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MEMORY TRAINING

Cover

ITS LAWS

AND

THEIR APPLICATION

TO

PRACTICAL LIFE.

BY

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PART I.

THE PELMAN SCHOOL OF MEMORY TRAINING,

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The Laws of Memory.

"Knowledge is nothing else but to remember."

Plato.

But little thought is necessary to appreciate the truth of the above quotation; namely, that without memory there can be no self-preservation, knowledge, or progress. Therefore memory is the most valuable of all gifts, and its training a most important occupation.

Four things are necessary in order to obtain a perfect memory: a sound body, a sound mind, a rational method of training the memory, and the good will and perseverance of the pupil.

A Sound Body. This is the foundation of all, for a brain that is but scantily nourished can never be the seat of a perfect memory, because the cells of the brain are not in a healthy condition, and cannot receive deep and lasting impressions. One must therefore strive above all things to gain and preserve good bodily health. Do not weaken the system by excesses of any kind, by excessive drinking or smoking, etc., or by overstraining either the body or the mind. Excesses, overstraining the mind, and superficial work, are the worst enemies of the memory. Our present educational system tends to destroy the faculties of concentration and remembering, to the great injury of our own and future generations. Other fundamental errors I shall point out later.

A Sound Mind is such as can observe closely, apprehend quickly, concentrate its whole attention upon one subject, and can think and combine logically. There is a great deal in these few words, and it will take a good many pages to show how these faculties may be developed and perfected.

A Rational Method of Training the Memory. I leave it to the reader of these lines to judge, *after* having gone through all the lessons and after having given the directions contained therein a *fair* trial, whether these directions are rational or not.

The First Requirement of Memory.

Memory depends on two things: on a vivid, deep impression, and on facility in reproducing it. In order to be able to gain a deep impression, we must learn to concentrate our attention exclusively upon the subject in question, to observe closely all its different points of view and qualities, and to apprehend them quickly and exactly, as very often the respective objects can only be observed for a short space of time. Our first task must be, therefore, to **develop our five senses** with respect to their *observing and perceptive power. And that is where all our schools and all the memory systems hitherto written have entirely failed.* Our educational system pays little attention to the material world, to the Concrete, which so powerfully appeals to our senses, but concentrates its care upon the Abstract, the product of the dry, analysing spirit, which shrivels the fresh and youthful mind before its time, and creates many an idle care, while stilling none. Children are tortured to learn the difference between subject, predicate, and object, etc.,—abstract ideas that have no existence save in the minds of scholastics.

How Nature Works.

How does Nature go to work? The new-born infant has no knowledge. The first knowledge it gathers is through its senses; and thus it goes on for some years. A child of four years of age will be able to converse with you on many subjects, but not on abstract ones, because it does not yet know what they mean; it cannot comprehend them. Since, therefore, Nature confines herself for years to the senses, and can wait her proper time to introduce gradually abstract ideas, is it not then

a disparagement of all natural laws, if from the beginning we ignore completely the five senses and their development? How different would it be if the attention of children were first drawn to the size, the color, the form, and other qualities of flowers, birds, etc.; if they were asked and shown how to give an estimate of the length, height, width, number, distance of different objects, to describe a landscape, and so on. The word "abstract" itself tells us that men first observed and reflected upon things falling under the senses, and that only gradually, by taking away the concrete forms, they came to conceive abstract ideas. Why then fly in the face of Nature? No one has ever been the worse for following Nature's footsteps. If we will but do that, and in our schools first foster the development of the senses, we shall find afterwards that the development of the mind will proceed with strides all the more rapid. To what perfection the observing power of our senses may be brought by well-chosen and regular exercises is in some degree illustrated by the Australian bushman, who, by a foot-print in the dust, can tell who has passed, and how long ago; by the Red Indian, who observes the slightest unusual rustling in the depth of the virgin forest, and at a great distance can hear the tread of buffalo or wild horses, when the ear of the white man, though strained to the utmost, cannot perceive the slightest sound; by the Chinese, who, by his scent, can tell the nationality of people; by the tea-taster, who can tell the value of every kind of tea to the cent; and so on.

I shall, as a part of each lesson, give exercises by which the perceptive power of the senses, and especially of sight and hearing, which are the most useful in study as well as in daily life, can be brought to perfection. I shall start with very easy tasks, and shall increase the difficulty gradually as we go on. Most people make the mistake of starting with a task too difficult for them; they lose courage, and then drop the study altogether.

Exercise for Training the Eyes: I.

Take six correspondence cards of the same thickness, color, size, etc., so that they cannot be distinguished one from another; rule 5 thick lines on the first card, 6 on the second, 7 on the third, 8 on the fourth, 9 on the fifth, and 10 on the sixth. The lines must all be of the same length and thickness, and at an equal distance from each other. Then turn the cards over so that you cannot see the lines, and shuffle them as you would a pack of cards; then draw out one card, turn it for a moment, just glance at the lines, turn it back, and ask yourself how many lines you have seen. After that, count the lines on the card, to see whether your estimate was correct. Then shuffle the cards again, and repeat the experiment several times. This exercise may appear very simple, but it is very useful, for it quickens the perception, makes the judgment more exact, and trains the concentration, without which it would be impossible to name the correct number each time. Gradually it will be turned into an exercise of which the sharpest mind need not be ashamed. Of course this exercise with lines on cards is only a suggestion; one may train the observation by sight in many other ways; in fact, every object that the eyes fall upon may be made an object of practice and exercise. As you walk through the streets, you may ask yourself how many windows are in a certain house, or, in the country, how many trees stand in a group, how many petals there are in a certain flower, how many apples grow in a certain cluster, and so on.

Exercise for Training the Eyes: II.

When you are able to name each time the correct number of lines, take a fresh set of cards and draw on them with colored pencils 5, 6, 7 or 8 lines in different colors, and try then to name not only the number of lines, but also the colors you have seen, and how many lines of each color. You may have a large number of

cards for practice, marked with five lines each, by varying the colors: 1, sky-blue, crimson, violet, yellow, dark brown. 2, light-green, yellow, dark-green, sky-blue, carmine. 3, light-green, sky-blue, light-brown, blood-red, black. 4, royal blue, light-green, yellow, royal blue, dark-green. 5, orange, crimson, light-brown, dark-brown, black. 6, violet, orange, blood-red, royal blue, yellow, etc.

What is Memory?

What is Memory? People were formerly of opinion that memory was a special faculty, the seat of which was surmised to be in some part of the brain, or in the medulla oblongata. Following the materialistic tendency of our time, most of our contemporaries think that memory consists of nothing but material impressions in the cells of the brain, which, through some or other material stimulus, can be revived and reproduced. But if we analyse the process of remembering more exactly, we shall find that remembering is at least as much psychological as physiological in its nature, the material substratum, the brain, being of course necessary. Dr. Josef Müller has given an excellent definition, saying: "To remember is nothing else but to make indistinct ideas distinct." According to this, all the ideas that we have ever had remain in our consciousness, but they are not at all times noticed by us, just as in a large meeting we often notice those only in our immediate neighborhood, whilst hundreds of others present at the meeting remain unnoticed by us, but are nevertheless actually present, gathered in groups, etc. If, then, we want to speak to any one of these persons, we must go in search of him amongst the crowd; for, as each person has free will, he can go to whatever part of the hall he chooses, join any group he likes, or remain by himself. Ideas, however, are dependent on our will to a great extent; we can to a certain degree assign them special places, can join them to this or that group, and hence know where to find them later when we need them. Memory,

or, speaking more correctly, remembering is, therefore, nothing else but the noticing, the finding out, of the ideas with which we have already been occupied, and which have lived on in our consciousness unnoticed by us. This also explains why we cannot recall impressions which we have received through one or more of our five senses, but with which the attention, the mind, has not been occupied. For, as no idea has been created for the mind, there is none in existence and hence none can be recalled.

As most people are not familiar with the psychological terms now used, I shall, in these lessons, make use of the old and popular terms; the practical result will in no way be curtailed thereby.

It will be seen that memory and understanding are in such close connection with each other that it would be impossible to give a correct and lucid interpretation of the former without having previously passed some observations on the latter. The intellect has, if we may so say, different faculties, which are not possessed and developed in equal measure by different persons, and that which is predominant and best developed shows also relatively the best memory. The cause of this is that we have a natural and insuperable predilection for that branch or those branches in which the faculty most developed in us comes chiefly into play, and hence of necessity we pay greater attention to those branches. But this greater attention helps us again to learn and retain more easily. We always find that we do not forget so easily an object to which we pay special attention, for the simple reason that it has made a deeper and more lasting impression on us, and therefore a much more vivid idea has been abstracted for the mind.

The Value of Attention.

If you want to retain something, you must concentrate the whole of your attention on it. That is why people in olden times had much better memories than our contemporaries. For, as often as they heard some-

thing worth remembering, they strained their attention in order to apprehend and retain what they heard, knowing that otherwise it would be irretrievably lost to them. Nowadays every man has his notebook, and, whether the matter be important or not, he only half listens, and writes down mechanically what he has heard, and for the future he depends—not on his memory but—on his note-book. Of course, he must not forget to look at his note-book in proper time. No wonder, then, if we read that the rhapsodists knew nearly the whole of Homer's Iliad and Odyssey by heart, whilst nowadays many find it a great task to learn a small piece of poetry. Whence the difference? Is it that our ancestors were endowed with greater mental gifts than ourselves? Does the intellect, etc., deteriorate with every generation? By no means. It is that we have made a step-child of the memory by neglecting to exercise memory and attention; we would rather carry it in the breast-pocket than in the head.

