which the fingers become accustomed by writing ordinary longhand; the muscles therefore require to be trained to these unfamiliar movements and directions by much practice."

The famous reporter, David Wolfe Brown, for many years one of the staff of official reporters of the House of Representatives, Washington, in his book, "Mastery of Shorthand," which was published by the Phonographic Institute Company (publishers of Benn Pitman Shorthand), declares:

> "Even in those rare cases where the phonographic pupil shows by his ordinary penmanship not only an eye for truth and beauty of form, but a real facility of hand, it is a facility adapted exclusively to the peculiar forms and inclination of the longhand characters; and there remains great need for special manual discipline by reason of the variety of forms and directions of the shorthand characters."

Mr. Brown expands this thought in his popular book, "The Factors of Shorthand Speed":

> "In the shorthand writer's manual discipline the first step is to *get rid of certain habits often acquired in longhand*, and which, unless corrected, must make high stenographic speed a physical impossibility. It may be desirable, for a time at least, that longhand practice be as far as possible suspended, so that a new set of manual habits may be the more easily acquired.
>
> One of the habits which shorthand writers need especially to overcome arises from the peculiar slant of the longhand characters. . . . As the shorthand characters are written in almost every direction—probably more of them with a backward inclination, or with a horizontal motion, than with a forward slope—the

> hand and fingers, in being educated for shorthand writing, must be emancipated from the fixed position to which they have been accustomed in longhand.
>
> From these extracts it will be seen that, instead of previous experience and training in the writing of longhand being regarded as an advantage to the student of geometric shorthand, it is declared by these high authorities to be an obstacle. To do good work in geometric shorthand the student is told that he must "get rid of certain habits acquired in longhand," and his "hand and fingers must be emancipated from the position to which they have been accustomed in longhand." ❞

The Logical Deduction

If what these eminent authors and reporters say is true—and what advocate of Pitman Shorthand will challenge their statements?—then the student or writer of a system founded on longhand, requiring the same position of hand and fingers, and the same movements as longhand, starts on the study with a tremendous initial advantage over the student or writer of geometric shorthand.

"The planets move in elliptic orbits." We claim that the ellipse is a more scientific basis for a system of brief writing than the circle.[1] Our beautiful Roman writing is based on the ellipse, or oval, and being the outcome of a process of evolution that has been going on for centuries, it represents the "survival of the fittest" in the movements and characters best adapted to the hand. As Benn Pitman says in his "Life and Labors of Sir Isaac Pitman," our present writing is "but the culmination and fruition of a series of experiments, changes and improvements which were commenced in the very childhood of civilization, and which have been uninterruptedly continued to the present time. From the earliest pictorial and hieroglyphic symbols there has been an unending series of experiments and improvements, and each step has been received with more or less of hesitancy and distrust because of the inconvenience attending a change of habit. . . . The simplest, most convenient, and most reasonable way of doing anything is usually the last to come, but when the right thing is accepted it seems amazing that the inferior and imperfect one should have been tolerated, much less loved and tenaciously adhered to." [There is an almost prophetic ring about that last sentence!]

The Benefits Admitted

If it be true that the movements and characters used for longhand writing have been adopted because they are easy and natural to the hand, we believe that it does not require argument to prove that the same easy, natural movements and characters are the logical basis of a briefer style of writing. Indeed, nearly all authors and expert writers of geometric shorthand have been willing to acknowledge this, but have asserted that, on account of the limited shorthand material, it was impossible to construct a practical system on such a basis.

At the first International Shorthand Congress, in 1887, Professor J. D. Everett, author of "Everett's Shorthand for General Use," a geometric system, acknowledged that, "to employ char-

[1] Mr. William A. Crane, author of "Crane's Script Shorthand" (1884), declared that "all graceful motion is elliptical."

acters which slope all one way is advantageous in so far as it enables the writer to make a given number of movements in a given time."

And Edwin Guest, the author of "Compendious Shorthand," a geometric system, in a discussion at one of the meetings of The Shorthand Society, London, is reported to have frankly admitted that, "if any script system could be written with *only double the number of strokes in a geometric system*, he was prepared to admit the advantage was in favor of the script system."

In 1888 Mr. Thomas Allen Reed, the most famous of all the English champions of Pitman's Shorthand, in referring to some shorthand notes which had been contrasted as to *brevity*, with longhand, at one of the meetings of The Shorthand Society, London, is reported to have said that he thought "Dr. Gower had overlooked one point—*the advantage of the one slope*" in the longhand specimen.

The Reporters' Journal (England), January, 1891, in giving reasons for objecting to the suggested substitution of the downward (backslope) *r* for the upward *r* before m (a suggestion which has since been adopted by Isaac Pitman & Sons) said:

> "We are, nevertheless, as firmly convinced as ever that the upward *r* is struck, either alone or in combination, very much easier and with greater facility than its downward companion.
>
> The very act of having to draw the pen backward tells against the downward *r*, and surely phonographers can quickly ascertain for themselves the more advantageous outline by writing each for the same space of time."

A Convincing Demonstration

In a paper on "The True Theory of Shorthand," read before the Shorthand Society, London, Mr. Thomas Anderson, author of the "History of Shorthand," stated the absurdity of zigzag writing very effectively:

> "I am not now raising the question whether writing on the slope from right to left, or writing perpendicularly, or nearly so, or, again, writing on the back slope, is the quicker or quickest method of writing. I say I do not now raise that question. I give no opinion on it—nor am I concerned what may be the decision regarding it.
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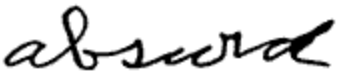
> 
>
> But this I do earnestly and strenuously maintain that the attempt to write in these three different directions at one and the same time is absurd. Just take the word *absurd* as an example. It is a good word for the purpose. Now if I am to write the "a" on the common slope, the "b" on the back slope, and the "s" straight up and down, and follow any other variety of the same changes with the other letters of the word, namely, "u," "r," "d," then I make bold to say that the word and the thing signified are both demonstrated in the same form—a form with which you offend the eye, as well as threaten dislocation to the hand.

> It is idle to answer that the habit is followed by thousands of shorthand writers without much difficulty, or it may be said even with ease. Granted. What then? The praise is to the hand, which, as Aristotle has well said, is "the instrument of instruments." We are not, however, entitled on that account to visit it with an unnecessary infliction.
>
> I may, in concluding my observations under this head, allude to the fact that an inspection of any paleographical folios will show, on a comparison of the ruder forms of writing with the more modern in almost all languages, a tendency to have the characters all on the one slope. The fact is interesting rather than here important, but if anyone cares to turn over the princely tomes of Silvester in his "Paléographique Universelle," he will perceive this to be very noticeable. ❞

The famous journalist, editor, author, and Member of Parliament, Mr. T. P. O'Connor, in writing on the subject of shorthand in the *Weekly Sun*, London, said:

> ❝ I am not an entire believer in the Pitman system of shorthand; but as I began with it I never tried to change … I have known very few Pitman writers whose notes could be read by anybody else, and I have known a great many—including myself—who found it very difficult to read their own notes. ❞

It strikes me now, that the system is best which can be made most like the ordinary longhand. Obviously the same muscles, the same nerves, the same attitudes, all that conglomeration of causes, open and latent, which provide the peculiarities of one's longhand will be employed in producing the shorthand. In other words one will write his shorthand as he does his longhand.

Put Into Figures

In an article on "The 'One Slope' Theory in Shorthand," Mr. G. C. Mares stated the practical advantages obtained from uniformity of slope in a very convincing way:

> ❝ It will be evident to the vast majority of shorthand writers that in Pitman Shorthand many words can be written much faster than others, even though the number of pen strokes and ineffective movements (lifts) are the same. Thus the word *cherry* can be written faster than *pity*, *reject* is more facile than *shave*, although it has an additional stroke, and the same may be said of hundreds of other words. What causes the difference in facility? The answer is that *cherry*, *reject*, are written on the "one slope," whilst *pity*,[2] *shave*, employ back strokes. At the commencement, then, we see that an advantage exists in favor of one-slope writing; but no one has yet, I believe, shown the existence of this advantage. I will, therefore, invite attention to the following figures:
>
> (a) A rapid penman can write 30 words a minute; each word containing on an average of 16 movements—16 × 30 equals 480 *longhand strokes* a minute.
>
> (b) The limit of the power of the hand to form *shorthand* strokes is, at the outside figure, 300 a minute; 300 to 480 shows 60 percent in favor of *longhand strokes*.

[2] The obtuse angle in *pity* is partly responsible for the slowness with which the outline is written.

> (c) As the formation of shorthand strokes requires more care than longhand, on account of the necessary observance of length, thickness, etc., an allowance of, say 25 percent must be made, and this, with an allowance of 10 percent for loss of brevity (if any) as compared with other systems, will leave us 25 percent advantage in the matter of facility of execution *gained by the use of one-sloped or longhand signs or strokes*… ❞

All Natural Writing Elliptical

It has been said that it is impossible for the human hand to make a *perfect* circle in rapid writing. On the other hand, elliptic figures are natural and easy to the hand; indeed, the making of an ellipse or oval is one of the first exercises given a child in learning ordinary writing. As a writer on the subject has said:

> ❝ No alphabet on the radii of the circle with its various arcs can be easy to write. The circle is the most difficult of all simple forms. It is astonishing that modem inventors of shorthand should have overlooked the experience of all nations in the writing of longhand, and therefore, it is clear that the efforts to secure speed have developed the forms employed away from the circle into arcs and axes of the inclined ellipse. No hand at rest can rapidly execute the circle, while all easy movements of the arm, hand and fingers resting on the paper form the lines of the ellipses. Is it not remarkable that after having based the alphabet on the circle Pitman should say in the "Reporters' Companion," "Theoretically, every line employed in phonography is a light line or an arc of some circle. Practically all light lines become to fluent writers portions of ellipses. The most continuous line that can be described is the flattened ellipse. The greater the velocity, the flatter the arc." ❞

The older script, cursive, graphic, scripthand, or pasigraphic systems—as they are variously termed—claimed to be "founded on longhand." That claim was based on the fact that they rejected vertical and back-slope characters, and were written with a "uniform slope." The title page of one of the first of these systems, that of Richard Roe, published in 1802, described it as "A new system of Shorthand in which legibility and brevity are secured upon the most *natural principles*, especially by the singular property of their *sloping all one way* according to the habitual motion of the hand in common writing." This is the claim of all the systems on that basis—there is little change in the wording.

While *uniformity of slope* is very important, it is but one of the virtues of longhand writing, and it is a question whether or not it is the most important one. Let us consider some of the other qualities of longhand.

Other Longhand Features

In longhand writing there is no compulsory shading or thickening of the characters.

Prior to the appearance of Gregg Shorthand nearly all the systems claiming to be "founded on longhand" had shading or thickening of the characters. Some, indeed, had shaded upward characters, and shaded horizontal characters—even shaded small circles and shaded hooks! If we accept longhand as our model—if we are absolutely sincere about it—we are bound to acknowledge that freedom from compulsory shading is just as important as is the uniform slope.

In longhand writing the words are not placed in several positions with relation to the line of writing.

Prior to the appearance of Gregg Shorthand, many of the systems said to be "founded on longhand" had words placed in three or more positions—on the line, above the line, and through or below the line. Here, again, if we accept longhand as our model, we are bound to acknowledge that the use of several different "positions" for distinguishing words is not admissible.

In longhand writing all the letters, vowels, and consonants are joined.

But some of the systems claiming to be "founded on longhand" (notably "Sonography," by Rev. D. S. Davies, and "English Script Shorthand," by John Westby-Gibson) expressed the vowels by disjoined signs after the consonantal skeleton of the word was completed.

There are other features in many of the systems said to be "based on longhand" prior to the publication of Gregg Shorthand, which were inconsistent with that claim. Among these may be mentioned the presence of many obtuse angles, which do not occur in longhand. I intend to speak of these things later.

A Process of Evolution

I should be sorry if you gained the impression from what I have said that I am attempting to disparage previous endeavors at the construction of a system on natural lines. This is not the case. I am simply explaining certain fundamental differences between the structure of our system and the systems that preceded it.

The following quotation from the "Story of Gregg Shorthand," as told at the Silver Jubilee meetings (and afterwards published in pamphlet form) will show that I have always been ready to pay a tribute to preceding authors:

> I regard that alphabet as a natural evolution of the best principles of all systems mentioned. In its making, therefore, credit is due to the great shorthand authors of the past, whose genius cleared the path for progress. The chief distinction I claim for Gregg Shorthand is that while other systems embody one or more natural principles—such as absence of shading or position of writing, or uniform slant, or lineal, continuous movement, or connective vowels—Gregg Shorthand is the only system embodying all these natural features. And it is the

> only system, I venture to say, that satisfies the eye with the freedom and gracefulness of its forms. ❞

In the course of this series of articles I hope to make it clear that there has been a gradual evolution toward a system that would be "the distilled essence of our common writing."

I have often heard advocates of Pitmanic Shorthand dispose of other systems with a contemptuous expression, and then mention several systems that were once fairly well-known, but have now declined in popularity, as proof of the superiority of Pitman. That is very superficial reasoning. It is on a par with the shortsightedness of the people who ridiculed the early inventors of the airplane because their first air flights were not *entirely* successful. To the thoughtful investigator even the *partial* success of systems founded on principles entirely different from those of Pitman has great significance. It would be easy to demonstrate that each of these systems succeeded in almost exact proportion to the degree in which it contained *natural* writing features, and failed to attain greater success because it retained or extended the use of certain *unnatural* writing features. In some instances these systems, while incorporating one or two longhand features, pushed the use of principles or expedients opposed to longhand to a much greater extreme than is done in the Pitman system.

A Prediction Fulfilled

Mr. Thomas Anderson, who was for many years a reporter in the Law Courts of Glasgow (using the Pitman system), and who wrote a very valuable and scholarly "History of Shorthand," expressed this opinion:

> ❝ To make shorthand what it ought to be, it must follow the track of the longhand writing, be all written on the one slope, and make no difference between thin and thick strokes, while describing accurately the vowels…
>
> I believe that such a system would, in the course of a few years effect a comparatively universal change, by the side of which the results attained by the Pitman plan in the course of the last fifty years would look anything but magnificent. ❞

Considering the date at which it was written—1882—this was a remarkable prediction.

One of the beliefs of shorthand inventors and of others who are enthusiastic about the benefits to be derived from the widespread study and practice of shorthand, is that it will eventually take the place of longhand to a very large extent. That belief is a very reasonable one.

For many years there was printed on the covers of Isaac Pitman's books the following extract from an article which appeared in the *English Review*:

"Who that is much in the habit of writing has not often wished for some means of expressing by two or three dashes of the pen that which, as things are, it requires such an expenditure of time and labor to commit to paper? Our present mode of communication must be felt to be cumbersome in the last degree; unworthy of these days of invention. We require some means of bringing the operations of the mind, and of the hand, into closer correspondence."

If that was true fifty years ago, it is even truer of conditions today. There is an ever-increasing pressure, and it does seem absurd that we should be obliged to continue to employ the cumbrous forms of longhand when a briefer method is at our disposal. Articles have been published dem-

onstrating that millions of hours a day could be saved by the general use of shorthand in correspondence and in making notations. But it has been recognized as a fact—an extraordinary and inexplicable fact—that many of those who know shorthand are not inclined to use it in their literary and other work. It has been noted also that writers of our system are much more inclined to use shorthand in this way than are the writers of the older styles. In our own offices, for instance, nearly all the managers of departments jot down in shorthand the answers to letters on the back of the letters, and hand them to the stenographers instead of dictating, and this plan is followed in much of the correspondence between offices and in the composition of articles, advertisements, etc. Even the reports of our traveling representatives are made in shorthand—the original report in shorthand being sent to the manager of the local office, and a carbon copy sent to the General Sales Manager in the Executive Department.

Shorthand for Personal Use

Speaking offhand one would say that the mental attitude which induces such a large percentage of writers of our system to use shorthand more freely and confidently as a personal time-saving instrument, as compared with the small percentage of writers of the older systems who do so, is due to the greater legibility of our system on account of the insertion of vowels, the absence of shading, and position writing—all of which make the writing more easy and natural. All these things contribute a good deal, because they create confidence and relieve the mind of much conscious effort; but there is another reason, which is probably more important still. It will be found in an article by a distinguished shorthand reporter who was also an author of distinction.

Some years ago the *Phonographic World* published a series of articles on "How Authors Write," and the late Philander Deming, who was an author of distinction as well as a shorthand reporter, said:

> "With slight exceptions, my literary work has been done with the pen. . . . This is done without any rule and without thought about it. *But the strong tendency is, when I am most intent upon my work, to use only longhand forms.* I suppose this is because the longhand is made up by the repetition of so small a number of radical elements. You will call to mind the fact that the Spencerian analysis and system of penmanship shows us that the working letters (the small letters) of our common writing are formed of only four radical elements. These four elements form the entire alphabet. The result of this formation is that, while it requires considerable muscular action to write longhand, the work of writing calls for very little attention on the part of the mind of the writer.
>
> Phonography is based upon twelve radical elements. The writing, therefore, is not a continual choice from among four elements, *but from among twelve, and this rapid choosing among so many is difficult and the work is complex. Hence, the writer has to give his attention to the form in writing them, and this continues to be true, however extensive his experience in writing phonography may have been.* The moment a writer becomes deeply interested in his subject he forgets to write shorthand; his pen glides unconsciously into the longhand forms. It will be re-

> membered that Charles Dickens was a shorthand writer. He reported the debates in Parliament, and he has described his struggles in learning shorthand in a well-known and often-quoted story—and yet all his literary work was done in longhand writing. ❞

To the thoughtful reader this quotation may have a great deal of significance. It represents a phase of this subject which is seldom given any consideration. In using our system there is greater *mental freedom* than there is in writing geometric shorthand, because, like longhand, the writing in our system consists of a few familiar elements.

In the next chapter, I shall discuss what I believe to be the most important element of either longhand or shorthand writing. It is not longhand slope, connective vowels, absence of shading, or the elimination of position writing. It is seldom mentioned, but it is, nevertheless, the greatest feature of the system—the one which, above all others, distinguishes it from all other systems. Can you guess what it is?

Chapter 2
Curvilineal Motion

> Motion in curves is more beautiful than that in straight lines, both because of the greater beauty of the curved line and because curvilineal motion indicates less effort.
>
> —Dr. Francis Wayland

> A good curve is not uniform in curvature, but curves most near one end.
>
> —John Ruskin

In closing the preceding chapter I said that my next talk would be about "the most important element of either longhand or shorthand."

That element is the *predominance of curve motion*. This feature is probably the most radical departure from the older lines of shorthand construction to be found in the system. Curiously enough, its importance has not been fully appreciated by many writers and teachers, although, when the system was first published, many shorthand authors and others interested in the scientific aspect of shorthand recognized it to be an extremely radical step.

A New Idea

The distinguished French shorthand author and reporter, M. Jean P. A. Martin, of Lyons, wrote me under date of June 24, 1888—less than a month after the publication of "Light-Line Phonography," as Gregg Shorthand was then called—and the very day he received a copy of my first book:

> The postman has brought me your book this morning. … I can but think well of a system that embodies all the ideas defended by me time and again, and is mainly constructed after the principles laid down by Conen de Prépéan, the real founder of continental shorthand.
>
> There is, however, a point that is quite new to me; I mean the predominance given by you to curve motion. Whilst Mr. Clement Gourju in his Semiographie, and Mrs. De Wik Potel in her Dewikagraphie, endeavored to do away with all consonantal curves, whilst *nearly*, all of us have criticized large curves (I say the large ones, and not the small ones), you have taken an opposite view of the case.
>
> I am glad you have, because I have no doubt you will soon produce reporters, and their notes will be of value to shorthand scientists. We shall better be able to form an opinion on the advisability of predominant curve motion in shorthand

writing. We shall watch your progress with great interest. We look upon your system as a very valuable experiment. You are the exponent of an idea, and we LOVE *ideas* when they are carried into actual practice.

I shall ever be glad to give my support to men who fight for the supremacy of the sound principles established by Conan de Prépéan. It is not because your shorthand principles are French; it is because they are scientific, and Science knows no borders, no nationalities; it is human. ❞

Writing me again on July 30, 1888, M. Martin said:

❝ We do everything we can in order to diminish the number of curves in our representation. You do *the very reverse*: you remove nearly all the straight lines from the consonantal alphabet. The point at issue must be settled through experience, through practice. You now understand why Shorthand Scientists are anxious to see the notes of several Light-Line Phonographers written at a speed of over 120 words a minute. They want to know what will be the effect of the predominant curve motion on a page of shorthand. Of course, there is no question about this or that system; we do not care about systems. Scientifically speaking, we study ideas, principles, and see what results they yield, no matter the alphabet. And I can but repeat what I said before: yours is a new idea. Light-Line Phonography is, in our opinion a very valuable experiment which all persons who are studying the Science of Shorthand cannot fail to watch with great interest. ❞

At this point it may be interesting to quote what I said on this subject in the preface to the first edition of "Light-Line Phonography," in describing the "main features" of the system:

The Predominance of Curve Motion

❝ Curves, the prevailing element of ordinary penmanship, being more facile than straight lines, the author has, so far as is compatible with a well-balanced alphabet, assigned to them the representation of the most frequently recurring consonants. In addition to this, the straight characters have been so arranged that the most frequently recurring combinations of letters form an *obtuse* angle at their point of junction, and such angle not being observed, the letters are allowed to coalesce naturally in the form of a large curve; thus curve motion has its rightful preponderance, the maximum of facility obtainable from this source is secured, and the system is freed from the unnatural zigzag motion of the ordinary shorthand. ❞

This is expressed in somewhat pretentious language—I was very young then!—but it shows that recognition of the prevalence of curves in longhand writing was an important factor in the construction of the system.

In my earlier experiments at shorthand construction I followed the beaten path. The result was an *angular* style of writing—a truly "script-geometric style," as someone described it. This realization that curvilineal motion was the greatest of all the elements of longhand writing placed

me on the path which led to "Light-Line Phonography" and it is the feature of the system to which, more than to any other, is due its wonderful success.

The Combination Principle

Those who have read the "Story of Gregg Shorthand" as told at the Silver Jubilee meetings (and afterwards published in pamphlet form) will remember the emphasis placed upon the discovery of the *combination* principle, as distinguished from the assignment of characters to the letters in accordance with their *individual* values. The successful working out of the combination principle depended upon a scientific analysis and utilization of the curvilineal motion of longhand, beginning with the ellipse or oval as a basis.

The assignment of the characters according to *individual* values in the older systems naturally and inevitably resulted in the straight lines being given the preference, as stated in the letters from M. Jean P. A. Martin, which I have quoted. Straight lines *when joined*, resulted in a jerky, angular style of writing. Mr. Hugh B. Callendar, B.A., of Cambridge University, put this truth very well when he said:

> "It is commonly stated that straight lines are more facile than curves. This is true of a series of straight lines described independently; but the curve often has the advantage in the matter of joining to other characters, for its curvature may generally be varied, especially near the ends, so as to make the joining easier."

Mr. D. P. Lindsley, author of "Lindsley's Takigraphy," in writing about "The Nature of Angles," said:

> "When the hand is in rapid motion, any change of direction must hinder the speed of the writing. If the first glide into the second without any angle, the highest speed can be secured."

Writing on this subject, another well-known author and teacher, Mr. R. L. Eames, said:

> "It has been said that Nature abhors a vacuum; I believe I may add with truth that Nature abhors a straight line. Nowhere in the whole domain of the universe can there be found a single instance of natural motion in a straight line. No system based on this principle (of straight lines) can be easily written, or naturally rapid, but must depend for stenographic capability on extreme brevity."

An Unusual Review

About a year after the publication of "Light-Line Phonography" a review of it appeared in a newspaper in South Africa—the *Cape Argus*, Cape Town.

I do not know who wrote the article, but in the thirty years that have passed since then I have not seen a more satisfactory or penetrating review of the system. The following sentences from it have a direct bearing on the subject of this article—curve motion:

> "The inventor hits Pitman in a vulnerable part when he claims "frequency of curves, and infrequency of angles." Awkward angles—awkward to make and li-

> able to run into incorrect forms—are unquestionably a weak point in Pitman, because when one set of wrist and forearm muscles are being used these angles demand a sudden jump to another set, which tends as it were, to throw the machinery out of gear. In the system before us the inventor seems to be on the right lines. The great thing in rapid writing is not that the strokes should be as brief and few as possible, but that they should flow with perfect ease and without the slightest hesitation from the pen. Therefore it follows that if there is to be improvement in the shape of characters, it will come in the direction of keeping the lines as much as possible in one direction, choosing lines easily made, and discarding those which tend to check the fingers and call into play a set of muscles different from those ordinarily employed. Mr. Gregg's system looked at from this point of view is one which certainly deserves attention from those interested in the subject—in fact great success is claimed for it already. ❞

Everyone knows that a stiff, angular style of longhand writing always connotes a *slow* writing, and that an easy, rapid, effortless style of writing abounds in curves, because curves are written with a free, rolling continuous motion. The muscles are relaxed in making elliptical curves; straight lines necessitate greater rigidity of hand. If this be true of longhand, it must be equally true of shorthand.

Some very significant admissions about the value of curve motion occur in "Phonography in the Office," a book published by Isaac Pitman & Sons. After deploring the tendency of students to write a heavy style of shorthand, the author of the book, Mr. Alfred Kingston, says:

> ❝ The increased friction from the resistance of the paper makes it a serious obstacle to the acquisition of speed, to say nothing of the difficulty of distinguishing thin and thick strokes. ❞

Mr. Kingston then proceeds to give an exercise to be practiced for the purpose of counteracting this heavy style, but he takes care to say:

> ❝ The exercise is so framed as to consist *almost exclusively of light curves*. The selection of words and phrases which favor a continuous flowing style of writing will also enable the writer to take it down easily. *The rate of speed acquired in the writing of such a passage will be much greater than upon an ordinary passage, and it must not be used as a test of speed, or the result will be very misleading.* ❞

It is surprising that Isaac Pitman & Sons permitted that statement to appear in one of their books. But at the time it was published the Pitman firm did not have competition with a system based on "light curves," which yield "greater speed" than angular zigzag writing—a system free from the "increased friction" caused by heavy strokes.

So far, in speaking of curve motion in longhand, I have discussed it mainly from the practical standpoint. The following quotation about "the beauty of curves," from Dr. Francis Wayland was sent to me by one of our writers who thought it applicable to the writing of the system:

> ❝ Motion in curves is more beautiful than that in straight lines, both because of the greater beauty of the curved line, and because curvilineal motion indicates less

> effort. For these reasons, the motion of a fish in the water has always seemed to me remarkably beautiful. The waving of a field of grain, presenting an endless succession of curved lines, advancing and receding with gentle motion, uniform in the midst of endless variety, has always seemed to me one of the most beautiful objects in Nature. On the contrary, jolting and angular motion always displeases us. How different is the effect produced by the motion of one man on crutches, and of another on skates. ❞

Yet there are some people who still adhere to a belief in "jolting, angular motion," as the true basis of shorthand writing!