A bad memory is an evil, and to cure an evil we must go to the root of it—in this case, want of attention and of exercising the memory. That is to say, we must learn to concentrate the attention on a given subject for a good length of time, so that no other thoughts can intrude; we must exercise the memory daily. The first is as important as the second; for many people complain of their memory when the fault really lies in their lack of attention. If you tell a servant to fetch you different things, he or she, instead of listening to you, will often think of other things, and if you asked him to repeat to you what you had told him, he would not be able to do so. The first impression was only an aural one; no mental idea had been created, and therefore none can later on be found and recognized.

How We Reason.

The word "idea" leads me to another point. An "idea" presupposes intellect. A clear and unaffected intellect works according to the laws of logic, and only

by logic can it attain to truth. Now, as memory depends also on what are psychologically called "ideas," the only sensible way of building up a course of memory training is to do so on the combined laws of psychology, logic, and physiology.

Now logic shows us that the syllogism is the surest way of attaining to truth. In a syllogism we infer a third truth from two truths already known. If some one narrates something about a certain Charles, whom we have never seen, and then mentions that he is a negro—a fact previously unknown to us—we immediately picture Charles to ourselves as a man of black skin, although we have never seen him. For our intellect instantly forms the following syllogism; All negroes are black: Charles is a negro: therefore Charles is black: There is a twofold process in a syllogism, as is shown by this instance. 1. We compare black with negro. 2. We arrive from the facts known to us;—viz., that all negroes are black, and that Charles is a negro—at a fact hitherto unknown to us, viz., that Charles is black; for we have never seen him, or heard or read that he is black, but only that he is a negro. That is to say, by comparing we make that which was hitherto unknown to us, also known. Now, all that we want to learn or retain is always more or less unknown to us, else we should need no effort to learn and retain it. Our motto must therefore be: **Compare,** so as gradually to bridge over from the known to the unknown. Comparison also forces us to concentrate our attention on the task in question to the exclusion of irrelevant matter. It is of importance that the beginner should have some guidance in the way of comparing; and, if we again turn to philosophy, we find there an indication of the methods which may be pursued with the best advantage. Wherever two ideas are so connected with one another as to admit of philosophical comparison, we shall find that the nature of the connection can always, in every instance, be classified as falling under one of the following Four Laws of Thought. In the case of

ideas connected under the law of Necessary Connection, the connection should be classified under its own particular sub-division.

The Four Laws of Thought.

1st Law. A necessary connection between two ideas, with the following subdivisions:—

(*a*) **Synonyms** i. e., two words of exactly the same meaning. Two words are not synonyms unless one can be used in place of the other with absolutely no alteration in the sense. Examples are: poor, indigent; frequently, often; donation, gift; allow, permit; work, labor; talk, speak.

(*b*) **Genus and Species.** In this case one of the two words indicates the class and the other word indicates the particular kind included in the class. Examples are: man, carpenter; dog, poodle; tree, elm; flower, rose; fish, cod; punishment, cane; wreckage, fraction; fraction, decimal. As species and individual is only a further subdivision of genus and species, it may be included under the same heading. Examples are: king, Edward VII.; queen, Alexandra; port, Liverpool.

(*c*) **Species of the same Genus.** In this case the two words indicate two separate but similar things included in the same class. Examples are: rose, lily (both of the Genus "flower"); London, Paris (both of the Genus "City"); black, red (both of the Genus "color"); Sunday, Monday (both of the Genus "day").

(*d*) **Whole and Part.** Here one of the words indicates the whole and the other indicates one of the parts of which it is composed. Examples are: tree, branch; horse, head; face, nose; table, leg; room, ceiling; lamb, flock; hospital, ward; saddle, leather; dollar, silver; Ireland, Dublin.

(*e*) **Object and Characteristic Quality.** In this case one of the words indicates an object or idea,

while the other indicates some characteristic quality, or attribute, or action of the object or idea. Examples are: snow, white; ice, cold; bird, fly; fish, swim; horse, neigh; judge, good; purgatory, test; lead, heavy; gold, valuable; hate, evil; rest, pleasant.

(*f*) **Cause and Effect.** In this case one of the two words indicates a cause while the other indicates an effect of that cause. Examples are: sunshine, growth; peace, happiness; bugle, signal; illness, fretful; cane, punishment; punishment, reformation; reward, pleasure; builder, house; brewery, ale; author, book.

(*g*) **Relationship.** In this case the two words indicate an alliance by kindred. Examples are: parent, child; grandfather, grandchild. If desired, the subdivision of *relationship* may be extended so as to include co-relative terms, such as: shepherd, flock; preacher, congregation; lecturer, audience; teacher, pupil.

2d Law. Contrast. When the two words are connected by *contrast,* the ideas they indicate must be diametrically opposed to one another. It is not sufficient if there is merely a difference between them. Examples of contrast are: light, darkness; dry, wet; hot, cold; high, low; rich, poor; pleasure, pain; good, bad; hard, easy. Such pairs of words as "wood, iron" are not contrasts, as they are not the exact opposites of one another.

3d Law. Accidental connection, when two ideas are not necessarily connected in themselves, but have become so only by chance owing to the fact that they happen to have been presented to the mind together and that they are therefore generally thought of together. Examples: Dreyfus, Devil's Island; Wellington, Waterloo; Rhodes, South Africa; room, chair; soldier, bugle; water, can; victory, herald.

4th Law. Similarity of Sound. This is a connection between words rather than between ideas. It is not only

found in the case of rhymes, but every time that two words have one syllable, on which stress lies, alike. Examples: burden, bird; rival, arrive; split, litany; pick-axe, axiom.

In this place I must draw attention to the fact that theory alone cannot strengthen the natural memory; but only when it is combined with daily exercises. For this reason the next lesson can only be forwarded after the exercises on the previous lesson have been received.

Let us now turn to the practical use of the above laws, by applying them to the following series, comparing each word with the one following, and irrespective of any other word that may have gone before or that may follow:

cause and effect (1)	Language	
	speak	object and charact. quality
whole and part	tongue	
	mouth	whole and part
whole and part	head	
	brain	object and charact. quality
cause and effect (2)	intellect	
	science	species of the same genus
genus and species	art	
	paint	cause and effect (3)
obj. and char. qual.	picture	
	like	contrast
genus and species (4)	unlike	
	smaller	contrast
obj. and char. qual.	large	
	elephant	

(1) Languages were formed by people speaking.
(2) Sciences came into existence through thinking, hence intellect.
(3) A picture is the result of painting.
(4) That which is smaller is *unlike* the original with regard to size; hence smaller is a species of unlikeness.

Now start with the word "language" and repeat these 16 words by heart, without looking at them again (saying only the *words* without saying or thinking of the *laws* under which they have been classed,) thus: *language, speak, tongue,* etc.

When you have done this, start with the last word and go backwards, thus: *elephant, large,* etc. Without these laws it would have cost you ten times as much time and labor to enable you to say the words from *language* to *elephant* by heart, and you would not have been able to repeat the series backwards as well. The reason of your success in learning with the aid of these laws is that, whilst you are comparing each couple of words in order to find the right classification, your attention is for the time (be it never so short) entirely concentrated on those two words, and all other thoughts are absolutely shut out. This will show you the usefulness, the necessity, of concentration for success in study as well as in daily life.

Now write down the words on pp. 16-18, and, by the side of every couple, write their classification, as shown on p. 13, but without explanatory remarks. Do not give the classification only between *town* and *country; hunting* and *chasing; flying* and *Mayfly;* but also between *country* and *hunting; chasing* and *flying,* etc., bracketing the words on alternate sides, as shown on p. 13. As soon as you have classified ten or a dozen words, recite them by heart forwards and backwards; then start with "Columbus" and recite the words as far as the last that you have classified, and then return again. If you should not be able to recall one of the words, do not look at the book at once, for this would be aiding the laziness of your memory, but think or start reciting from the other end, and in this way you will find the words without looking at the book. Use the classification given on pp. 11-13. *One pair of words will often admit of classification under more than one Law or subdivision of a Law.*

Commit the following series to memory by a careful mental classification without writing it down.

The "Language" Series (*continued*).

elephant	fertile	worship	short
animal	sterile	church	long
man	desert	altar	eternity
woman	sand	priest	time
love	stone	monk	watch
hate	hard	nun	pocket
evil	soft	gentle	clothes
good	dough	wild	tailor
mother	bread	bloodthirsty	shoemaker
child	water	tiger	boot
school	liquid	cat	stocking
cane	solid	dog	knit
stick	cube	faithful	girl
tree	triangle	friend	plait
forest	geometry	enemy	hair
mountain	measure	war	white
valley	weigh	peace	black
river	scales (1)	happy	coal
sea	star	sad	fire
storm	heavens	death	smoke
rain	God	life	cigar

The "Columbus" Series.

Classify the words of the "Columbus" Series and send the written work for correction:

Snd.	COLUMBUS discovered America	
Sp. of same Gen.	column	Obj. & Char.
	support	
	tie	Accid.
Accid.	*ribbon*	1492
	gay	Snd.
Snd.	jay	
	JAMESTOWN, Va., settled town	Snd. or Gen. & Sp.