In the preceding chapter I stated that our system was based on the *ellipse* or oval, and that this was the vital distinction between it and geometric systems, which are founded on the *circle* and its segments. Bearing this in mind, you will realize that the ellipse embodies the natural *curve motion* of the hand in writing. This is the feature which distinguishes our system not only from the geometric systems, but from all other systems that claim to be founded on longhand or on the slope of longhand.*

My next subject will be an important and original development of curve motion, which came about in a very interesting way.

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* As this book is going to press my attention has been called to the results of an investigation made by The National Institute of Industrial Psychology (London), an institution established to promote efficiency in industry. The Institution' reports the findings of its skilled and trained psychologists after an investigation of the mental and physical qualities of operatives in factories and workshops, as follows:

While the shortest distance between two points is a straight line; the investigators have found that curved movements of the hands, though longer than straight movements, may be quicker in the end. . . . Workers were trained by the investigators to follow curved paths and natural rhythms instead of straight lines, and an increase of thirty percent output was obtained, far less effort resulting.

Chapter 3
Blended Consonants

> “Combination is the essence of invention.”
>
> —Thomas Edison

> “Obtuse angles are especially objectionable, and should be avoided so far as possible.”
>
> —David P. Lindsley

> “It would be madness and inconsistency to suppose that things which have never yet been performed can be performed without employing some hitherto untried means.”
>
> —Lord Bacon, *Novum Organum*

In beginning the previous chapter I said that the importance of curvilineal motion in the system was not fully appreciated by many writers and teachers. But the application of curve motion in the formation of the Blended Consonants is more than appreciated—it is the feature which, above all others, is warmly commended by writers of our system and even by writers of other systems. I suppose this is because other curve combinations are obtained by the mere joining of the characters—as in *pr*, *br*, *pl*, *bl*, *kr*, *kl*, *gr*, *gl*, *fr*, *fl*, etc.—and therefore require no conscious thought, whereas the blends are obtained by the entirely original plan of allowing lines forming the obtuse angle to blend in the form of a curve. Whatever the reason may be, there is no question about the enthusiasm which the blending principle evokes.

A System Discussion

The origin of the blending principle is a rather interesting illustration of how a valuable principle may be developed from a mere passing suggestion. In discussing an earlier effort at shorthand construction with Mr. William Pettigrew (a well-known Glasgow man who had been prominent in the advancement of Pitman’s Phonography in its early days) he strongly criticized the presence of many obtuse angles in the specimens I showed him. Then he vehemently declared that he had always maintained that the greatest weakness in the Pitman system was the presence of many obtuse angles. Taking a piece of paper he illustrated this by joining in succession the Pitman signs for *p-k*, *k-p*, *t-ch*, *ch-t*, *p-t*, *t-p*, *k-r*, *r-k*; next, he ran through a similar series with the thickened letters, beginning with *b-g*; then, the same series of characters with thick and thin strokes alternating; and finally he wrote the curve and straight line combinations like *l-p*, *f-r* (upward *r*), *r-sh* (downward *sh*), *t-sh* (upward *sh*), *m-ch*, etc.

After each example he would say with great emphasis, "In rapid writing those lines will run together in the form of a large curve. You can't prevent it unless you write very carefully"—and so on for at least an hour.

It was evidently a hobby with him; and he had discussed it so many times with other phonographers that he had the illustrations at his fingers' ends. I omitted to say that Mr. Pettigrew had left the phonographic ranks because, like Mr. T. A. Reed, Mr. William Relton, and others, he objected to the introduction of the large initial hooks and some of the other changes made in the system.

I listened to his exposition with considerable deference for I was very young at that time, and Mr. Pettigrew was a man of standing in the community—a member of the City Council, I believe. But when he had finished his denunciation of the obtuse angles in Pitman I ventured to point out that the outlines in the specimens submitted to him were on the longhand slope and, therefore, there could be only *two* obtuse angles—those between the horizontal line and the upward straight line, and *vice versa*—while in Pitman's Shorthand there were no less than *eight* obtuse angles *between straight lines alone*. The occurrence of these eight, too, was doubled by shading (*b*-*g*, etc.) and tripled by alternating light and heavy characters (*b*-*k*, *k*-*b*, etc.).

"Well," he said, "that is an improvement, but why have them at all? Why not have alternative characters for these upward and horizontal letters so as to exclude the obtuse angles? Besides, these letters are common letters [at that time I had adopted the Duployan arrangement of the horizontal line for *t*, *d*, and the upward line for *r*, *l*,], and *tr*, *dr*, will run together. To prevent that you will have to slow up in the writing—you can't observe those angles in rapid writing. Besides, you may say the t and d slant upward slightly. That makes the angle less acute and the lines more liable to run together. To prevent this you ought to provide alternative signs for them."

(Incidentally, I may say that a little while afterwards an attempt was made to overcome this tendency by a special "positional" expedient which, however, could be applied only at the *beginning* of words.)

Mr. Pettigrew was somewhat mollified by my contention that the *number* of obtuse angles was greatly reduced by the adoption of the longhand slope, and soon afterward he was won over to at least an academic support of the system. To be fair about it, I believe that his controversies with orthodox phonographers inclined him to support almost any system that promised to vindicate one of his theories!

The last time I was in Glasgow I called at Mr. Pettigrew's shop, but was grieved to hear that he had passed to the Great Beyond. I had looked forward with pleasant anticipation to telling him the momentous consequences that came from that discussion so many years ago. Doubtless I should have discovered the blending principle in working out the curvilineal motion principle to its logical conclusion; but I am inclined to believe that unconsciously Mr. Pettigrew started the train of thought which resulted in the discovery of a new principle in shorthand by which the obtuse angle has been almost entirely eliminated.

The Execrated Obtuse Angles

I am sure that Mr. Pettigrew would have read with delight and hearty approval the following passages which I found some time ago in the preface to Munson's "Shorthand Dictionary" writ-

ten by the author of one of the most popular textbooks on Pitmanic shorthand in the United States:

> “We often see theorizing authors of shorthand works demonstrating by rule and dividers and by the counting of pen-strokes, the superiority of their systems in point of speed; while they fail to take cognizance on the other hand of the many hindrances to speed that inhere in their outlines.”

Mr. Munson then proceeds to discuss these hindrances. One of them he names as:

> “*Too frequent obtuse angles between stems—a very great impediment to speed*, as may be readily demonstrated by tracing with exactness, but as quickly as possible, a line like the first of the following diagrams, and then in like manner, one like the second.”

(Mr. Munson then gives two lines of outlines, one with sharp, and the other with obtuse angles.) He adds:

> “It will be seen that the outline with obtuse or blunt angles requires a much slower movement than the one with sharp angles.”

Benn Pitman and Jerome B. Howard, in their “Reporter’s Companion,” in discussing the “graphic impediments to phrasing,” state that the presence of an obtuse angle may be a “sufficient reason for breaking a phrase, no matter bow suitable for combination its elements might be from a grammatical standpoint.” They then go on to explain that:

> “Obtuse angles require a slowing and steadying of the band in their execution, and are, therefore, stenographically objectionable in themselves. In the building of outlines of *words* the obtuse angle must at times be submitted to; but in *phrase-writing* it is generally avoidable and to be avoided. It should be observed also that the difficulty of an obtuse-angle joining of a half-length stroke is greater than is that of full length stroke, while the joining of the ticks, *a-an-and*, *the*, and *of* the vowel logograms at an obtuse angle is still more objectionable.”

Another author, Mr. D. P. Lindsley, declared:

> “When an angle must be formed, the more acute it is the more easily can it be made. Obtuse angles are especially *objectionable*, *and should be avoided as much as possible*.”

Mr. W. S. Rogers, author of “Lessons in Graham Shorthand,” says:

> “We really have but two easy joinings, and those are strokes joined by circles or by sharp angles. Strokes joined by obtuse angles are more likely to detract from speed than add to it.”

In the Introduction of “A Critical and Historical Account of the Art of Shorthand,” the authors (Hugh W. limes and George Carl Mares) say:

> ❝ The obtuse joining is altogether condemnable, seeing that in writing performed with even a moderate degree of haste, it is liable to be rounded off and the two strokes appear as a single curve.[3] A system in which obtuse angles occur frequently would prove untrustworthy. ❞

The famous reporter, and foremost exponent of Isaac Pitman Shorthand in England, Thomas Allen Reed, in "Leaves from my Note-Book," in explaining the nature of various phrases said, "The easiest joinings are those of straight lines or *curves* that run into one another. Right angles and obtuse angles are less easy. Unless the junction is easy and flowing, no time is saved; indeed it will often take less time to write such words separately than without lifting the pen."

An Insoluble Problem

After I left Mr. Pettigrew I could not get his argument about the obtuse angles out of my mind. A little later, when the combination and curvilineal principles became fixed tenets in my shorthand creed, Mr. Pettigrew's denunciation of the obtuse angles seemed to intrude itself in every experiment. When I was happy over some arrangement of the characters for an alphabet I would find an obtuse angle; and immediately there would flash into my mind a picture of Alderman Pettigrew leaning over the counter of his shop in Sauchiehall Street, pointing the finger of scorn at the offending angle! There were no obtuse angles in longhand—I was forced to acknowledge that—and if the "system of the future," of which I dreamed, and for which I worked, was to be the "distilled essence of our common writing," obtuse angles must be eliminated. There seemed no way to eliminate them except by providing alternative signs for the letters, as suggested by Mr. Pettigrew, and where were sufficient signs for alternatives to be obtained in a script-hand system? Seemingly it was an insoluble problem, and I was utterly discouraged over it.

The Solution Discovered

Then, one day came this thought: if lines which join with an obtuse angle take on the appearance of large curves when the angle is obscured in rapid writing, why is it not possible to contrive combinations with that end in view? Why not arrange the horizontal and upward lines so that when they blend in the form of curves these curves shall represent very frequent combinations of letters?

I well remember the enthusiasm and the feverish energy 'with which I worked day and night on that idea—how I compiled table after table of all the common combinations of letters, and tested each of them. I realized that it was not enough to have conceived the theory: I must apply it to the most useful purpose. The result you know: the *ten*, *den*, *tem*, *ent*, *emt*, blends; and *def*, *dev*, *jent*, *jend* (the latter afterwards extended to *pent*, *pend*).

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[3] The similarity in the wording of this to our presentation of the blending principle will be noted. It was published nine years after Light-Line Phonography, hence the unconscious assimilation.

The "Blends"

In presenting the "Blended Consonants" in the first editions they were arranged in two groups:

(1) The combinations *pr*, *pl*, *br*, *bl*, *kr*, *kl*, *gr*, *gl*, *ted*, *ded*, *ses*, all of which combine without an angle. (*Fr*, *fl*, *vr*, *vl*, were added later).

(2) The combinations in which the obtuse angle was eliminated through the "natural tendency of the hand to allow such lines to form a curve"—*ten*, *den*, *tem*, *dem*, *ent*, *end*, *emd*, *def*, *dev*, *jent* (the last named being afterwards extended to *pent*, *pend*).

While the inclusion of the combinations given in the first section helped to emphasize the fact that combination was a basic principle in the system, it was not necessary to make a special feature of them, as the characters joined without the application of any special blending principle. For this reason I thought it advisable in later editions to introduce them without special classification in order that students might have a more extensive writing vocabulary early in the course.

The little "wave-like" *ses* has always been a great favorite with writers; there was nothing just like it in any system prior to "Light-Line," but it has been adopted in several systems since then.

The joining of *t* to *d* to express *ted*, *ded*, is an old expedient used in many other systems.

It may interest many writers of the system to learn that the sign for *men*, *mem*, was not in the system at first. At that time *ng* was expressed by the sign now used for *men*, *mem*, and *nk* was expressed by the lowered *n*. Later the lowered *n* was assigned to *ng*, which was lengthened for *nk* (*ngk*). This change permitted the use of the lengthened *m* for *men*, *mem*, and thus one of the most useful of all the combinations was added to the system. Isaac Pitman, in an address before the Shorthand Society, London, 1894, said:

> "*M* and *n* are not only side by side in the alphabet, but like loving sisters they walk through the language hand in hand. These affinities must be regarded in the selection of signs to represent the sounds, so that the letters may run easily into each other as the sounds do."

It will be seen that the dictum of the author of Phonography applies more strongly to the representation of *n* and *m* in Gregg Shorthand than it does to his own system. It is certainly remarkable how frequently *n* follows *m*, and how seldom it precedes it. The saving effected by expressing such common combinations as *men*, *mem*, by one impulse of the pen is very obvious.

As a Matter of Record

An attempt has been made to show that the blending principle was not original with "Light-Line Phonography." This is highly complimentary, because it shows that the great value of the elimination of the obtuse angle, and the resulting combinations (one is tempted to say, "thus killing two birds with one stone") is fully recognized even by those opposed to the system. In attempting to substantiate his assertion our critic points to arbitrary signs for combinations of letters, such as have appeared in systems since the beginning of shorthand, and which are in no sense blended signs.

In view of these misstatements I may be pardoned if I make a digression at this point to state that so far as I am aware:

(a) The blending of the obtuse angles in the form of curves is not to be found in any previous system.