(1) **Scales: one of the signs of the Zodiac.**

town
country
hunting
chasing 1607
flying
Mayfly
MAYFLOWER Pilgrims landed
flower
genus 1620
gentle
rough
man
MANHATTAN Island settled
hat
round
join me 1623
marry
MARYLAND SETTLED BY ROMAN CATHOLICS.
marigold
shimmer 1634
landscape
roads
RHODE ISLAND SETTLED
Colossus of Rhodes
ancient
she may age 1636
young
new
NEW YORK conquered from the Dutch
largest city
boroughs
each a share 1664
stocks and shares
clerk
pen
PENNSYLVANIA settled by Wm. Penn
pencil
sharp
razor
shaven 1682
bare
candor
CANADA taken from the French
can
metal
clip 1759
paper
leaf
TEA destroyed in Boston Harbor
teak
gum tree
thick gum 1763
thick volume
lexicon
Battle of LEXINGTON
vex
noise
cackle 1775
cockle
shell
case
bunk
Battle of BUNKER HILL.
bungle
uncle 1775
guardian
independent
DECLARATION OF INDEPENDENCE
declare
silent

shy
cockshy 1776
cock
duck
stream
wash
WASHINGTON inaugurated President
capitol
stand firm
give up 1789
all
Battle of NEW ORLEANS
ordeal
dangerous
fatal 1815
misery
MISSOURI COMPROMISE adopted
miss
girl
dress
fancy 1820
plain
straight
row
MONROE DOCTRINE declared
doctor
drug
Venom 1823
snake
glide
car
S. CAROLINA Nullification Ordinance
null and void
empty
famine 1832
dear food
tax
TEXAS annexed.
text
scroll
decorative
frill 1845
apron
muslin
calico
War with MEXICO
mixed
pure
fresh 1846
bright
GOLD discovered in California
coinage
test
verify 1848
true
false
dreadful
DRED SCOTT decision
dreaded
punishment
flog 1857
cry
sing
carol
S. CAROLINA seceded
liner
sea
fishes 1860
free
LINCOLN'S EMANCIPATION Proclamation
slaves

carry
fetch me 1863
get
BATTLE OF GETTYSBURG
defeat
they have shame 1863
surrender
LEE'S SURRENDER
lead
General
official 1865
organization
links
LINCOLN ASSASSINATED
assassin
watch
vigil 1865
overlook
over-rule
dominion
DOMINION OF CANADA established
Canadian salmon
fishing 1867
cold
hot.
FIRE IN CHICAGO
burn
faggot 1871
wood
field
GARFIELD SHOT
bullet
flash
vivid 1881
dark
Spaniard
SPANISH AMERICAN WAR
navy
masthead
view above 1898
high wind
GALVESTON TORNADO
torn up
abysses 1900
deep
wound
MCKINLEY assassinated
foul deed
episode 1901

Sometimes it is easier to classify words if you take only part of the expression into consideration: e. g. *head* and *above* instead of *masthead* and *view above.* You will see in the next lesson why some of the words are printed in different type, and why numbers accompany some of them; do not trouble about this at present.

Now write down a series of 50 words yourself, and you will find that you know it by heart as soon as you have written it. Take the last word of the "language" series and continue; e. g. *cigar, tobacco, pipe,* etc. Do not introduce into your own series words already used in the "Language" series (pages 13 and 15). Of course you can use only such words as stand in some relation-

ship to each other. There are many words which cannot be classified under necessary or accidental connection, contrast, or similarity of sound; you will see in the third lesson how such words are treated. As far as is practicable, every word in a series should have connection only with the word immediately preceding and the word immediately following. A breach of this principle is known as a "failure to inhibit." Repeat each series from memory forwards and backwards regularly every day. When repetition becomes mechanical, prepare a new series.

The Retention of Impressions.

As sensory and mental impressions are continually pouring in upon us, it is plain that we shall soon have a vast store of knowledge, if we can but retain all these impressions. The experience of people drowning proves that impressions, once received, be it through the mind or the senses, are stored up in the brain forever. We know that in a moment all the events of their lives, even to the smallest details, pass in proper chronological order before the mental sight of people drowning, and circumstances are remembered that had long been "forgotten." "You cannot get blood out of a stone," and if the impressions that continually pour in upon us were not retained in the memory, even to the weakest, then the greatest commotion could not recall them. If, therefore, we wish for an improvement in our memory, it should not be our purpose to strive after retaining a greater number of the impressions coming to us, for we retain them all as it is, although with different intensity; but we should strive after an increase of the ability of recalling at the right time the impressions we have retained.

The Revival of Impressions.

All impressions tend to revive former impressions of a similar kind. If we receive an impression which

is like a former one, and this former one is not recalled at the same time, the two impressions, the former and the present one, although alike, remain separate; but if the former impression be recalled and recognized as being like the present one, they are both amalgamated into one. When two impressions are amalgamated into one, the resulting one is much stronger, and can therefore be recalled much more easily. Let us illustrate this. Suppose you are stopped in the street by a person who starts speaking to you; for the moment you remember, perhaps, that you have seen this person at one time or another, but you do not know who he is. After he has passed a few remarks about the company, place, etc., in which you formerly met, you recognize the person; by this your present impression of the person becomes amalgamated with the former one, now recalled, and the result becomes so strong that, if you meet the same person after some time again, you will be sure to recognize him at once. Now if this person, instead of recalling the former impression by his remarks, had only greeted you in passing, it is not likely that you would have recognized him when meeting him a third time. You would perhaps remember that it is the same person who had greeted you some days before, and whom you had then not recognized; but you would not know who he really is.

Now, comparing each couple of words in order to find their classification tends to give you a vivid first impression, whereas reciting the whole series by heart amalgamates the fresh impression of the words with the former impressions.

Mind-Wandering.

And now another thing. You may start reading a book or a newspaper with the determination that you will read with full attention. And yet, when you have read a few lines, you come to a word which reminds you of something else, and you begin thinking of that

something else. All the while your eyes follow the lines and take in the letters of the words, but your thoughts are elsewhere: and only when you arrive at the end of the page or the chapter do you become aware that you do not know what you have read. You see, your good intention has not prevented you from falling into the old bad habit, and the oftener you fall into it and continue in it for some time the more power the bad habit gains over you, and the weaker your will becomes. Now, in reciting the above series by heart, the very opposite takes place. As soon as your thoughts begin to wander, you come to a stop, you cannot find the following word without thinking of it, and this sudden stop makes you aware that your thoughts were about to wander off; but now your will sets in, you banish those thoughts, and continue to recite the series. As often as you gain a victory over the bad habit in this way, you weaken the habit, and strengthen your will—in fact, you gradually acquire the good habit of concentration. Therefore no one should fail to do these exercises conscientiously. Pupils who suffer from melancholy or other morbid thoughts should, as soon as such thoughts come on, start reciting these series.

To Students of Languages.

Those who know or learn a foreign language should translate the "language" series into the language they are learning, and then recite it daily by heart forwards and backwards, as by so doing they accustom themselves to think in the strange language, and also because the reciting in a language less familiar to us than our mother tongue requires greater attention. If you do not yet know the equivalent words in the foreign language, then wait until the third lesson, in which it is shown how the words of a foreign language may easily be learned. The reciting of the series can be done mentally during walks, in trains, street cars, etc.

A French Series.

cigare	vert	peuple
couteau	herbage	bas peuple
épée	prairie	rude
casque	champ	mou
plume	froment	souffle de vent
oiseau	farine	vent
voler	moulin	voile
ramper	étang	vapeur
ver	poisson	locomotive
serpent	chair	train
mordre	boeuf	gare
dent	vache	hôtel
tranchant	lait	garçon
pointe	beurre	pourboire
aiguille	gras	corrompre
machine	maigre	injustice
travail à la main	famine	juste
main	cher	juge
écrire	à bon compte	sage
lire	marchandise	stupide
livre	acheter	âne
imprimer	vendre	aller en voiture
type	enchère	aller
plomb	devoir	fatigué
pesant	payer	rafraîchir
léger	argent	bain
gaz	bourse	laver
oxygène	juif	sécher
air	chrètien	chaud
respirer	catholique	froid
poumon	pape	neige
coeur	roi	dégeler.
sang	président	
rouge	république	

A German Series.

thauen	Blume	gelb
Frühling	welken	Dotter

Ei	Signal	verlieren
Henne	Gefahr	finden
Hahn	sicher	Schatz
krähen	Eigentum	reich
singen	Erbe	arm
Musik	Sohn	hungrig
Lärm	Vater	durstig
still	Heimat	Ohnmacht
Nacht	Fremde	schwach
dunkel	reisen	stark
hell	Erfahrung	Eisen
Sonne	alt	Holz
weit	jung	Koffer
nahe	fröhlich	Schloss
Verwandschaft	Vergnügen	Schlüsse
heiraten	Theater	öffnen
Braut	Oper	Thüre
erröten	Componist	Haus
bleich	Dichter	Zimmer
krank	berühmt	Möbel
Arznei	berüchtigt	Staub
mischen	Laster	kehren
allerlei	tugend	rein
einfach	Jungfrau	schmutzig
Element	Tochter	Strasse
Gold	schön	Droschke
Diamant	hässlich	Pferd
Krystall	Sünde	Hafer
durchsichtig	Vergebung	Gerste
klar	günstig	Bier
trüb	Wetter	
Nebel	Sturm	

Exercises.

When sending in exercises write *your name and address legibly on each sheet, also your registered number,* and allow ample space for correction.

The exercises required on this lesson are:—

1. A classification of the "Columbus" series, pp. 15-18.

2. A classified series of your own of 50 words beginning with the word "Cigar," *(See* page 15).

Send both exercises at the same time.

This first lesson is only the ground work and preparation for the others. Do not say the System is useless merely because at present you may perhaps not see whither it is leading you. You will do well to read the lesson carefully a second time, when you may discover some important ideas and hints that possibly have escaped your notice the first time.

Printed solely for the pupils of The Pelman School of Memory Training.

NOTE.—**No part of these lessons is to be said or shown to anyone.**

MEMORY TRAINING

ITS LAWS

AND

THEIR APPLICATION

TO

PRACTICAL LIFE.

BY

CHRISTOPHER LOUIS PELMAN.

PART II.

THE PELMAN SCHOOL OF MEMORY TRAINING,

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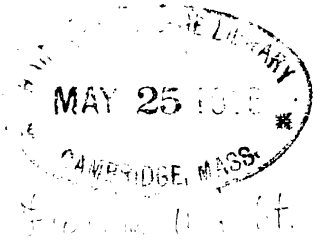

"Success often depends on apparently small matters."

The Value of Correct Hearing.

Man has five senses; and one would think therefore that he would use them all. But such is not the case, at least with civilized man, in gathering knowledge. He uses nothing but his sight, and that he abuses by overtaxing it to such a degree that not only does it rapidly grow worse, but the power of sight decreases with each generation, so that we may almost calculate the date on which no civilized person will be possessed of normal eyesight. Since the invention of the art of printing, a mania for reading, for learning everything by reading, has set in, and many people will ask: Is there any other way of gaining knowledge than by reading books? And yet there was a time when people acquired knowledge without books. Before the art of printing was invented the number of books was very limited indeed, and the use of them open to but few; therefore those who wanted to learn had to gather their knowledge by listening to a master who instructed by word of mouth. And yet they learned a great deal. When we hear of what savages can accomplish with their five senses we think it marvelous; but it never strikes us that we also ought to develop the senses equally, and not to overtax one and let the other four go idle; it never strikes us that our educational system starts at the wrong end. What is the result? We have already seen that short-sightedness, inflammation, and general weakness of the eyes are among the certain consequences. But this is not all. Reading for any length of time means sitting in a bent position, and this causes

round backs, narrow chests, and lungs insufficiently developed. We must not overlook the fact that most learning, and hence reading, is done between our sixth and twenty-fourth years,—the time when our bones are still soft and may be formed either into a strong and healthy, or a deformed, figure. Now, if we learned by listening to a master who only taught by word of mouth, we could allow the body to take a proper posture and the chest to expand. A further disadvantage of the present system (practiced especially on the Continent and in America) is that the teaching itself is worse. It is plain that when a man had to lecture so that his hearers should retain what he said for life, there being no possibility of reading it up afterwards, he had to take much greater pains than now, when they can refer to a text book. The learning had then to be done during the school hours; whereas now, for the most part, tasks are set and controlled during school hours, but most of the learning has to be done after school hours. Thus we see that our school system has not improved but grown worse as time has gone on, and it has the same tendency still.

The Accuracy of Oral Tradition.

We are very prone to call other nations savage or half-civilized, and yet have we not much cause to be ashamed of ourselves? How much that is really useful and practical could we not learn from them. Take, for instance, the Hindoos. They had manuscripts of the Rig-veda and other works for more than 2,000 years; but they knew the value of the living word, so little thought of at the present time, and they forbade, under a heavy penalty, that any one should learn the Rig-veda or any classic from a manuscript: every one had to learn from a master who taught by word of mouth and who had gained his knowledge in the same way. They recognized the fact that through the eye we may learn more

quickly, but that what we learn by the ear will be retained much longer, and will be transmitted with much greater exactness, than written text. This assertion may appear strange at first, especially if we hear some people, who learn foreign languages, say: "I can retain a word much better if I see it written, than if I only hear it." The reason in this case is that from early youth we have trained our observation by sight, whilst our hearing has been completely neglected. Surely a language is a collection of sounds, not of letters. Sound appeals to the ear, not to the sight; hence it is obvious that a language should be learned by the ear and not by sight. We learn our mother-tongue by ear; foreign languages were formerly learned by ear; and even now we find that people who learn a language by ear have a much better pronunciation and a much greater command of expression than those who learn it from books.

The Pen as a Source of Error.

I said just now that knowledge transmitted orally (from mouth to ear) would remain more exact and less liable to alteration than written text. The reason is that when committing to paper an essay or treatise of any length, some mistakes creep in, as often the mind travels faster than the pen, whilst it is much easier to keep pace with the living word. The pen, therefore, often writes down mechanically. Manuscripts contain many mistakes (and one letter often changes a word into another of quite a different meaning), because copying even the most interesting treatise is a tedious work. Now we come to the printing. How many books are printed in the year without misprints, despite the great care with which the proof-sheets have been read? How easily do our eyes travel over the misprints (even such as distort the sense), and over a faulty or wrong construction of sentences without noticing the error; but if we read the sentence aloud, especially before a large

assembly, the faulty passage strikes our ears like a thunderbolt. The fact that it is commonly believed that written or printed text is for all eternity proof against alteration is the very reason why such texts are treated carelessly, whilst the greatest care is bestowed on the pure preservation of knowledge that has come down to us by oral transmission. In this way the grand songs of Homer, the teachings of Zoroaster and Buddha, the Vedas of the Brahmans, were handed down by word of mouth alone.

Besides the Rig-veda, the Hindoo students had to learn by heart nine classics verbally, and if to-day by some chance all the copies of those books were lost, perhaps half-a-million men would be able to write them down afresh without the slightest mistake.

Exercise for Training the Ear.

Now, as to the training of our hearing, every sound that reaches our ears may be made an object of practice. When sitting in your room try to distinguish the different sounds outside, the footsteps of men and women, of light and heavy horses, the notes of birds, the humming of flies, the rustling of leaves, the babbling of the brook, the tone of bells, and so on. When I entered college I was, after a short time, able to name all persons passing my room in the corridor, recognizing them only by their foot-steps. Ask a friend to read a sentence to you slowly and distinctly and then try to repeat that sentence exactly, not omitting a single word; if you are not successful, have the same sentence read to you again, and try until you are successful. It is of importance that sentences should be chosen which you have never read before, as otherwise the previous impressions by sight might partly aid you and thus prejudice the development of your hearing. In time the distance between yourself and the person reading to you should become greater, the person should read more quickly and less distinctly, and two sentences may be

read; thus the task can be increased to the highest pitch. You will appreciate the benefit of such a training when learning a foreign language, for the great difficulty in understanding what is spoken lies in distinguishing the sounds quickly, so as to know where one word ends and the next begins. I shall return to the development of the ear-memory in a later lesson.

Exercise for Developing the Sight.

When you have succeeded in naming each time the correct number and colors of the lines, pass on to estimating length, distance, and size of objects. For this purpose take another set of letter-cards, and draw on the first a line two inches long, on the next a line of 2½ inches, then one of 3 inches, and so on up to 5 or 6 inches; shuffle the cards as before, and try to estimate the length of the different lines at a single glance. After that, try to estimate distances in the open air by feet and yards, starting with short distances and gradually increasing the task. If you first measure the length of your pace, you can easily verify your estimate afterwards by walking from one object to the other. Try also to give an estimate of the height of your rooms, doors, etc.

When this can be done satisfactorily, take another set of letter-cards, and draw on them quadrangles 3 inches long and 2 inches wide, 4 inches long and 2½ inches wide, 4½ inches long and 3½ inches wide, and so on, and try then to give an estimate of their size as before.

Remembering Figures.

At the end of *Part I.* we have seen how old impressions amalgamate with fresh ones of the same kind. Let us now see how impressions simultaneously received bear on each other.

If parts of an impression be recalled, such revival tends to recall also the other component parts of that

impression; and, if we recall the whole of an impression, it will also tend to recall other impressions simultaneously received, presupposing of course that they were not too weak from the beginning, that the memory is in its normal state, and that the cells of the brain have not been entirely or in part destroyed by illness or accident. Memory might perhaps be compared to a long strip of paper on which our experiences are recorded in their chronological order, so that a certain connection or friendship exists amongst impressions received about the same time, even when they are not of the same kinship, one friend bringing along the other, although we have only invited the one.

Now, if we ask what is most difficult to remember, the majority will answer: Figures. To remember a few figures is easy enough; but the difficulty sets in when we have to remember a great many figures. The reason is that figures in themselves are something abstract, something that we cannot grasp either with our senses or our imagination; in themselves they are nothing, and only grow into something when added to another idea. We can imagine five books, or three horses, or the written or printed figure 5, or 3, but not the idea of 5 or 3 in itself alone. It is therefore obvious that, if we want to meet the difficulty of remembering figures, we must convert them into something more concrete. We find the means if we replace the figures from 0—9 by certain consonants. We shall then be able to replace any figure or date by a word which is much more easily retained than the figure itself. In order to find words easily for any number or date we must not attach a figure value to *all* the letters, as by this we might often get compositions that do not form an English word; but we must limit ourselves to the consonants, so that the vowels, having no figure-value, can be placed between at our convenience. I have found the following figure alphabet the most advantageous:

0	1	2	3	4	5	6	7	8	9
S	t	n	m	r	l	sh	k	f	p
Z	th					j	g$^{\text{hard}}$	v	b
C$^{\text{soft}}$	d					ch	c$^{\text{hard}}$		
						g$^{\text{soft}}$	ng		

The following remarks will help you to remember by what consonants the figures are represented. A small written *s* has some similarity with the figure 0; also, if the capital letter *S* were cut into two parts, and the bottom half attached to the top half, it would make a nought (0). *Z* is a cognate sound of *s*, and *c* soft is also a sibilant; *z* is also the first letter of the word *"zero."* *T* is similar to 1 in form; *th* and *d* are likewise dentals. *N* has 2 down-strokes, which will remind us of 2. *M* has 3 down-strokes. *R* is the last consonant in the word *"four,"* not only in English but in most languages (Latin quattuor, Greek τεσσαρα, German vier, Dutch vier, Swed. fyra, French quatre, Italian quattro, Spanish cuatro, Sanskrit catur, etc.). *L* stands for 5, because in the Roman alphabet *L* stood for 50. Written *f* looks like 8; *v* is a cognate sound of *f*. *P* looks like 9, the loop turned the other side; *b* is a cognate sound of *p*. Of the consonants left we take *sh, j, ch* and *g* (soft) for 6; and *k, g* (hard), *c* (hard), and *ng* for 7, when *ng* is one sound, not two sounds.