(b) The curves representing the blends in our system *are not used in the alphabet for any purpose*. Therefore it is obvious that the blending principle was a fundamental part of the construction of the alphabet, and not an afterthought.

(c) The name, "Blended Consonants," was not used in other systems until *after* the appearance of "Light-Line Phonography."

(d) In borrowing the name, "Blended Consonants," from "Light-Line" as a substitute for the names previously used—"syllabic contractions," "consonantal combinations," "combined consonants," etc.—to designate contractions which are not obtained by allowing lines forming an obtuse angle to blend as curves, other systems have perpetrated a ridiculous solecism. Webster's New International Dictionary defines "blend" in this way:

> "To fuse, merge … to pass or shade imperceptibly into one another … so that it cannot be known where one ends and the other begins."

The Century Dictionary defines it:

> "To cause to pass imperceptibly into one another; to unite so that there shall be no perceptible line of division."

How admirably this describes the elimination of the obtuse angle by the arrangement of the letters, so that they pass "into one another" in the form of a large curve "without any perceptible line of division" will be apparent to any reader who is familiar with the system. And it will be equally apparent that the name "Blended Consonants," when applied to arbitrary combinations of consonantal characters which join with a sharp angle, and cannot therefore "pass imperceptibly into one another," is a misnomer.

Perhaps I have written at too great length on this subject. In coming to the explanation of this subject I found a reminiscent pleasure, as it were, in recalling my boyish enthusiasm and exultation over the discovery of the blending principle. In those days it was an epic event! And in all the years that have passed since then I have not had any reason to change my views about its importance. Indeed, I would be wanting in frankness if I did not acknowledge that the Blended Consonants have given me greater satisfaction than any other basic principle of the system, except Curvilineal Motion, of which it is a natural and logical development.

Chapter 4
The Evils of Shading

> It has finally become the experience of the most expert shorthand writers that outlines which depend upon shading for their legibility are in general unsafe outlines to adopt.

—George H. Thornton

It does not seem necessary to argue that it takes longer to write a heavy stroke than a light one. The fact is so obvious that I was inclined to depart from the plan of giving quotations from authors and prominent advocates of other systems in support of any statement I made. My files contain a folder for each shorthand principle, and the one devoted to shading is simply overflowing with articles and quotations about the evils of shading. Many of the articles give numerous instances of humorous—and sometimes serious—errors in transcription which have been caused by the use of shading.

An Obstacle to Speed

To be consistent with the plan of the series of articles, I am going to incorporate a few quotations. The first one is from a book published by Isaac Pitman & Sons, called "Phonography in the Office." The author, Mr. Kingston, deplores a "too heavy style of shorthand," as "the increased friction from the resistance of the paper makes it a serious obstacle to the acquisition of speed, to say nothing of the difficulty of distinguishing thin and thick strokes." He then gives an exercise "so framed as to consist almost exclusively of light curves," stating that the "selection of words and phrases which favor a continuous, flowing style of writing will enable the writer to take it down easily." After giving the selection consisting "almost exclusively of light curves," he utters this significant warning:

> The rate of speed required in the writing of such a passage will be much greater than upon an ordinary passage, and it must not be used as a test of speed, or the result will be very misleading.

Some years ago a well-known Chicago law reporter, Mr. W. E. McDermut, in writing on the subject of shading, said:

> Forty years ago Mr. Graham tabulated the results of experiments made to test the relative brevity of certain characters and combinations. His tables showed that light characters are at least ten percent more rapid than heavy ones. I have demonstrated with shorthand classes that this is the minimum difference, and some writers claim that the advantage of light strokes amounts to thirty percent.

In his "Handbook of Standard Phonography" (Edition of 1858, Part V., p. 12), Mr. Graham said:

> "The difference between *t* and *d* shows that it is a disadvantage to write with a heavy hand—that the heavy lines should be barely distinguished from the light lines, which should be made very light."

Mr. Isaac S. Dement, the winner of the first reporters' speed contest in the United States, said after the contest (*Phonographic World*, September, 1887):

> "I wish also to say here that I think this light-line system is the true one, and will be thoroughly demonstrated to be the true one in time."

In the preface to the "Modern Stenographer," Mr. George H. Thornton, former president of the New York State Stenographers' Association and official reporter of the Supreme Court, New York, said:

> "It has finally become the experience of the most expert stenographers that outlines which depend upon shading for their legibility are in general unsafe outlines to adopt. … If, as experience has taught, this shading of the outlines can be done away with, it is useless to tell a practical stenographer of the immense advantage in point of speed to be gained thereby. … The essence of this principle is recognized by Mr. Munson in his "Complete Phonographer," for he there says that increase of speed is attended with decrease of force, and therefore that all stems would be written as light as consistent with legibility. If this is true, the converse of the proposition most naturally follows, that the increase of force necessarily required in the shading of the outlines must be attended with decrease of speed. It is so apparent that a plain system can be written with a greatly increased rapidity that it is hardly worth while to demonstrate it."

Correct Shading Essential

The *Phonographic Magazine*, Cincinnati, Ohio (the organ of the Benn Pitman system) for May, 1889, has this frank admission:

> "Undoubtedly, there are many outlines which are recognizable from their general form without reference to shading—with the shading omitted, or even with the shaded and light strokes reversed. But such outlines are relatively few, and are only the forms of long words or of highly characteristic phrases. Thousands of words and phrases of only one and two strokes depend upon correct shading not only for ready legibility, but for a degree of legibility which enables the writer to read them at all."

In answer to a question from a correspondent who experienced difficulty in shading horizontal strokes—and he is not alone in that!—the *Phonographic Magazine* (October, 1904) gave the following elaborate suggestions:

The ordinary normal position of the hand in phonographic writing is such that both nibs of the pen may rest upon the paper with equal pressure. In shading horizontal strokes this position may be temporarily modified by very slightly rotating the penholder with the downward pressure of the thumb, so that the left nib shall press a little more heavily than the right nib. As soon as the stroke is executed, however, a contrary rotation of the penholder should bring the pen back to the normal position. Your only danger in carrying this hint into practice is that you may make the rotation of the holder and the consequent pressure on the left nib greater than necessary. The modification of the normal position should be very slight, indeed.

These quotations are from authors or expert writers of Pitmanic systems. In these systems shading is used chiefly as a means of distinction between the phonetic pairs, although as Mr. Hugh limes has pointed out, "Pitman shades not only to distinguish similar consonants, but to add *p* to *m*, *r* to *l*, *ch* to *r*, and to give *n* a nasal intonation."

Shading Used for Many Purposes

Shading has been used for many purposes in various systems. It has been used to express double letters; to add consonants, such as h, r, s, t; to add vowels; and to distinguish shades of vowel sounds. In the German systems it is generally used "to distinguish symbolically-indicated vowels, and also certain written vowels."

As far back as 1856 Soper thickened letters to add *r*, calling it "the simultaneous *r*." He was followed in this by J. G. Cross (1878), who called it "the coalescent *r*," by Sloan (1882), Simson (1884), Barter and others. In Guest's "Compendious Shorthand" thickening is used to add *t* or *d*, and lengthening is used to add *s*. It is usually claimed on behalf of systems in which shading is used for the purpose of adding a letter that this is an advantage, because they have less shading than in the Pitman system.

The most prominent of the systems applying shading for the addition of a letter is the Sloan-Duployan. There was no shading in the original French system, but as the outlines were very cumbrous, Mr. Shan, following the lead of Soper and Cross, introduced shading to express the letter *r*.

Shading Denounced by Those Who Use It

A pamphlet on behalf of Sloan-Duployan Shorthand, entitled "Revolution in Shorthand" (written and copyrighted by Mr. Thomas S. Malone, then the Glasgow agent for Sloan-Duployan and who later became identified with "Script Phonography") claims that one of "the leading principles of structure from which the system derives its chief excellence" is "the absence of shading, or the use of light and heavy signs, which is only introduced by Mr. Sloan into his adaptation to meet a peculiarity of the English language with regard to one particular letter of constant recurrence."

Then follows this succinct statement of the evils of shading:

> "The extensive use of the process of shading outlines, although very general in the old systems, is a most objectionable principle in shorthand, being an obstruction of speed if used, and a source of illegibility if neglected."

In the same paragraph the "monstrous 'position' principle in other systems, which gives to an outline a variety of meanings according to its position on the paper" is denounced. But, in the words of Kipling, that is another story.

Even more effective is the argument against shading contained in the "Reply to T. A. Reed's Criticism of Sloan-Duployan Shorthand," written by Mr. Malone, and published by the Sloan-Duployan Shorthand Association. The "Reply" says:

> After describing the alphabet he [Mr. Reed] remarks: "Nor do I find fault with the distinction between the two letters in each pair by length, although a good deal is lost in brevity by the absence of any distinction in thickness." However high may be Mr. Reed's reputation as a shorthand writer, we unhesitatingly assert that here he utters a palpable fallacy obvious to the merest tyro in the art.

That the absence of any distinction in *thickness of stroke accelerates* instead of *retarding* speed is a plain matter of fact, which it will require something more than the weight of Mr. Reed's authority to controvert. Let the reader try the simple experiment of tracing the following two pairs of lines—the one distinguished by length and the other by thickness—and then judge of the soundness of the theory Mr. Reed gravely propounds. The former pair, it will be seen, in striking contrast to the eye are equally expeditious to the hand, while the latter necessitates the shading—a process most obstructive to rapid writing. Great indeed must be the blinding power of self-interest if so able a man as Mr. Reed can persuade himself that the absence of shading in a shorthand system is a defect.

And on the same page Mr. Malone, in speaking of some of the Duployan outlines, said:

> As they are free from shading and scarcely involve the principle of position, the facility with which they can be applied is self-evident.

In his first lecture on "Script Phonography," Mr. Malone said:

> Our next source of speed is the light, hair-stroke character of the writing, there being no shading, no thickening of the strokes, except with regard to one letter, and that the most common letter in the language, the letter s and, of course, its cognate *z* (or soft *s*).

There is a characteristic confusion of ideas in this statement. Mr. Malone begins by claiming as a great merit of "Script Phonography" that there is little shading, and then goes on to say that shading is used for the "*most common letter in the language!*"

After the appearance of "Light-Line Phonography"—a system in which there was absolutely no shading—Mr. Malone made a "strategical retreat," in these words:

> To the thoughtless and indolent, the total absence of any distinction between thick and thin lines in a system of shorthand may seem an attraction by the license afforded for dispensing with all discipline of hand movement and concentration of thought. To write in a slipshod, mechanical manner, without having to think appeals to some as a thing to be desired.

My only comment on this is to repeat Mr. Malone's reference to Mr. Reed—"Great indeed must be the blinding power of self-interest."

Shading Always Detrimental

Shading is objectionable in whatever form it is used. It is more objectionable as an expedient for adding a letter (as in Sloan-Duployan, Script, Cross, etc.) than when it is used to distinguish between the phonetic pairs, as in the Pitman system. When it is used to distinguish the phonetic pairs, if the shading is not clear there is sometimes a slight clue to the word on account of the similarity of sounds. It is true, as stated in the quotation from the *Phonographic Magazine* already given, that "such outlines are relatively few, and are only the forms of long words or of highly characteristic phrases." But it does happen occasionally. In the case of systems where shading is used to add an important letter, if the shading is not clearly indicated, there is absolutely no indication that a letter is omitted.

The difficulty in some of these systems is intensified by the fact that the shading is applied to *upstrokes*, and even to *small circles and hooks*! Where an attempt is made to apply shading to minute characters, such as circles and hooks, the onward impulse of the pen is *checked abruptly* while the pressure is being applied to the minute character. After an abrupt pause of that kind it is difficult to regain momentum, just as it would be impossible for a runner to stop every hundred yards to pick up something and keep going at his maximum speed. The difficulty of applying shading to a small circle or hook, even when writing at a moderate speed, will be apparent to everyone; but when the writing is *rapid* it is almost impossible to apply shading to minute characters.

There are many systems in which *both* position-writing and shading are used to add consonants. When either of these hazardous expedients is not applied with precision, the reading of the notes depends upon the guessing ability of the reader; but when *both* expedients are applied to the *same character*, and neither applied with precision, the reader of the notes needs to be a super-guesser, so to speak.

Chapter 5
The Evolution of Shading

> My contention is that it is not permissible to elaborate distinctions of thickness in one and the same stroke, by making it at one time thinner and at another thicker. Such a contrivance may be placed in its obvious light if we could imagine anyone proposing to abbreviate our ordinary writing by making the "k", when written thick and heavily, to stand for "g", and when thinned to be used for "k" or so that "Kate" would be written with a thin "k" and a thin "t", and "giddy" with a thick "k" and a thick "t"!!

—Thomas Anderson

As you will have noticed, I have taken pains to show that shorthand principles have gone through a process of evolution. In tracing this process of evolution in shorthand we often find that an expedient, which is introduced in an incidental way in one system, has been expanded into an important basic principle in the structure of a later system, and we often find that when the principle has been applied to the limit of its possibilities there has sometimes come a reaction against it. Thickening of characters as a means of distinction between similar consonant sounds, is a good illustration of this.

As comparatively few people have given much thought to the origin of the expedient of thickening in shorthand, and its effects upon the history of shorthand when extended from an *expedient to a principle*, I am going to explain it somewhat fully.

The Origin of "Shading"

The first use of shading to distinguish between pairs of consonants has been generally attributed to the Harding edition of the Taylor system. Harding's first edition was published in 1823, and, as will be seen from a quotation given later in this chapter, Isaac Pitman studied shorthand from the Harding edition of the Taylor system and wrote it for seven years. Probably this is why the introduction of shading for the purpose of distinguishing between pairs has been very generally attributed to Harding.

While writing this series of articles I had occasion to refer to Molineux's "Introduction to Byrom's Shorthand," and in it I found the following sentences:

> The next consonant, it may be observed, is *f* or *v*, the latter being in general represented by the same mark as *j*; though, occasionally, it may be useful to distinguish from the former by making a stroke a LITTLE THICKER.

A similar distinction is also occasionally made, whenever it may appear either useful or necessary, between the letters *s* and *z*, which, having the same power, are generally signified by one

and the same horizontal straight line. When they are distinguished from each other, the letter *z* is made a little thicker than the *s*.

The book from which I have quoted this is the Fifth Edition, published in 1821; but probably the same statement appeared in the previous editions, the first of which was published in 1796. As Harding's first edition of Samuel Taylor's system was published in 1823, it seems clear that he derived this means of distinction between pairs from Molineux or Byrom—especially as the distinction is made for the same pairs—*f* and *v*; *s* and *z*—as in Molineux's edition of Byrom's system.

In his "History of Shorthand" Isaac Pitman quotes approvingly from the review of Byrom's system by Lewis, in which he says:

> "In order to assist the learner he [Byrom] classifies the letters in the following manner, according to their affinity of sound or their labial connection: *p, b; f, v; s, z; sh, zh; t, d; th, dh; k, g; ch, j; m, n; l, r; h.*"

Isaac Pitman, having been familiar with this method of using shading as a means of distinguishing between some of the cognates through his practice of Harding's edition of the Taylor system, expanded it to a general principle for the purpose of distinguishing all phonetic pairs of letters.

A Retrograde Step

I regard it as extremely unfortunate for the progress of shorthand that Isaac Pitman studied the Harding edition of the Taylor system. If he had not done so, the history of shorthand for more than half a century might have been entirely different, and the art might now be part of the education of every child. Think what that would have meant to the world! The saving in time and effort effected for millions of people, to say nothing of the educational advantages that would have been derived by all who studied the subject, simply staggers the imagination.

By the extension of thickening to nearly all the phonetic pairs as a means of distinction, the progress of the art was deflected from its natural course for more than half a century. I say this because I am thoroughly convinced that the real source of most of the "complexities, perplexities, and eccentricities" of Pitman's Shorthand, which have prevented it from becoming almost universal, is to be found in the introduction of shading to distinguish the phonetic pairs. I hope to make this so clear as to carry conviction to the mind of the impartial reader.

To begin, then, at the very beginning: "The Life of Sir Isaac Pitman," published by Isaac Pitman & Sons, says:

> "Phonography, he long afterwards wrote, with all the intellectual and social benefits that follow in its train, has resulted from the seemingly trifling circumstance that the author, at the age of seventeen, learned Taylor's system of shorthand from Harding's edition and that he was incited to the study chiefly by the persual of the eloquent enumeration of some of the advantages arising from the practice of the art, from the pen of Mr. Gawtress, the publisher of an improved edition of Byrom's system."

Mr. Andrew J. Graham, author of the "Graham Standard Phonography," in the Phonographic World for August, 1889, pointed out that the use of shading, as a means of distinction between the phonetic pairs of letters, was suggested by Mr. Pitman's previous use of the Harding edition of the Taylor system. Mr. Graham said:

> "Isaac Pitman, by his own acknowledgment, used Taylor's system for seven years prior to the publication of his "Stenographic Sound Hand." Taylor's system was published in 1786, and in 1823 there was published an improvement upon it by Harding and it is my impression that Isaac Pit-man acknowledges in some of his works that that was the system he used for seven years. Although Mr. Pitman has never made any acknowledgment of his indebtedness to Harding for the most important principles of "Phonography," we find in his 1837 edition that he copied the most important of these from Harding's book; and these were the method of representing vowels by dots and dashes and of distinguishing pairs of letters by pairs of light and heavy signs, as *f, v*; *s, z*. (Pitman's Phonotypic Journal, Vol. VI., 1847, p. 340). Mr. Pitman publicly acknowledged that to one familiar with these representations of this idea it was but child's play, with the relations of the consonants of the language generally known, to *apply this* important principle in his alphabet; as, in the "First Edition" (1837), *p, b, t, d, ch, j, k, g, f, v, s, z.*"

[Mr. Graham then gave shorthand illustrations showing how closely Mr. Pitman followed Harding in the arrangement of the consonants in his 1837 edition.]

In fine, Isaac Pitman in 1837 copied Harding's alphabet, with its important characteristics, more closely than he has his own 1837 alphabet, in several editions since.

In addition, Mr. Pitman appropriated from Harding the plan of writing words in *three* different positions, to imply first-position, second-position, or third-position vowels. See Harding's book (1830) p. 24, last paragraph but one. Also Harding's plan of writing the vowels to preceding or following consonants and the plan of reckoning the position from the beginning or direction of the consonant.

Mr. Graham then states that Isaac Pitman was indebted to Harding for:

1. Similar or paired signs for similar or paired sounds. As to discovering these relations of the consonants they were completely known to phonologists from 1787 (in Rev. William Graham's Shorthand, in Byrom's system, and in Harding's).

2. The arrangement of vowels into two classes, one part represented by dots, and the other by dashes, in three different places, with a determination of the order in which those vowels were to be placed, to read before or after; and as to the direction of the strokes.

Mr. Graham's article is interesting, although it is marred by personal malevolence towards the author of Phonography.

Phonetic Pairing Very Old

As emphasis is placed in the foregoing quotation on the pairing of sounds, we may point out that Mr. Graham could have quoted earlier instances of pairing than those he mentioned. The

following quotation from "The Life and Labors of Sir Isaac Pitman," by Benn Pitman, is valuable in this connection:

> ❝ It is a curious incident in Stenographic history that the exact order of Isaac Pitman's simple-vowel scheme, and *to a great extent the pairing of the consonants*, was anticipated in one system of Shorthand, namely, that by Holdsworth and Aldridge, joint authors of "Natural Shorthand," published in 1766. … It was the first brief system of writing in which the phonetic principle and a full alphabet were recognized. ❞

In extending Harding's expedient to all the pairs Mr. Pitman found it necessary to give the downward directions to nearly all the frequent pairs of letters, since shading could not be applied with ease or certainty to upstrokes. Therefore Mr. Pitman assigned downward characters to some of the most common pairs of letters—*t, d, p, b, f, v, s, z, sh, zh, th, dh, r, l.* This resulted in a constant downward tendency in the writing, and to counteract this preponderating downward tendency Mr. Pitman provided some of the letters with alternative forms which were written upwards. In the introduction of these alternative forms to patch up a defect in the arrangement of the alphabet—a defect which was a direct outcome of the use of shading to distinguish similar consonants—is to be found the origin of most of the complications of Pitman's Shorthand.

Evil Effects of "Shading"

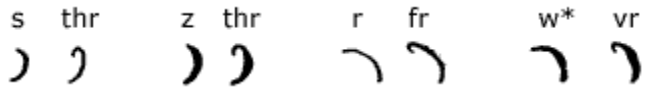
To return to the arrangement of the Pitman alphabet: The upward straight line was assigned to *r* (only one form of *r*), one upward curve to *l* (only one form of *l*), the other upward curve to *sh* (only one form of *sh*); the horizontal straight facile line was assigned to comparatively infrequent *k*, *g*; and the horizontal curves to *n, ng, m, mp*. Just compare the importance of these letters, and you will see at once that "stenographic balance" (or lineal writing) is absolutely impossible when so many frequently-occurring letters are written downwards. Remember, too, that *t, d, p, b, s, z, th,* are ALWAYS written in a downward direction and that the three upward characters, *r*, *l*, *sh*, are as often written downward as upward, and you will get an idea of what I meant about the evil effects that the introduction of shading had upon shorthand construction.

In his "Note-Taker" (published in 1873) D. P. Lindsley pointed out that in Pitmanic Shorthand it was possible to writes the combination *strd* in *twenty ways*. He said:

> ❝ It is not easy to employ the best form for a word when several possible forms occur to the mind. For example, suppose that a word containing the letters s t r d is to be written. The form may be varied in more than a dozen ways, retaining the letters in the same order. In the following words, the only consonants written by the Phonographers are s t r d; yet each word is written in a different way, as follows: Then followed the outlines for these words: *Saturday*, *steward*, *stride*, *strayed*, *astrayed*, *astride*, *eastward*, *yesterday*, *sturdy*, *stirred*, *storied*, *star-eyed*, *asteroid*.
>
> Were the forms given above all the forms from which the student must choose in writing words containing these letters, the difficulty would not be so great as it really is; for, besides these legitimate outlines there are *eight* others, which are not recommended for use, yet are quite as likely to be chosen by the young writer, who must choose between twenty possible outlines to find the correct one. ❞

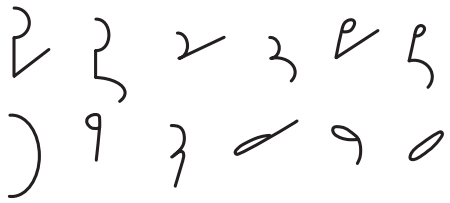
Since the above was written the "Committee on Shorthand Standards" of the New York State Shorthand Reporters' Association has declared that the "compound consonant devices of Pitmanic shorthand contribute not a little to its weakness through being pushed too far." Says the committee:

> This factor more than any other is lost sight of by the writer of mature experience. To realize its importance you must by a conscious effort set aside the unconscious familiarity acquired by thorough training and long experience and look with the open mind and inquiring eye of the shorthand novice about to be initiated into the mysteries of the shorthand art.
>
> "Consider these eight signs, with their respective meanings:



*The Benn Pitman form for *W* is used.

> No explanation however ingenious can evade the confusion of the student on learning that a stem which, through every other variation of half or double length, final hooks, loops, or circles, is consistently S or some systematic addition to 5, here stands for the S-less compound *thr*—and similarly for the other three pairs of stems.
>
> Consider the consonant sequence *str*



> Here are twelve different representations provided, of which every writer will use at least a majority at one time or another. By any standard of the relative frequency of the combination or of the component sounds this is an overbalanced and wasteful use of material, contributing more to mental hesitation than to facility.
>
> Consider, for a final illustration, the double length device used for *te*; *der*, and *ther* on all strokes, for *ker*, *ger*, and *er*, in addition on some strokes, with a sentiment rapidly crystallizing in favor of using it for ted on all strokes as well. In professional shorthand writing almost any device or sign may or must be expected to 'carry double,' but reasonable limitations must be observed if positive legibility, the final test of any system, style or writer, is to be maintained."

Experienced writers of Pitman's Shorthand frankly admit that the numerous alternative forms for letters in that system are a fruitful source of hesitancy and uncertainty in writing. Few of them, I believe, have traced the necessity for these alternatives to the original source—the introduction of shading to distinguish the

> phonetic pairs. This defect in the system has been so well recognized by the Pitman firm that there has been a strenuous effort to create a feeling of reverence f or these alternatives as perfect marvels of scientific ingenuity. A favorite method of camouflage is to speak of the "wealth of material" represented by these alternatives. ❞

Alternatives Responsible for "Breakdowns"

As illustrations of the amusing manner in which the publishers of Isaac Pitman Shorthand seek to defend the use of alternative signs for the characters, I give two quotations. The first is from an article on "Alternatives in Pitman's Shorthand," which appeared in Pitman's Journal for July 26, 1919:

> ❝ One of the features that conspicuously distinguish Pit-man's Shorthand from inferior systems is the provision of alternative forms for the representation of individual consonants. … Failure to grasp or to recognize the full significance of the rules which govern the employment of various alternatives is responsible for many an examination breakdown. It cannot be too often repeated that it is wise on the part of every student, when he or she has gone through the adopted textbook or attended a complete course of instruction, to go through the system again from the beginning. The early rules will now be seen in the new light. Little things that had been overlooked or imperfectly mastered will reveal their real importance, which was perhaps less obvious on the first persual. The great value of the alternative forms would be brought out by a critical scrutiny such as is here recommended. And the necessity of availing oneself fully of those alternatives will be driven home with a force that was not felt originally…
>
> Let the intelligent, critical student ask himself why it proves beneficial in practice to use sometimes a stroke and sometimes a circle to represent s; why it is useful to be able in some instances to write *r* or *sh* from the bottom upwards and in other instances to write those letters from the top downwards; why it is valuable to indicate an added *t* or *d* by halving, and why in certain cases it is preferable to employ the full-stroke forms to represent those letters; or how it is that legibility and fluency are promoted by the use of hooks for *r*, *l*, *f*, and *v*, in addition to the alphabetic characters; or what is the precise gain secured by the various modes of representing the aspirate, and he will soon find that he is launched on a fruitful intellectual inquiry. He will be brought into close and intimate contact with some striking facts of the language and of the raw material from which all shorthand writing is built up. ❞

"Facing Facts"

The same journal for September 17, 1921, which I have just received, contains an article under the title, "Pitman's Shorthand and its Facile Word-Forms," which I give in full:

> The student of Pitman's Shorthand, when he has discovered how efficaciously the use of alternative characters to represent a single consonant serves the purpose of vowel indication, is prone to apply the method universally. To be able from the mere form of a consonant character to tell infallibly whether an unwritten vowel precedes or follows it, or whether a vowel is or is not to be read between two successive consonants, comes as a revelation of hitherto unsuspected possibility of handwriting. The beginner had encountered nothing like it in learning shorthand. And he is justifiably fascinated. He has found out for the first time how to make two blades of grass grow where one grew before. His enthusiasm is diverted into a new channel when his teacher begins to invite his serious attention to another powerful tendency in this system. Alternative signs, he begins to perceive, serve another purpose also. Shorthand is not merely a method of brief writing. It is a method of rapid writing. The twin requirements of legibility and speed have to be provided for; and since all possible combinations of geometric forms are not equally capable of being made with perfect accuracy at speed, there are instances in which it becomes imperative to select the form that does fulfill that requirement. Ease of writing then becomes the paramount consideration. And so the student having learnt, for instance, that a downward *r* indicates a preceding vowel and that an upward *r* indicates that a vowel follows, is made aware that another indispensable need compels him sometimes to subordinate the principle of vowel-indication to that of facility of writing. The upward *r* in *arch*, *artist*, *answer* and *officer*, and the downward *r* in *room*, *remain*, and *romance*, show how Pitman's Shorthand faces facts.