Notice that *w*, and *y* have no figure value, and *h* has figure value only as a part of the sounds *sh, ch.*

My American pupils can greatly add to the value of the figure alphabet by the addition of W, H and Y, representing respectively 3, 8 and 5, but only when they occur as *sounded consonants.*

NOTE.—*I have not used these three letters for figure values in any exercise in this course of lessons.*

In translating words into figures attend to sound alone, and not to spelling. This is also a good training for the ear. Two consonants of the same kind with no vowel between, and having the same sound, are counted as one consonant: *carry*=74, not 744, because we do not pronounce the two *r*'s (not *car-ry*), but the one *r* sharply. Consonants not heard are not counted. *B* is silent in *lamb*=53, gh in *thought*=11, *knife*=28, *palm*=93. When any of the consonants shown in the above tables take the sound of another group, they have the value of that group; so if *ch* takes the sound of *k*, it counts 7, e. g. *chasm*=703, *gh*=*f* in *cough*=78, *ph*=*f* in *nymph*=238, *s*=*zh* in *leisure*=564, *x*=*ks* in *oxyde*=701, *s*=*zh* in *pleasure*=9564, *ti*=*sh* in *nation*=262, *n*=*ng*, in *linger (ling-ger)*=5774, and in *bank*=*bangk*=977.

The "Columbus" Series

If you go through the "Columbus" series, you will find that the words printed in small capitals refer to leading events in American history, while the words printed in Italics (e. g. *ribbon, chasing, clip, frill,* etc.) express the dates according to the principles of the Figure Alphabet. Thus Columbus discovered America in the year 1492 (*ribbon*); Jamestown, Va., was settled in 1607 (*chasing*); Canada was taken from the French in 1759 (*clip*); Texas was annexed in 1845 (*frill*). The date in each case is given after the words indicating, in small capitals, the event. In words giving dates later than the year 1000 the 1 expressing the thousand may always be omitted if more convenient—as in the "Columbus" series—since no one would be likely to make a mistake of a thousand years in history. Thus (*ribbon*), (1) 492.

Observe, that words are used to recall figures, but figures must never be used to recall words.

Exercise.

Translate the following into figures and send for correction (*see* page 21):—

Macduff, this noble passion,
Child of integrity, hath from my soul
Wiped the black scruples, reconciled my thoughts
To thy good truth and honor. Devilish Macbeth
By many of these trains hath sought to win me
Into his power; and modest wisdom plucks me
From over credulous haste; but God above
Deal between thee and me! for even now
I put myself to thy direction, and
Unspeak mine own detraction; here abjure
The taints and blames I laid upon myself
For strangers to my nature. I am yet
Unknown to woman; never was forsworn;
Scarcely have coveted what was mine own;
At no time broke my faith; would not betray
The devil to his fellow; and delight
No less in truth than life; my first false speaking
Was this upon myself.

(Macbeth.)

Decimals and Fractions.

In the case of decimals the initial letter **s** indicates the decimal point (not 0); e. g.: *new sole* 2.5; *season* .02. In the case of a vulgar fraction, the words translating numerator and denominator begin with **s**; the **s**'s do not count, and the numerator always stands first and the denominator last; e. g.: *such sacks* = 6-70. To prevent errors in the case of dates about the beginning of the Christian era, it is best to use words beginning with **s** for dates B. C., and words not beginning with **s** for dates A. D.; e. g.: *state* = 11 B. C. and *dead* = 11 A. D. If no errors be feared, words beginning with or without **s** may be used indiscriminately. In all other circumstances **s** stands for the figure **0**.

The Knight's Tour.

The Problem is to conduct the Knight diagonally (just as it moves in Chess) all over the Board, from square No. 1 or any other square, returning it to the square whence it started, without its touching the center of any square more than once in its course. The Knight, if starting from square No. 1, will (as may be seen by inspecting the enclosed diagram) touch the squares in the following order:—

1	11	5	15	32	47	64	54	60	50	35
41	26	9	3	13	7	24	39	56	62	45
30	20	37	22	28	38	21	36	19	25	10
4	14	8	23	40	55	61	51	57	42	59
53	63	48	31	16	6	12	2	17	34	49
43	58	52	46	29	44	27	33	18	1	

If you will memorize the "*Tie*" series (in the same manner as the "*Language*" series), you can do this feat by thinking through the words and pronouncing aloud the figures they translate. As in this series the words must not only stand in relationship to each other, but also represent the above figures, the selection of words is a very limited one, and the relationship not so close and evident as in the series in the first lesson.

The "Tie" Series.

Tie	Gnash	Make	Name
Tide	Ape	Union	Rose
Low	Emu	Navy	Lily
Dole	Dumb	Move	Shade
Mean	Coy	Hand	Light
Rogue	Annoyer	Image	Lying
Jeer	Imp	Top	Ruin
Leer	Lash	Nail	Help
Joyous	Chain	Toes	Lame
Lass	Rule	Ear	Shame
Male	Mass	Dear	Rough
Rude	Noise	Wife	Mat

THE PELMAN SYSTEM OF MEMORY TRAINING

THE KNIGHT'S TOUR

THE Problem is to conduct the Knight diagonally (just as it moves in Chess) all over the Board, from square No. 1 or any other square, returning to the square whence it started, without its touching the center of any square more than once in its course. The Knight, if starting from square No. 1, will, (as shown in the diagram below), touch the squares in the following order:

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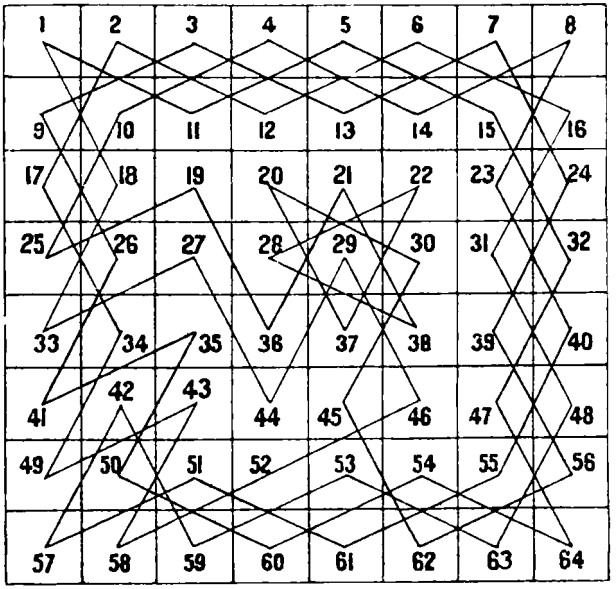
41	26	9	3	13	7	24	39	56	62	45
30	20	37	22	28	38	21	36	19	25	10
4	14	8	23	40	55	61	51	57	42	59
53	63	48	31	16	6	12	2	17	34	49
43	58	52	46	29	44	27	33	18	1	



Half an hour suffices to memorize the solution of this difficult problem.

The Pelman School of Memory Training

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Thatch	Mayor	Rage	Edify
Hedge	Robe	Nip	Tie
Town	Roam	Roar	
Inn	Life	Neighing	
Talk	Lion	Mum	

You see that as the first and last word is "*tie*" you can start at any square, e. g., "*life,*" and then continue, either forwards or backwards, e. g., *life, lion, rage,* or *life, roam, robe,* till you come to "*tie,*" whereupon you continue with "*tide*" or "*edify*" until you come to "*life*" with which you started. The easiest way of doing this feat is to let your friends go over the squares of the chess-board whilst you stand blindfolded and call out the numbers only.

The Reconstructive Method.

As memory to a great extent depends on understanding the matter to be remembered, it is important for us to see how such understanding may be secured in every case. Every first impression should be as simple as possible, that is, it should comprise as few details as may be: details should be added gradually, after the main idea has been thoroughly grasped and mentally digested. Reduce therefore every sentence to its simplest form, and build it up again by degrees. Take the scholastic definition of memory: "Memory is that faculty by which we preserve sensitive and mental impressions, know that they belong to the past, and can recall them spontaneously into clear consciousness." 1 Memory is a *faculty.* 2 Memory is that faculty by which we *preserve* something. 3 Memory is that faculty by which we preserve *impressions.* 4 Memory is that faculty by which we preserve *sensitive* impressions. 5 Memory is that faculty by which we preserve sensitive *and mental* impressions. 6 Memory is that faculty by which we preserve sensitive and mental impressions and *know* something. 7 Memory is that faculty by which we preserve

sensitive and mental impressions and know *that they belong to the past.* 8 Memory is that faculty by which we preserve sensitive and mental impressions, know that they belong to the past, and *can recall* something. 9 Memory is that faculty by which we preserve sensitive and mental impressions, know that they belong to the past, and can recall *them.* 10 Memory is that faculty by which we preserve sensitive and mental impressions, know that they belong to the past and can recall them *spontaneously.* 11 Memory is that faculty by which we preserve sensitive and mental impressions, know that they belong to the past, and can recall them spontaneously *into consciousness.* 12 Memory is that faculty by which we preserve sensitive and mental impressions, know that they belong to the past, and can recall them spontaneously into *clear* consciousness.

Such a disintegration shows how many different ideas are contained in a single sentence, and that we frequently miss half of them in ordinary reading. In the above way the attention cannot wander off, and by gradually proceeding from the simple to the complicated, by way of further additions, the mind gains time to adapt the ideas one to another, whereby great intellectual growth and strengthening of the memory is secured. Learning in this way is especially recommended in the case of long, scientific definitions.

The Searching Method.

Another way of securing clear comprehension of what we read is by putting questions and answering them. In this way you study every idea twice, first in framing the question, and secondly by putting the stress on the word or words forming the answer. If we learn by rote in the ordinary way, we find that after one or two repetitions the mind finds nothing new to attract it; and hence it wanders off; the lips alone repeat the words whilst the mind is busy with other ideas; our labor is

therefore useless, even damaging, for it promotes mind-wandering, that greatest enemy of memory. Some people find thinking a hard task; but, until they have learned how to think properly, they can make no mental progress in any direction. The following method is so easy that any child can make use of it.

Still stands the forest primeval; but far away from its shadow,
Side by side, in their nameless graves, the lovers are sleeping.
Under the humble walls of the little Catholic churchyard,
In the heart of the city, they lie, unknown and unnoticed.
—"Evangeline," by Longfellow.

What does still stand? Still stands the *forest* primeval. Is it a young forest standing? Still stands the forest *primeval.* Has this forest primeval come down like so many others? *Still stands* the forest primeval. Has there been no change then? *but* far away, side by side, in their nameless graves, *the lovers are sleeping.* What are the lovers now doing? but far away, side by side, in their nameless graves, the lovers are *sleeping.* Who are sleeping in their nameless graves? but far away, side by side, in their nameless graves, the *lovers* are sleeping. Where are the lovers now sleeping? but far away, side by side, in their nameless *graves,* the lovers are sleeping. Are their graves marked by tombstones and inscriptions? but far away, side by side, in their *nameless* graves, the lovers are sleeping. Are the lovers sleeping in graves distant from each other? but far away, *side by side,* in their nameless graves the lovers are sleeping. If the lovers are sleeping side by side, have they then one common grave? but far away, side by side, in their nameless *graves,* the lovers are sleeping. Are the graves of the lovers near the primeval forest? but *far away,* side by side, in their nameless graves, the lovers are sleeping. If the graves

are far away from the forest primeval, where are they? Under the humble walls of the little Catholic *churchyard.* Are the graves in the middle of the churchyard? Under the humble *walls* of the little Catholic churchyard. Is the Catholic churchyard surrounded by gigantic walls? Under the *humble* walls of the little Catholic churchyard. If the walls are but humble the churchyard itself is probably but small. Under the humble walls of the *little* Catholic churchyard. What confession does the little churchyard belong to? Under the humble walls of the little *Catholic* churchyard. Where is the little Catholic churchyard situated? *In the heart of the city,* they lie, unknown and unnoticed. What is said now of the lovers being in the heart of the city? In the heart of the city, *they lie,* unknown and unnoticed. Have they become famous in that city? In the heart of the city, they lie, *unknown* and unnoticed. As there is no inscription, do people wonder who lies there? In the heart of the city, they lie, unknown *and unnoticed.*

Now learn another piece of poetry in the same way.

If young authors will apply this method to their own writings, they will soon see what they are worth.

What Can be Done in a Day.

How long and how much can we study in a day so as to retain the knowledge permanently? It is of no use to sit over books for hours, and to repeat words and sentences with our lips, whilst our thoughts are far away: half-an-hour's attentive work is of much greater and more lasting value.

If you study 6, or at the most 8, hours in a day, you have done a good day's work. You trouble yourself in vain without making progress, if you attempt more. To explain this I must pass some brief remarks about the brain. The brain consists of curled up matter, white inside and grey outside, with deep incisions in the matter, which is thereby divided into several parts. The

matter is made up of cells which produce the nervous force, just as the cells of the liver produce gall. Consciousness and the ability and energy for learning depend on the amount of this nervous force, as a large quantity of nervous force is used up in all the conscious and voluntary proceedings of the mind. The amount of nervous force varies with different persons, and also with one and the same person at different times. When the amount of nervous force sinks below the degree necessary for consciousness, sleep sets in; during sleep the brain has time to accumulate a fresh stock. This stock being largest in the morning is the reason why we can, as a general rule, study most easily at that time of the day. The more intensive our study, the more nervous force is used up; so that generally after about two hours we need recovery; *i.e.*, we must stop the consumption of nervous force, so that the brain may have time to produce another stock. But recovery or recreation does not always consist in doing nothing, but oftentimes in a change of work, so that another faculty of the mind is called into play. These different faculties seem to stand in relationship with certain parts of the brain, although we are not yet able to state what those parts are. Besides, every faculty seems to be able to reserve a certain amount of nervous force to itself, although there is no doubt that a hard worked faculty can draw nourishment from other parts of the brain to a certain extent; for when we have grown tired over the study of mathematics or languages, we find ourselves quite fresh again if we take up music or geography, which calls a fresh faculty into play and lets the other rest.

Variations in Nervous Force.

The limited stock of nervous force is the reason why we can gain only a certain amount of knowledge daily; for, as soon as the stock of nervous force comes to its ebb, the impressions are weak, and can only be recalled with difficulty, if at all. Although the amount

of lasting knowledge that we can acquire daily is limited, yet it is not a stated amount: no sharp line is drawn that we can learn only 100 new words of a foreign language, or ten pages of a book, daily. On the contrary, it depends on how much nervous force we must use for each impression, so as to make it strong enough to be capable of recall later. Hence it is evident that he who needs but little nervous force for each impression can easily acquire three or four times as much knowledge in a day as another who must use a great amount of nervous force in gaining each impression. It is a well known fact that one person learns easily, another only with difficulty; but even he who learns easily has not the same ease with all branches of knowledge, but generally only with one, two, or three, on which he can bring that faculty to bear which is most developed in him. From this we can draw important conclusions which we shall consider in the next lesson, when we come to the practical application of the method.

Can the Ability for Learning Languages be Doubled?

The brain consists of two hemispheres, which are nearly separated from each other by a deep incision. It has been shown by numerous observations that with most people—those who principally use the right hand for their actions—the speech centers of the left hemisphere of the brain are developed and capable of working. For, if this left half of the brain is severely injured, the right one remaining intact, these people lose the power of speech entirely, but can gradually learn to speak again, just like little children. This fact shows that the right hemisphere of the brain also contains speech-centers but that they lie undeveloped as long as the speech-centers of the left hemisphere of the brain do their work. They only become developed when

the others can no longer be appealed to, and the appeal goes directly to them.

In the case of left-handed people the tables are turned. An injury to the left hemisphere of the brain remains without effect as far as speech is concerned, but an injury of the right hemisphere of the brain is followed by speechlessness; and, if the left hemisphere of the brain is still intact, speech can be regained just as in the case of right-handed people with the left half of the brain injured and the right one intact. From these facts we may draw the inference that the greater employment of the one hand or the other exercises a certain influence upon the opposite hemisphere of the brain.

Now, would it not be possible to develop the speech-centers of both hemispheres of the brain to a certain extent, if both hands were employed more equally? As far as my own observations go, and the communications kindly made to me by pupils, the question may be answered in the affirmative.

The Power of the Left Hand.

The finer and the more complicated the work, the greater is the development of the brain, as we require a fresh impulse from the brain for every motion. For that reason I recommend writing and drawing with the left hand. It is true that there has always been a certain prejudice against, and contempt for, the left hand; but for what reason? Why should the left hand be worse than, or inferior to, the right? Some will, perhaps, say that the right hand is more clever than the left by nature, just as in the case of left-handed people the left hand is more clever than the right. There is no doubt that with some people the preference of the right or left hand is a consequence of natural endowment; but with the majority of people the natural impulse is a neutral one, and the preference of the right hand is only a matter of education and habit. The fact

that nearly all left-handed people do the complicated work of writing with the right hand shows that even the strongest natural impulse may be overcome by perseverance. Now if we consider what a long time it has taken to develop the speech-centers of the one hemisphere of the brain, it is plain that one week's exercise with the left hand cannot show wonderful results affecting the development of the right hemisphere; but there can be no doubt that good results may be obtained by perseverance. Although I recommend writing with the left hand as one of the best exercises, yet you need not limit yourself to that, but can gradually accustom yourself to do everything with the left hand as well as with the right, so that later on you can use either, and thus continue work with the one whilst the other is resting, instead of having to stop work altogether.

A few hints will help you in writing with the left hand. When writing with the right hand you place the paper so that the left corner lies lower than the right. The right hand has a natural tendency to ascend, the farther it goes away from the body, but in writing with the left hand, the hand descends, because it comes nearer to the body. Hence you must, when writing with the left hand, place the paper so that the left corner lies higher than the right. Furthermore, the letters should slope backwards, not forwards. If you can, for the beginning, use paper with checkered lines, it will help you.

Exercises for Developing the Hearing.

Distances can often be determined by hearing; e. g. by hearing a church bell, or an instrument of music, or human voices, etc. In the army it would be easy to arrange exercises for hearing; an officer could try to find by sound alone the number of troops marching along and partly hidden by a forest, the distance being afterwards verified. Or, if the number of troops not seen is known, the distance at which they are marching may be

determined by sound. Of course the direction and strength of the wind must be taken into consideration in such cases.

Exercises.

As exercises on this lesson:—

1st.—Translate into figures the passage from "Macbeth" given on page 11 of this lesson. Write the figures only, and group them according to the words and lines they represent.

2nd.—Find words which will express the following twelve groups of figures. The words chosen need not be in any way connected with one another. Give one word for each of the twelve groups of figures.

0	21	700	820
6	41	704	942
7	72	777	946

When sending in exercises *write your name and address legibly, also your registered number.*

Printed solely for the pupils of The Pelman School of Memory Training.