Any intelligent reader will know why the Pitman publishers feel it so necessary to assume an attitude of profound admiration for alternative characters, and to go into ecstasies over the manner in which their system "faces facts." The truth is that it is because they are face to face with facts that such articles appear in almost every number of their publications.

The consequence of the introduction of shading, to distinguish the common phonetic pairs, is that instead of having a fluent, onward, lineal movement the tendency of the Pitman writing is invariably downward. It is almost impossible to write any long word in Pitman's Shorthand from the alphabet without the writing descending two, three, and sometimes four strokes, below the line of writing. This explains why all the early lessons in Pitman's Shorthand consist almost exclusively of monosyllables. *Very few long words are ever written from the alphabet in Pitmanic shorthand.*

Alternative Forms a Hindrance

Writing on this subject in the *Gregg Shorthand Magazine* for November, 1914, Mr. E. P. Aust (of Bath) said:

> But whatever passage is chosen, the alphabetic character of Gregg will always stand out as one of its strongest features.

> It must be a very common experience of Pitman teachers, after explaining to and drilling their students in one of the many modifications of the Pitman alphabet, each with its numerous rules and exceptions, to find them continuing to write alphabetically. The average student, when he has to write a new word, writes it alphabetically, and generally lets it stay at that. And if the case of the reporter (recently quoted by you) who wrote *reference* in full is at all typical, this sort of thing is not confined to learners. In the case of the learner, at any rate, I think it is a perfectly natural and logical error. The Gregg student will, of course, act in precisely the same way, save that he will use the vowels as well; but generally, unlike the case of the Pitman learner, the resulting outline will be correct, or nearly so. I went into my Gregg class the other day, and found them trying—they were all beginners—to write their names in Gregg. There were some, of course, who had not gone far enough to do this, but quite a number of the students succeeded. They had simply used their alphabet. ❞

Within the past week I received a letter from a gentleman in England who is known to shorthand teachers everywhere as a foremost authority on Pitman's Shorthand, but whose name I cannot give without his permission. Among other things he said:

> ❝ After giving this time to Gregg Shorthand and understanding something of its structure and beauty—you do well to speak of Gregg artists—I find that the angular outlines of Pitman are positively repellent-—they offend my artistic eye. Certainly you have a very beautiful system, compared with which Pitman is cold and dead. ❞

That paragraph would have gone in the first chapter had I received it in time. The next paragraph has a more direct bearing on the point discussed by Mr. Aust:

> ❝ The great asset of Gregg, apart from its fluent, script characteristic, is to my mind, that a very wide vocabulary is available early; there is more shorthand material in the first seven lessons of your Manual than in the whole of the Pitman Manual. ❞

Another Evil of Shading

Among my correspondents many years ago was a talented and experienced journalist who had used Pitman's Shorthand for more than thirty years as a reporter. The gentleman to whom I refer, Mr. J. L. Cobbin, of Cape Town, South Africa, had published an improvement on Pitman's Shorthand under the title, "The Student's Shorthand"; and papers from his pen were read and discussed with great interest at the meetings of the famous "Shorthand Society," of London. Some of the American shorthand publications of that time also gave considerable space to his views on shorthand matters.

It is not known to the profession that shortly before his death Mr. Cobbin became intensely interested in our system, and sent me many warm commendations of it—interspersed, I must admit, with pleas for the retention of certain Pitmanic features to which long habit had accus-

tomed him. His letters contained many acute and philosophic reflections about shorthand systems and shorthand principles. Among other things, he said: "Your shorthand, I can plainly see, will endure a great amount of scribbling without becoming illegible. This is a high recommendation, evident at a glance to any practical shorthand writer—the mere amateur 's opinion I consider as utterly valueless." He then went on to say:

> "The very worst fault in Pitman's Shorthand is caused by an insufficient provision being made for re-duplicating certain consonants, such as *t*, *d*, *p*, *b*, *k*, *g*, *ch*, *j*, and compelling the writer either to make a double-length stroke thick in one half and thin in the other or vice versa, or to sacrifice phonetic propriety by substituting one letter for another or making the whole line of one thickness. Such outlines, for instance, as *pb*, *bp*, *td*, *dt*, *kg*, *chj*, *jch*, are intolerable; and yet there are many words in which they must be written in Pitman's Shorthand. Happily your shorthand abhors such monstrosities."

Incessant Changes Due to Shading

If you trace the many changes that have been made in the Isaac Pitman system—averaging an important change for every three years of its existence, as has been shown by Dr. William D. Bridge—you will find that most of them are due to an effort to keep the writing to the line. This is true also of many of the reporting contractions that have been adopted.

To remedy the fundamental defects in the system Isaac Pitman built up a supplementary alphabet of alternative forms. The result is that *r* can be written in Pitman's Shorthand in three different ways: an upward stroke, a downward stroke, and a hook; *l* also has three characters; *sh* can be written in two ways—upward or downward; the unimportant *h* has four characters (and two of these are compound characters); *s* has two characters; *t* and *d* can each be expressed in two ways, and so can *f*, *v*, and *n*; while *w* and *y*, in addition to the signs used to represent them (compound signs, too), can each be prefixed to other letters in six different ways!

Other Evils Follow

On account of the insertion of the vowels it is not necessary in our system to have special signs for w and y, but in the Pitman scheme not only are separate—and compound signs—assigned to these letters, but as these are inadequate, a clumsy expedient is introduced by which w and y are each prefixed to vowels in six different ways!

Speaking of the absurdity of expressing the aspirate (which Mr. Pitman described as "*a mere breathing*") in four different ways—by two *compound* characters, a tick and a dot—this naïve passage in Pitman's Handbook for Shorthand Teachers will be read with amusement by many of our readers:

> "The very wealth of Phonography is sometimes the cause of perplexity to beginners. They are so accustomed to writing a letter in longhand always the same way that when they discover that the aspirate may be written in Phonography in four ways, they do not readily grasp the idea."

I have mentioned twelve letters which are represented in Pitman's Shorthand by no less than thirty-six characters or expedients. In view of this profusion of alternatives it is more than surprising that Isaac Pitman, in criticizing the system of Samuel Taylor, should say:

> "Two forms should never be given to one letter except from manifest necessity, and such necessity should be avoided as much as possible in the construction of the system; because, with respect to every word containing any such letter it becomes necessary to determine by practice which of the several forms of the letter is most judicious in that particular word. Though this is an advantage in giving a variety of outlines to the words, yet when the principle is extended to a great many letters, the toil is greater than the reward."

The views of the author of Phonography on this subject will be approved by every experienced shorthand writer. And it embodies the strongest of all arguments against Pitman's Shorthand.

His brother, Benn Pitman, in his "Manual of Phonography," Par. 239-240, in speaking of outline formation, said:

> "Since *p, b, t, d, f, v, s, z, sh, zh, l, r, n, w, y,* and *h* are represented in Phonography in more than one way, it is obvious that many words may be written with several possible outlines. The word abbreviation, for instance, has no less than twenty possible f onus, though, of course, only a few of them are at all practical.
>
> The difficulty of choosing the best from among various possible outlines causes, perhaps, more embarrassment to the average student of Phonography than any other one point, and is best overcome by repeatedly reading and copying printed phonographic publications, and by consulting the Phonographic Dictionary, when a doubt arises, while writing original matter."

"Waste of Material"

When you hear anyone repeat, parrot-like, something about the "wealth of material" in Pitman's Shorthand, or assert that there is a "waste of material" in systems written with the slope of longhand, just point to the awful waste of material involved in providing twelve consonants with thirty-six methods of representation!

The selection, by Mr. Pitman, of the vertical stroke to express *t* and its cognate, *d*, was particularly unfortunate. As t is one of the three most common consonants in the language, its expression by a vertical stroke gave a downward tendency to the writing, as anyone can easily ascertain by an examination of a page of Pitman writing. In an effort to remedy this, there was introduced what I consider to be the most illogical device to be found in any system of shorthand—the half-length expedient. For the information of those who have not studied Pitman's Shorthand it may be well to explain that in the Pitman system when a letter is written half its usual length it is supposed to add *t* or *d*. As someone expressed it, you "subtract to multiply."

"Multiplication by Subtraction"

Consider what this means. Manifestly a single letter is vastly more frequent than any combination of it with another letter; thus, the letter *p* probably occurs fifty or one hundred times where *pt* occurs once. Yet by the halving expedient the *shorter sign is assigned to the combination* and not to the *single letter*.

From the standpoint of logic, the halving expedient is absolutely indefensible. It is merely an attempt to patch up an organic defect in the construction of the alphabet. But towards it, too, there has been a consistent effort to create a spirit of reverence. Anything that is abstruse and long established is accepted by many people without question when it is called "scientific"!

In the *Phonographic World* for February, 1891, Mr. Justin Gilbert, official reporter, Boise City, Idaho, advises the shorthand author "to look well to it that each principle in his system is applied in such a manner as to afford the greatest possible benefit to the reporter and amanuensis. That the principle of halving to add *t* or *d* is NOT SO applied is evident, as will be seen at even a casual glance. The principle as it is now used is a very useful one, of course, but if applied in another direction it would be made more than five times as useful."

A very talented Isaac Pitman reporter, Mr. George Farnell, in a paper on "The Struggle for Existence in Shorthand Material," which was read before the New England Shorthand Reporters' Association in 1900, said:

> "The halving of a letter was an old and well-tried expedient long before Mr. Pitman's time, but theretofore had not been made use of for the purpose of addition."

With an alphabet such as just referred to, the phonographer is enabled to violate, with impunity, a fundamental rule of mathematics, and add to the meaning of a character by taking away something from it; in other words, to perpetuate the paradox of making addition by subtraction.

The admission that the halving principle "violates a fundamental rule of mathematics" is hardly consistent with the claim that Pitman's Shorthand is the embodiment of "Nature, Science, and History!" Mr. Farnell, however, is more philosophic and decidedly more candid than most Pitmanic advocates, for he ends his paper with these words:

> "While, personally, I cannot think that better systems are not possible, yet I admit to the weakness that I would leave the discovery of better systems to others, being content with present shortcomings, if there are any, rather than fly to others that I know not of."

I repeat that the use of all these alternatives is the source of a very large percentage of the complication and indefiniteness of Pitman's Shorthand. Had the alphabet been selected without the necessity of striking the most common pairs downward—*a necessity due to the introduction of shading*—there would have been no need of all these alternatives, and therefore no need for the innumerable rules, and exceptions to rules, that abound in Pitman's Shorthand.

Because our system, like longhand, is free from compulsory shading, it can be written with greater freedom and with greater speed than any of the shaded systems. And, to a great extent, its remarkable legibility is due to the absence of many of the fine distinctions required by any system in which shading is applied for any purpose.

Before leaving this part of the subject it may be well to point out that the loss of time caused by shading is not due entirely to the process of thickening the characters. There are two other causes of loss of time: one is the extreme difficulty of executing *in rapid succession* light and heavy characters; and the other is the slight (but perceptible) pause which must necessarily take place after each shaded character. The greater freedom of mind and hand secured through the elimination of the necessity for observing different degrees of pressure will be apparent to any one.

Mr. Thomas Allen Reed, in discussing brevity of outline, once said: "There are inflections and inflections. Twenty easy inflections may be written more rapidly than a dozen difficult ones with awkward joinings. The easy flow of a system is one of its more practical elements." That is an opinion that will be endorsed by every experienced reporter; and there is nothing that contributes more to the "easy flow" of the writing than the elimination of thickened characters.

Chapter 6
"To Shade or Not to Shade"

Since the last two chapters were written there has been a discussion of this subject under the above title at a meeting of the National Shorthand Reporters' Association.

As a supplement to what I have written I am printing the remarks I made in the course of the discussion:

> "Mr. President, I think you will realize that this is a subject in which I am particularly interested. I ask your permission to say a few words on the subject."

It is a truism to say that we are creatures of habit—habit of thought and habit of practice. I believe that in shorthand matters this is particularly true. The practice of a particular style of shorthand for a long time seems to create both mental and physical grooves which render it almost impossible to think of other principles or other forms than those with which we are familiar.