NOTE.—No part of these lessons is to be said or shown to anyone.

(3

MEMORY TRAINING

ITS LAWS

AND

THEIR APPLICATION

TO

PRACTICAL LIFE.

BY

CHRISTOPHER LOUIS PELMAN.

PART III.

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The Connection of Facts.

We have seen that it is easiest for us to study and retain those subjects which call into play the faculties most developed in us. From this fact we conclude, firstly, that in studying other subjects we must try to call to aid, besides the faculty that stands next to the subject we are studying, also as many other faculties as possible, and, if in any way possible, also the one that is predominant in us, and hence makes the most vivid and lasting impression on us; secondly, that we must strive to train, by means of sensible and judicious exercises, the faculties hitherto least developed in us. Thus, in the study of history, the artistic mind would draw illustrations of the principal facts to aid the memory, the poetic mind would frame them into verses, the mathematical mind would mostly make use of figures; for example in 1800 Napoleon I. gained the battles of Marengo and Hohenlinden, in 1803 he quarreled with England and conquered Hanover, in 1806 he won the battles of Jena and Auerstädt, in 1809 Wellington started the Peninsular War against him and the Archduke Charles gained the victory of Aspern over him, in 1812 Napoleon fled from Moscow, in 1815 he lost the battle of Waterloo. Note that in every case there is an interval of three years, and that the first three dates show Napoleon in the ascendent, the last three in the descendent. Some would remember *Waterloo,* because Blucher, who marched day and night to come to Wellington's assistance, was greatly impeded by rain (water). Others again would lay most stress on the geographical position of the places, and follow up the exact direction of his marching route. These are only a few suggestions, but they show in how many different ways the same subject may be treated, according to the mental predilections of the student.

In Part I. we have seen that all ideas can be classed

under certain laws, and that the mind easily retains them if we compare them according to these laws of logic, thus creating a kind of mental relationship amongst them. The thought occurred to us how pleasant study would be if we could retain everything as easily as the series of words given in Part I. We must therefore see how the same laws can be applied, not only to series specially prepared like the "language" series, or to names, dates, and facts, that may be gathered into such series (*e. g.* the "Columbus" series), but to **everything worth knowing.** After having given the mind a proper training, and having sharpened it so as to perceive quickly the connection between different words, we shall find that a connection or relationship exists between many words where formerly we should never have dreamed that such was the case, and thereby that which hitherto was unknown to us is linked to the known in such a manner that we shall never forget it. But in order to gain that end it is absolutely necessary to train the mind thoroughly. And who would hesitate about taking pains for a short time, if by doing so he can make easier the mental work of his whole life?

Co-ordination.

An example will best show with how many other words one single word stands in connection. Take the simple word "house," and, following the laws and subdivisions in Part I., you will find the following words:

House.

Synonyms: building, maison, domus, Haus, casa, etc.

Genus and Species: dwelling-house, business-house, hospital, town-house, country-house, mansion, palace, lodge, castle, villa, manor, town-hall, House of Parliament, Government-House, Whitehall, Home

Office, War Office, Foreign Office, store-house, magazines, mad house, infirmary, house of correction, prison, green-house, hot-house, engine-house, hotel, restaurant, inn, bank, baking-house, farm-house, block-house, summer-house, fishing-hut, the White House, custom-house, wash-house, theatre, play-house, opera, concert-hall, school-house, bathing hut, House of God, temple, church, chapel, monastery, convent, mosque, barracks, stable, corn-house, hut, factory, mill, flour-mill, saw-mill, spinning-mill, weaving-mill, paper-mill, kennel, academy, university, college, gymnasium, institute, grammar school, leasehold property, freehold property, museum, mausoleum, picture gallery, go-down, library, glass-house, club-house, boat-house, bungalo, beer-house, dead-house, work-house, observatory, fowl-house, cage, Swiss-house, cow shed, tool-house, granary, bee-hive, wood-house, slaughter-house, meeting-house, doll's-house, public-house.

Whole and Part: chimney, roof, thatch, slate, tiles, straw, beams, gutter, attics, staircase, stairs, steps, banister, room, salon, chamber, kitchen, drawing-room, dining-room, bed-room, play-room, nursery, servant's-room, spare-room, school-room, smoking-room, study, studio, boudoir, library, billiard-room, door, front-door, door-post, window, window-sill, window-frame, glass, pane, shutters, Venetian blinds, floor, ceiling, wall, mortar, brick, paper, wood, plaster of Paris, sand, stone, corridor, lock, bolt, basalt, marble, chimney-piece, mantle-piece, entrance, hall, shop, office, vault, corner, bow-window, lift, lightning-conductor, weather-cock, clay, bamboo, nail, screw, iron, glue, turret, gable, point, cupalo, fin, conservatory, chimney-pot, pipe, water-pipe, gas-pipe, paint, varnish, white-wash, stove, bell, knocker, scraper, cupboard (if let into the wall), landing, bath-room, latcher, ventilator, handle, molding, paneling, window-ledge, parlor, coal cellar, wine cellar, cellar, copper, pantry, balcony, verandah, scullery, passage, hearth, cement, sink, country, city, town, village, hamlet.

Object and Characteristic Quality: large, small,

old, new, dilapidated, valuable, comfortable, uncomfortable, damp, dry, white, grey, yellow, red, blue, green, beautiful, nice, ugly, plain, homely, square, round, high, low, simple, rustic, painted, white-washed, wooden, dirty, clean, neat, untidy, light, dark, healthy, unhealthy, well-drained, practical, unpractical, empty, inhabited, let, unlet, furnished, unfurnished, lonely, dismal, detached, semi-detached, poor, grand, hospitable, dreary, well-known, unknown, solitary, cheap, dear, mortgaged, high-rented, low-rented, low-pitched, roomy, warm, cold, pretty, well-ventilated, drafty.

Cause and Effect: architect, builder, ground-rent, rent, rates and taxes, lease, agreement.

Relationship: owner, landlord, landlady, branch.

Accidental Connection: furniture, table, chair, sofa, bed, wash-stand, stool, carpet, linoleum, wardrobe, writing-desk, chest-of-drawers, cupboard, shelves, piano, blinds, curtain, chiffoniere, side-board, looking-glass, dressing table, toilet table, lamp, book-case, safe, fender, fire-irons, coal-box, lock, dresser, cage, flower-pot, trays, oil-cloth, china, glass, peg, pots, pans, candlestick, forks, knives, spoons, table-cloth, dinner-napkins, rings, jugs, dishes, scales, rolling pin, pastry-board, water, gas, electric light, hand-bell, fuel, coal, wood, letter-box, tub, pail, can, inhabitant, tenant, man, woman, child, servant, cook, housemaid, parlormaid, nurse, butler, footman, groom, gardener, lady's-maid, scullery-maid, boots, beggar, fire, smoke, garden, yard, build, pull down, buy, sell, let, rent, sublet, move in, move out, fire-insurance, mortgage, Dooms-day-book, register of landed property, pump, drains, cricket, mouse, beetle, bird, dog, cat, matches, candles, pictures, looking-glass, books, news-paper, ink-stand, ink, pen, pencil, note-paper, envelopes, dust, duster, music-stand, music-stool, ribbons, drapery, tassels, cords, wires, antimacassars, covering, hat-stand, umbrella-stand, hat-box, almanac, basket, waste-paper basket, ash tray, pipe case, mat, cushions, poles, burglar.

Similarity of Sound: mouse, rouse, arouse, blouse, household, housage, housal, houdah, hound, housewife, housekeeper, how, howl, house-breaking, house-warming, housework, to house, oust.

During the next four weeks you should **treat one word daily in this exhaustive manner.** It is of great importance that you go thoroughly to work: *i. e.,* that you are not satisfied when you have found one or two dozen words, but that you should take pains to find as many as possible. In this way you will revive many words which perhaps you have not used for years, thereby increasing your vocabulary; this is of great importance when you have to speak in public. Why are people afraid of speaking in public? Because they fear they will break down. They feel that they have only a limited store of words at their command, and, if they cannot think of a certain word, they are unable to substitute another quickly. In fact, in their daily conversation they are too lazy to think. They do not call articles by their proper names, but say "hand me that tool," or "that iron," or, worst of all, "that thing." Thus gradually they forget the real names of the articles. If you do not remember the name of an article, do not give in until you have found it. If you have once made an earnest effort, you will find that henceforward the word will be at your instant command. If nervousness be the reason for not speaking in public, try with some smaller practices before a few friends first. Start by doing the "Knight's Tour" before them. A great advantage of finding all the words connected with a subject is that we learn to look at an idea, a proposition, or a plan, from all points of view, which is not only highly important in writing essays and making speeches, but also in daily life. Then again, if we treat a scientific term in this way, it will enable us to enter more thoroughly into that science, and to become more familiar with it. The same holds good of the application to languages.

To Develop Concentration.

Increase the "language" series by 25 words daily, and recite the whole of the series each day forwards and backwards. By this you will train your concentration and strengthen your natural memory; for it is obvious that the more exercises you do, the more good you will reap from the system. Many pupils have extended the language series to 2,000 or 3,000 words, and have testified to the great strengthening of the memory gained thereby. They were surprised to find that this exercise became by no means monotonous, but on the contrary, more fascinating every day.

Correlation.