Shorthand Systems the Product of Youth

This is strikingly illustrated in shorthand by the fact that there has been no system of shorthand produced in any country that has achieved any marked success which was not published soon after its author was out of his teens; that is to say, before he became so fully imbued with certain principles or with certain methods of writing that it was impossible for him to dissociate his thoughts from them. As the late Charles Currier Beale pointed out at one of these conventions, Isaac Pitman published his system at the age of twenty-four. Even the most original of the modifiers of the Pitman system, Mr. Graham and Mr. Munson, published their first works when they were twenty-four and twenty-nine respectively. Duployé, the author of the most popular of the French systems, was twenty-six when he first published his system, and Gabelsberger, the author of the most popular of the German systems, was twenty-seven, when after years of study he produced his great system. Incidentally I may mention that my system was published when I was twenty.

I have no hope of convincing many of you of the great advantages which I believe are derived from the abolition of shading, simply because long practice has accustomed you to it; but I do believe I can at least set some of you to thinking about the subject in a way in which perhaps you have not thought about it before.

What I have said about habits of thought and practice are shown in the case of the previous speaker. He has been a writer and advocate of Lindsley's Takigrafy for many years. The result is seen in all that he has written, and in the paper he has just read. Lindsley's Takigrafy was largely a modification of a Pitmanic system with these important variations—connective vowels and greater lineality, the latter being secured by the adoption of horizontal characters for *t*, *d,* and s, *z.*

Where Pitmanic theory and practice is in accordance with Takigrafy, he endorses Pitmanic with enthusiasm; where Takigrafy differs from Phonography he endorses the Lindsley theory of practice. For instance, he condemns the use of the downward right diagonal *(ch* in Pitman) and the upward oblique *(ray* in Pitman) for different purposes. Why? Simply because Lindsley's Takigrafy uses that character written *either* upward or downward for the same purpose.

Now I contend, and I believe that most of you will agree with me, whatever system you write, that there is much more danger of confusing the vertical t with the oblique characters *p* or *ch,* in rapid writing than there is of confusing *ch* and *r.* The characters for ch and *r* differ not only in direction and slant but they are very seldom standing alone either in Pitmanic shorthand or in Gregg shorthand. That is just an illustration of how long practice of Takigrafy has given a mental bias to his views of others systems.

The Question of Shading

Much that has been said is absolutely irrelevant to the subject, but I shall try to keep myself strictly to the point at issue—shading. It all resolves itself into a question of loss and gain. I do not suppose that I need to argue that it takes longer to make a thick character than a light character. Mr. Andrew J. Graham stated that his investigations showed that it required ten percent more time to make a shaded character than to make a light character. Mr. McDermut, of Chicago, one of our most valued members, who passed away last year, stated that his investigations had convinced him that Mr. Graham had placed too low a figure on the loss occasioned by shading, which he said was at least thirty percent. Suppose we put it at twenty percent.

All Script Systems Not Light Line

The previous speaker referred to "script systems" as if all script systems were light-line systems. As a matter of fact, all the script systems that appeared before the publication of my system were shaded systems; since then there have been two or three imitations of our system without shading. The question of shading has nothing to do with the script or cursive style of shorthand. On the other hand, there have been Pit-manic systems free from shading. For instance, there is a light-line shorthand by Mr. Thornton, an official reporter of high standing in Buffalo—and with whom I had the pleasure of dining a short time ago—and I learned today that it is represented by an official reporter who is at this meeting. Now Mr. Thornton's system is a Pitmanic shorthand, but it is free from shading, and Mr. Thornton claims an advantage on that account of twenty-five percent in facility of writing. But, as I said before, let us put it at twenty percent.

There is a factor, too, that is not often taken into account in considering these things, and that is the pause which must necessarily take place after each shaded character. It is very slight, but the hand must adjust itself to varying degrees of pressure. This is especially noticeable where straight characters are written in the same direction, one shaded and the next light, or vice versa, as in the case of *bp,* or *pb, kg,* or *gk,* or *dt.*

How Shading Affects Lineality

The next factor is that of lineality or horizontality. In a statement made somewhere else by

the previous speaker, he said that the horizontality of the writing in our system was "phenomenally high, over 90 percent, giving a remarkably close adherence to the normal line of writing," while the writing in Pitmanic shorthand had less than fifty percent of horizontality. Now what does that mean? It means that in writing our system the hand of the writer at the end of a word-form or phrase-form is in position to begin the next one. There are much fewer ineffectual movements. You will all recognize the importance of that. Suppose we put the gain in that respect at ten percent, which I think is a very conservative figure. That makes a gain of thirty percent.

Perhaps you do not see what bearing the absence of shading has on the question of lineality. Well, the history of the shading principle as generally used is a very interesting one. Isaac Pitman has stated that he had been a writer of Taylor's system, which he learned from the Harding edition of that system. Harding distinguished *r* from *l* and *z* from s by shading—you will find the full story of this in Graham's *Student's Journal*—and Mr. Pitman in telling the story of the invention of the system said that it immediately occurred to him to extend this method of distinguishing letters to all the phonetic pairs. In carrying out that idea he naturally gave the most frequent pairs of letters the downward direction, since shading could not be applied to upward characters very well, or even to horizontal characters with any facility. As you know, the result has been that many of the most frequent letters are struck downward, like *t, d, s, z,* one of the forms for *ı* and one of the forms for *r*. That is why the writing in Pitmanic shorthand always tends downward.

It is true that Takigrafy has greater lineality than Pit-manic shorthand, which I think explains the emphasis placed on that point by the previous speaker, but in Takigrafy it is obtained with an increase in the number of shaded strokes in a horizontal direction. I think I am perfectly safe in saying that, even if you approve of shading as a sort of "necessary evil," you would not care to increase the number of shaded characters in a *horizontal* direction. On account of the absence of shading I was able to select horizontal lines to represent some of the most numerous letters, *n, m, r, ı,* which accounts for the phenomenally high degree of horizontality in our writing.

Shading an Arbitrary Expedient

The previous speaker made a somewhat elaborate argument to demonstrate that it was more natural to distinguish the phonetic pairs by shading. It may seem more natural to him because long practice has made it familiar to him. I believe it is more natural to both mind and hand to distinguish by *length.* It is very natural to say and to think that "as the sound strengthens the stroke lengthens." It is certainly more natural to the hand to make the distinction by lengthening, since that is the method used in longhand in distinguishing *e* from *ı,* and so forth; and in longhand writing there is no such thing as *compulsory* shading.

These are some of the gains, just *some* of them, from the elimination of shading. I need hardly speak of the freedom of mind and hand which the absence of shading must give. That will have occurred to all of you.

The Halving Expedient Discussed

Now what do we *lose* through the abolition of shading? Simply the half-lengthening expedient to add *t* or *d.* I wonder how many of you ever analyzed how much is gained by the halving expedient. The purpose of it is not so much the addition of t or *d* as the keeping of the writing to the line. Without the halving principle the entire body of the writing would tend downward. The previous speaker has stated that the horizontality in Pitmanic shorthand was less than fifty percent. Without the halving principle, it would be much less, as you will all realize.

The argument as stated was that as we used the half-length for the first letter of the pairs, that is *p, t,* etc., and the full length for *b, d,* etc., we were losing time in making the longer character. Besides this, he said, we cannot add *t* or *d* by halving. Very good. Let us examine that statement.

The first point I would make is this: that *all* the *alphabetic characters* in Pitmanic Shorthand are *full length* strokes. Mr. Graham computed that a full-length could be written only ninety-five times while a half-length was being written one hundred times. We have therefore, a decided advantage in that fact, because one-half of the alphabetic characters in our system are half-length, and these characters for *t, p, f, r, n,* etc., *are far more frequent than the full-length letters.*

Is the Halving Expedient Logical?

Next, what does the half-length represent in Pitmanic shorthand? This character [illustrating] represents *p;* when it is written half-length it becomes pt. In other words, the half-length is assigned to the less *useful purpose,* because manifestly the combination *pt* is not nearly so frequent as the single letter *p.* Did you ever think of that?

As one writer expressed it, you "subtract to multiply." It is not logical or natural to do this. There was an article in the *Phonographic World* many years ago—I think in 1893—called "The Requiem of the Halving Principle," by a Mr. John H. Hotson, an accomplished Pitmanic writer. Mr. Hotson built up his argument from the basis of Mr. Graham's computation about short and long characters, to show that if all the basic characters of the phonetic pairs are represented by *half-lengths* and *t* and *d* added by *lengthening* instead of halving, there would be a great gain in compactness and facility. The article was illustrated by comparisons of matter written both ways. Personally, I think that Mr. Hotson's theory is absolutely correct in practice, and it certainly is logical.

[Since this discussion I have looked up Mr. Hotson's article "The Requiem of the Halving Principle," *Phonographic World,* April, 1894, and the following quotation from it will make his argument clear to the reader:

> By incontrovertible calculations from indisputable facts and figures published by Mr. A. J. Graham in his "Handbook," I worked out, in an article entitled "Comparative Brevity," in the July (1893) number of the *Phonographic World,* results showing the comparative length of time occupied in writing every stroke and character entering into the composition of shorthand. For example, the time occupied in writing an initial small hook was found to be half of the time occupied in writing a full-length stroke; a small circle was found to equal 70 percent of a stroke; a lifting was found to consume 36 percent of the time taken to write a full-

> length stroke; a half-length stroke was found to consume 92 percent of the time of a full-length stroke, etc., etc. It is from these facts that I propose to prove that the halving principle is an utter failure in producing real brevity. ❞

If the halving principle were abolished entirely from a system in which it is now used, the alphabetical stroke would become the smallest stem stroke, and the present full-lengths could then be written the size of the present half-lengths, thus effecting a saving in point of time of 8 percent on every one of such present full-lengths.]

How often can you apply the halving principle? One writer who made a careful analysis of Graham writing, in which the use of the expedient is pushed to a greater extreme than in any other system, stated that it could be used only in about sixty percent of all the occurrences of *t* or *d.* In Taylor's *Commentary on Pitman Shorthand,* published by Isaac Pitman & Sons, there are, I believe, fifteen pages devoted to the explanation of when it *cannot* be used.

If it were not for the fact that it *helps* to keep the writing to the line in Pitmanic shorthand, the half-length expedient would not be worth what it costs even in Pitmanic shorthand.

Variable Lengths

Before leaving this subject I should like to take exception to the constant reference to "triple lengths" in Pitmanic Shorthand. In reality there are four lengths in constant use, and occasionally a fifth length. There are but three lengths in our system. In Isaac Pitman Shorthand there are the following outlines [illustrating] for *due, admit, deem, diameter,* in four lengths. You can write this: "You met my mother" (four lengths), or "You met my mother there" (five lengths), or "You met my lawyer's mother's motor there." I could go on illustrating this indefinitely.

Now, my friends, I do not expect many of you to understand fully all that I have said on this subject, or to agree with me, because you are not accustomed to a different mode of practice. All I ask is that you keep an open mind on the subject, remembering that all the alleged losses described are offset by advantages which, to my mind, far outweigh them. If it were true that the losses were very great, then our system would be a very slow system. But you know that it has been written in the contests held by this Association at 196 words a minute on solid matter, 237 words a minute on jury charge, and 268 on testimony, by a young man who was then only nineteen years of age, and who is to-day the official reporter to the President of the United States. And the system is young! There does not seem to be much loss on account of the elimination of shading in those records, does there?

Chapter 7
Joined Vowels

> ❝ I have seen the time when I would have given the price of the transcript for a single vowel. ❞
>
> —Isaac S. Dement

> ❝ The omission of the vowels is for the most part hazardous, and, indeed, to many a pupil, the pages he has just disfigured with such a system of writing have presented to his perplexed gaze little else than the appearance of a wilderness of vague forms—a confused convention of exasperating nonentities. ❞
>
> —Thomas Anderson

Joined vowels have been used in shorthand systems from the beginning of the art. The Tironian Notes, which were used in reporting the orations of Cicero, employed joined-vowel signs, as did nearly all the early English systems.

Writing on this subject, a well-known teacher of shorthand said:

> ❝ No one questions that consonants should be written in the order they are spoken in the word, and it is just as absurd that vowels should be written in as a disconnected afterthought as that they should be so spoken in a discourse or conversation, or that the words of a sentence should be subject to such vagaries. ❞

To an orderly mind one of these departures from the natural order of expression is no more offensive or confusing than the other.

Writing, like speech, should be simple, direct, orderly, and continuous. If our position here is sound, we are forced to the use of connective vowels as being the only practicable method by which the sounds can be written in a word in the natural order in which they occur or are spoken, thus forming a continuous flow of *sound pictures*, grouped together in *word families* in such a way as to show their intimate relationship.

Importance of Vowels

The well-known reporter, Mr. Clyde H. Marshall, in an article on "The Mastery of Shorthand," emphasizes the importance of the vowels in an emphatic way:

> ❝ The accented vowel is the most important and suggestive thing about a word. When we give ear to a speaker we hear him by *vowels*, if I may use that expression. The consonants, for the most part, are not really heard at all. We hear the speaker by his vowels and by his context. ❞

In an article in the *Shorthand Writer*, April, 1919, Mr. Marshall quotes with approval this statement:

> ❝ Explicit expression of the principal—usually the accented—vowel sound of a word is of superlative assistance to legibility. But much also depends upon the power to indicate definitely any prominent vowel sound, for again and again this has been found the clue to a tangled mass. ❞

And George R. Bishop, in the introduction to the revised edition of "Exact Phonography" (1893), said:

> ❝ It is needless to say, to one who has made our language a subject of study, that a *vowel* sound is often the most prominent and distinguishing sound that a word contains; in which case the facile and prominent representing of it becomes especially important. ❞

This being the case, the absurdity of writing a consonant skeleton of the word and omitting the sounds which make the most impression on the ear will be clear to anyone.

It is even more absurd and illogical to be compelled to retain the vowel-sounds in mind and their exact order and position in the word, so that after the consonant outline has been completed they may be expressed by dots and dashes placed in different positions alongside the various consonants of the word.

The only thing that in any way justified the adoption of this unnatural method of expressing vowels was the belief that in order to obtain greater brevity than the earlier systems (which represented the vowels by *strokes* and in some instances by *compound strokes*) it was necessary to omit the vowels in practical writing.

The Correct Theory Triumphs Eventually

It may be admitted at once that the methods by which the vowels were expressed in the earlier joined-vowel systems were extremely clumsy, although some of these systems were practical reporting instruments—notably the Gurney system, which has been used for reporting the British Parliament for over one hundred years. The *principle was right*, but the correct application of it had not been discovered. When a principle is right, it is only a question of time when the practical application of it will be evolved, and it was through experience and much experimentation that the solution of the problem of joining vowels and consonants in their natural order without sacrificing speed, was discovered.

At the present time the most familiar and impressive illustration, of how the ingenuity of man, starting with a correct theory, after many disheartening failures, and in the face of almost universal ridicule, achieves the "impossible," is to be found in the aeroplane. But in this series I prefer to take the development of the typewriter as being more closely allied to the art of shorthand. I think, too, that the existing conditions render the comparison more analogous and more interesting.

I well remember the stir caused by the first typewriter with "visible writing." The writing was not so very visible at that, because it was necessary to bend forward and look over a large shield

in order to see what had been written. But even that amount of visibility was an advantage, because it obviated the lifting of the carriage to see the writing.

The proprietors of the older machines assumed an air of lofty disdain over the new "fad" or theory. Said they, "The really expert operator does not need to look at what he has written"—which sounds very much like a paraphrase of "the really expert shorthand writer does not need to insert vowels very often."

But the *theory* of "visible writing" was correct. Soon another machine came along embodying the principle in a more natural and practical way with the slogan "the writing in plain sight." Still the older machines continued to maintain that visible writing was not worthy of consideration. After a long struggle a visible-writing machine won its way to the very front rank.

In the meantime, touch typewriting had become popular and this furnished the manufacturers of the "blind-writing" machines with a new and more plausible argument. They said, "The touch operator does not need to look at his writing very often; indeed, the difficulty of seeing the writing is an *advantage*, because it is an incentive to become a touch operator in order to avoid needless lifting of the carriage!" That sounded very much like the statement quoted in a previous article, that shading was advantageous because it promoted "discipline of hand movement and concentration"!

But the visible-writing machines grew in popularity, until the older machines "scrapped" their old "blind-writing" models and adopted the visible-writing principle—a decision which meant a revolution of their entire manufacturing and sales organizations at an expenditure of many millions.

The *theory* of "visible writing" was right in the first instance. When a practical method of applying it was evolved, nothing could prevent its universal adoption.

Points of Similarity

It is not necessary to point out the striking analogy that exists in this story of the evolution of "visible writing" in typewriters and the evolution of several principles of natural writing in shorthand.

In the case of the representation of the vowels, it was a long step from the crude and illogical method of expressing vowels, by dots and dashes—when expressed at all—to expressing them by joined strokes and dashes. Like the first attempts at "visible writing" in typewriters, the expression of such common letters as the vowels by joined strokes and dashes was so clumsy as to be open to serious objection. The principle was right, however, and it is the way of mankind to persist in trying to find a solution of what is apparently insoluble. In the familiar phrase, "necessity is the mother of invention."

Then came the very natural evolution towards the representation of the vowels by the smallest and most facile signs, circles, hooks, loops, as set forth in an interesting way by Monsieur Martin in a quotation given in this article.

The third step was the assignment of the circles and hooks in accordance with the values of the material and the frequency of the vowels represented by that material.

A Desideratum Accomplished

In a discussion before the Shorthand Society, London, in 1883, the famous reporter, Thomas Allen Reed—than whom there never has been a greater authority on Pitman's Shorthand, or a more enthusiastic advocate of it—made this admission:

> ❝ The advantage of joined vowels is no doubt very great. If a good system could be constructed in which the vowels and consonants could be all joined continuously, and, at the same time, the system could be as brief as other systems without vowels are, such a system would be a desideratum we should all hail with delight. ❞

It is perhaps superfluous to say that at the time he made this statement Mr. Reed had no idea that it would be possible to construct such a system! Yet within five years from the time he made the statement such a system was published, and it is to-day written by more people and taught in more than five times the number of schools that are now teaching all forms of disjoined shorthand.

Mental Independence Necessary

The truth is that it is difficult for anyone to get away from impressions which have been placed in his mind by constant reading and practice. Habits of thought and action control all of us. Since practically all the literature of shorthand for nearly three-quarters of a century—that is to say, during all the time shorthand was widely used—has been written or published by those who are interested in the maintenance of a certain style of shorthand, considerable independence of mind is required to emancipate one's self from the impressions thus produced.

One result of the practical monopoly by the Pitman firm of the avenues of publicity in connection with shorthand has been that scant justice has been done to the great work for the advancement of the art which was accomplished by the authors of the early English systems—Taylor, Mayor, Gurney, Byrom, Stackhouse, Blanchard, and others. The references made to these systems have created an impression that they were utterly unworthy of serious consideration, and that really *practical* shorthand began with the advent of "Phonography." This is true also of the tone adopted toward French, German, and American systems. Towards all of them the references in Pitman's publications are contemptuous. In the first public explanation of "Light-Line Phonography" before the Liverpool Shorthand Writers' Association, an organization consisting exclusively of Isaac Pitman writers, in February, 1893, I said:

For half a century clever Phonographers all over the world have been endeavoring to improve the Pitman method, and their efforts have resulted merely in certain modifications of the superstructure of that system. It is utterly impossible, ladies and gentlemen, to make any vital change in the foundation of the Pitman method. Had it been possible to make any material advance on the old lines, it would have been made long ago by Messrs. Graham, Munson, Longley, or some of the other American adapters of the Pitman system. I might say, incidentally, that I am far from sharing that contempt which is so commonly expressed concerning Graham and Munson, and I think that the writers who abuse our American friends in such unmeasured terms would find much to marvel at if they only studied the works of these talented American writers.

In view of all this it has puzzled some thoughtful people to understand why the Gurney system, in which the vowels are represented by joined strokes—a very clumsy method of representation—should have been used for the official reporting of committees in Parliament for over one hundred years. Lord George Hamilton once declared that the reporting of the committees in Parliament was performed with "almost mechanical accuracy."

Evolution of Joined Vowels

The evolution of joined-vowel representation toward a natural and facile plan is one of the most interesting things in shorthand history. In a previous article some extracts were given from a letter written to me soon after the publication of "Light-Line Phonography" by the distinguished French shorthand author and scientist, M. Jean P. A. Martin, of Lyons. It will be remembered that Monsieur Martin commented on the radical departure from all previous theories of shorthand construction which I had made in giving the preference to curves over straight lines, and that he described "Light-Line" as being "mainly constructed after the principles laid down by Conen de Prépéan, the real founder of continental shorthand."

As I did not know anything about Conen de Prépéan at that time, I asked Monsieur Martin who he was and what were the "principles laid down" by him. Monsieur Martin's answer to my query is so interesting that I am going to quote it somewhat fully. In doing so, however, I must caution the reader not to accept unreservedly his statement that the plan of expressing the vowels by circles and hooks originated with Conen de Prépéan. His very natural enthusiasm for the achievements of a compatriot inclined my gifted correspondent to give Conen de Prépéan more credit than was actually due him.

Much as I dislike, at this time especially, to deprive a French author of the glory of originating this method of expressing the vowels, simple justice to earlier English authors compels me to say that circles and hooks were used to express vowels before Conen de Prépéan's time. Stackhouse, in 1760, used circles to express vowels—a small circle for *a* and a large circle for *o, which is the very use made of them by Conen de Prépéan, Aimé-Paris, Emile Duployé and nearly all the other French authors of joined-vowel systems since that time.*

This method of using the small circle and the large circle has been adopted by several English and American systems. Blanchard, in 1786, used the small circle for a and *o*, and a large circle for *w*. Holdsworth and Aldridge, in their "Natural Shorthand," published in 1766, used a small circle for *o*, a large circle for *ow*, a small loop for *eu*, and a large loop for *wh*. Oxley (1816) used a downward hook for *u*; and other early English authors made use of hooks for different vowels. Undoubtedly Monsieur Martin was not aware of these facts at the time he wrote me, any more than I was.

All Honor To France

Credit may be freely and gratefully given Conen de Prépéan, and to Aimé-Paris, Duployé, and the other French authors who followed his lead, for developing the principle of using circles and hooks for vowels, and for demonstrating its superiority to all other methods of vowel representation. It is possible, too, that they made the best use of that material for expressing the vow-

els in the French language, although I cannot speak on that subject from personal knowledge. When I come to the discussion of the use of the circles and hooks, I intend to show that the authors of adaptations of the French systems to English, and of systems for English which have copied the French vowel method, have all made a very serious mistake in adopting the French arrangement of the vowels.

The Noble Work of M. de Prépéan

With these preliminary remarks, I present Monsieur Martin's very interesting story of Conen de Prépéan:

> Conen de Prépéan published several systems, some of which are still in use in the French Parliament; his alphabets were widely different from one another. Well, his systems are nigh forgotten, but his ideas and principles survived this unfortunate scientist who died in misery after a life spent over shorthand researches and experiments. Five of these principles are quoted, page 42 "Cours de Sténographie Française" by L. P. Guénin, edited by C. Delegrave, Paris. In fact, Conen de Prépéan is the originator of the connective vowel systems as they now stand. Without Conen, it is very likely that neither Duployé nor Sloan, nor you, nor anybody else, chiefly in England *where Taylor reigned*, could write any efficient system. The principles set forth by Conen look so natural, *so simple*, so self-evident that no shorthand author, no modern author, I mean, will ever dream, can ever dream of building a connective-vowel system upon other principles; Conen hit the nail on the head; unknowingly, unwittingly, as all others, you and I and all of us have adopted them. You have received them through Sloan, Sloan though Duployé, Duployé through Aimé-Paris, Aimé-Paris through Conen de Prépéan. They are no news now, they are common property, everybody applies them among the connective-vowel shorthand authors and pays as little attention to how they came about as a child thinks of the originators or inventors of our Roman alphabet. Yet what a step from ideographic writing to Roman letter writing! What a tremendous advance! One might say European civilization is the outcome of the 25 or 26 letters of the alphabet. The alphabet is the greatest invention, the greatest blessing, and a boy of ten does not see in it anything particular; it is so common. The same thing occurs with Conen de Prépéan's principles, the importance of which is not realized nowadays.
>
> When Conen de Prépéan set to work he had before him two systems: Taylor's, which ignored vowels entirely, and Coulon de Thévenot's. Coulon de Thévenot wrote all the vowels; only the syllables were disconnected, each syllable, though very fluent, very lineal, even compact was very complicated; no connection could possibly occur among the various syllables; it was a clumsy-looking system. Every modern shorthand writer swears that it is impracticable because it does look so. Yet as it was in some respects founded on science (fluent, lineal, compact enough), it is a well-known fact that very efficient verbatim stenographers used it with great success in spite of its bad looks: Coulon de Thévenot looks a tremendously huge

thing. The point, then, was to make each syllable very short, and at the same time find out a way to retain the vowels and connect each element of the word. Taylor's system was there; what signs on earth could be added to his alphabet? He had given the problem up himself by dropping the vowels altogether. Other people took to dots and accents; but that was cutting the Gordian knot instead of untying it. The vowels were a perfect puzzle. Of course, in older systems they were used, but the vowel was a complication. Gurney, for instance, has the following connective signs for his vowels:

[Here Monsieur Martin gave some of the illustrations of the compound signs used by Gurney.]

Syllables were not short and connecting was occasionally a very tough matter with the old alphabet that had kept special strokes for the vowels.

Bertin-Taylor's disciples could show very brief outlines, and Conen de Prépéan did not wish to double these in length to add the vowels. *That was a very hard nut to crack.*

Then Conen said: Let the vowel signs be *four times shorter* than consonantal ones; that'll make a difference. Then let us take circles or loops, fractions of a small circle, and ticks as vowel signs. Yes; but Taylor's consonantal signs were *not* single strokes; some of them consisted of a hook or a circle and a stroke to represent one letter only; the new loops and fractions of a circle would clash with the hooks of the consonantal signs. *That was another puzzle.* Shorthand materials were limited in number.

Besides, supposing that there should be no clashing between the loops and hooks, the parts and parcels of the consonantal signs and the vowel signs themselves, the outlines would at any rate be long enough. What should he do?

Then Conen said: In order to represent each consonant by a simple sign, let us classify consonants phonetically and if *p* is short let it be the rule that the corresponding consonant *b* should be written long. So the problem of one sign for each sound was solved.

Again, the problem of devising connective-vowel systems of shorthand was solved, in giving the vowels a form and size corresponding to their importance when compared to the consonants.

I have not related here all we owe to Conen de Prépéan; but if you have had patience enough to follow my explanation, you cannot help remarking that the principles of that man seem now so self-evident that nobody thinks of them; yet a hundred years ago Gurney, in supplying vowel signs, could not find his way out of bee otherwise than by an awkward combination of strokes for both vowels and consonants. In those days nobody, except Taylor, had yet found a way to use decent connective signs; Taylor was radical: he did not mention them, that's all; some did the same, I believe, before him.