It is easy enough, as seen above, to connect in our mind for ever two ideas or words which stand in a direct connection with each other. But there are many ideas and words which do not stand in direct connection with each other, but which we must nevertheless remember in connection with each other. Where there is no direct connection, we must create one in a natural way. This can be done by following the natural train of thought; *i. e.,* by inserting *intermediates* between the two words to be connected, which for the future we shall term *extremes.* Thus, if we want to remember that the battle of Waterloo was fought in 1815, we know that we can translate (1)815 by the word *fatal.* Now many people might not see a direct connection between *Waterloo* and *fatal* (although this battle was the fatal blow to Napoleon I.), and if *Waterloo* does not immediately recall *fatal* to their mind, it is of no use translating (1)815 into *fatal.* But we can use the following train of thoughts:

Waterloo, water, drown, *fatal.*

Here we have, water, drown, *cause and effect;* drown, fatal, *object and characteristic quality.*

In this way an accidental connection can be established **between any two unconnected words.** For the future we shall term such an extended connection between two words (that is the two extremes and the intermediates), a *correlation.* In order to be able to make such correlations we need only recall to our mind what we know about the two extremes. If necessary we can co-ordinate them like the word "house," before correlating. Take note also of the following rules:

1: Whenever possible do not use more than four intermediates; the fewer intermediates the stronger will be the connection. You will see that in the "Columbus" series there are often but one or two intermediates between the name and the date, and then between the date and the following name.

2: An intermediate, or the second extreme, should only stand in direct connection with the word immediately before it; if it be also in direct connection with the second word preceding, it is obvious that the one between is superfluous.

3: The same word may be used twice, but not more often, in the same correlation; thus, if we want to correlate *pen* to *nose,* we may say *pen, point of pen, point of nose, nose;* in this case every word is used twice. This is not a model correlation.

4: Intermediates should not consist of whole sentences, but should be as short and precise as possible —as a rule only one word.

You should notice that correlation is only used in the case of ideas not already connected by any of the Four Laws of Connection, Lesson I., pp. 11-13. In the case of ideas already connected naturally by any of the Four Laws, a careful mental analysis of the connection is in itself sufficient to fix the ideas in the memory.

The same correlation will not be equally strong to everybody, because knowledge and experience vary in different people. Thus, if some one had been robbed

of a large sum of money, say, at Winchester, the name Winchester would always recall to him the loss, whereas other people would not think at all of loss when hearing of Winchester. Hence each one must make his own correlations.

To Remember Correlations.

With the beginner the making of a correlation alone is not sufficient to connect the extremes in his mind for ever. **He must impress them on it by reciting the whole correlation several times forwards and backwards,** thus:

Waterloo, water, drown, fatal. Fatal, drown, water, Waterloo. After that, you leave out the intermediates and recite only the extremes, thus:

Waterloo, fatal; fatal, Waterloo; fatal, Waterloo, Waterloo, fatal. In future if you think of *Waterloo* it will immediately recall *fatal,* and vice versa, **without thinking of the intermediates.** The intermediates are only used for establishing a connection between the extremes; when that connection has been established, they are no longer needed, and the one extreme must immediately recall the other. The intermediates serve for learning, but not for remembering; they are a means to an end; when the end has been gained, they are superfluous and done with. This is the same case as with Nelson and Trafalgar; there was a time when the word Nelson would not have recalled Trafalgar in our mind, nor Trafalgar the name of Nelson. That was the time when we had not yet heard or read that a battle had been fought near Trafalgar, and that Nelson was the glorious victor. Later we read those facts in a book of history, and that book and our reading it was the means of connecting in our mind Nelson with Trafalgar. But now, if we hear of Trafalgar, we no longer think that Trafalgar is the place where, as we read in Smith's History of England

on such and such a page, Nelson gained a glorious victory. The page, Smith's History, the reading, are forgotten—they were a means to an end,—and Trafalgar immediately recalls Nelson, and vice versa. Such is also the case with the intermediates of a correlation. Hence you can make use of the same word as an intermediate in 100 or more correlations without fearing that the wrong extreme might be suggested to your mind. You will see also why you must recite the correlation forwards and backwards; if you recited it only one way, you would soon do it mechanically and think of something else; but you cannot recite the correlation, and then the extremes alone, forwards and backwards, without thinking of the words you are saying, and their meaning and connection with each other; it is only by such conscious work that you can gain a deep and lasting impression. The more you practise, the fewer intermediates you will need, and also the fewer repetitions to fix the extremes in your mind. In the end you will see a connection (without intermediates) between almost any pair of words, and the perception of that connection will suffice to fix the words in your mind.

If, in the case of translating a date into a word, you experience a difficulty in finding a word, you can help yourself in various ways. If the date be one of four figures, you need never translate the 1 expressing the thousand, because no one will make a mistake of 1000 years in history. *In some instances you can frame a small sentence relating to the fact; in this case* **only the first sounded consonant of each word has figure value:** *when the figures are represented not by a sentence but by a single word* **all the sounded consonants must have figure value.** If this rule is not observed, confusion is likely to follow. When representing dates or figures by means of a sentence, you should, as far as possible, construct a sentence *having a close and ex-*

clusive bearing on the facts connected with the date or figures. A few examples will illustrate the above points:

The discovery of America was made in 1492, therefore:

"discovery of America," Red Indian, Indian, **t**urban 1492,

"discovery of America," Asia, Arabian (1)492,

"discovery of America," **th**e robbers **b**rought **n**egroes 1492. (The Europeans robbed the Red Indians of their country, and then brought negroes over to do the work for them).

The same methods may be applied also to figures of another kind, such as the length of rivers, the height of mountains, the area of lakes, etc., the number of inhabitants of a town, specific gravity, etc. In the case of the number of inhabitants of a town, we shall, of course, not translate the noughts at the end, but only the thousands, or hundred thousands, according to the size of the town.

"Foundation of Rome," **c**olumn, 753; (there are very many columns in the churches and ruins of Rome; there are two large rows of columns round the place of St. Peter's).

"Hengist and Horsa land in England." Saxon riders arrived promptly, 449; (riders refers to the two names, both of which mean horse).

"Magna Charta." **T**he **n**ew **t**reasure launched, 1215.

"Earthquake of Lisbon." **T**he **c**atastrophe levelled **L**isbon, 1755.

"French Revolution." **C**haracteristic **F**rench **b**ehaviour, (1)789.

Length of the Thames, impure, ingredients, analyze, 250; or, in **L**ondon **s**topped (by the tide from the sea), 250.

Length of Seine, Paris, siege, bombardment, **w**recks, 470,

or **o**ur **c**apital **s**educes, 470.

Height of Montblanc, **the large glaciers form a danger**, 15781,.

or Montblanc, self-plucked edelweiss, **ideal-gift**, 15781.

5905,

Height of Righi, **all beautiful scenic land**,

or Righi, Switzerland, wedding tour, **elope Sally**, 5905.

Height of Snowdon, **men loathe cold snow**, 3570, or Snowdon, high, High Priest, **Malchus**, 3570.

Specific gravity of silver, silver-party, Bryan, **this is our chief**, 10·468.

Specific gravity of iron, hold fast, lost, **go seek pa**, 7·79.

Atomic weight of iron, hard, soft, gentle, lowly sage, 55:6.

Atomic weight of zinc, sink, slowly, **sheer speed**, 64·91.

To remember the dates of birth and death of great men we connect the name with the word expressing the birth, and this word with the one expressing the death:

Lord Beaconsfield, Suez shares, Khedive, **vassal**, (1)805, purple, **vivid**, (1)881.

Gladstone, merchant's son, **office boy**, (1)809, "Boy Blue," blue sky, **view above**, (1)898.

Shakespeare, let **Sh**akespeare write, (1)564, **Sh**akespeare's **d**ramas **shine**, (1)616.

Dante, Divine Comedy, **angel**, (1)265, magic, **mind**, (1)321.

Goethe, old, death, **crape**, (1)749, grape, eatables, **famine**, (1)832.

Beethoven, favored, **coax**, (1)770, playful, **rest, evening**, (1)827.

Richard Wagner, **found different music**, (1)813, **found future music**, (1)883.

Raphael Sanzio, **our famous master**, (1)483, **there live none such**, 1520.

Michael Angelo, St. Peter's, temple, **oracle**, (1)475 tripod, furniture, **lodger**, (1)564.

Rubens, ruby ring, marriage, **link**, (1)577 belt, sailor, **jersey**, (1)640.

The Colors of the Rainbow in their Proper Order.

whole and part	violet, indigo	genus and species.
whole and part	blue, green	whole and part.
whole and part	yellow, orange, red	whole and part.

Exercise for Training the Eyes IV.

Take a fresh set of letter-cards and draw on each of them some lines and quadrangles of different size, shape, and color, and try to determine number, shape, size and color at a single glance.

Exercise for Training the Eyes V.

Taking a fresh set of letter-cards draw on them circles of different radii, and try to determine circumference and radius, without having actually drawn the radius.

Learning Languages.

I shall enter more thoroughly into this subject in the next lesson. For the present, I shall confine myself to the learning of the words. A great many grammars and other books for learning languages have been written; but, as to the learning of the words of a foreign language, not one of them has, so far as I know, followed the psychological laws of the mind; *i. e.*, the natural laws of thinking as traced by psychology. In the grammars the first words the pupil has to learn are chosen without paying any regard as to whether the foreign word is related to the English word or not; e. g. *house* is in French *maison;* now *maison* is in no way related to *house;* neither sound nor spelling come in any way near each other, so that at least a few letters of the word might suggest the other. Hence the difficulty in learning such words. The mind has an aversion for such leaps from the known to the unknown; it ever tries to bridge over by intermediate steps from the one to the other, thus converting the "unknown" into a "partly known." According to these laws of nature, the only correct, and the easiest, way of learning foreign words is to put before the pupil those words first which are naturally related to each other, then those which can still be deduced from them, and last of all those between which no relationship whatever can be traced. But even these will offer no difficulty to students of this system, as by correlation they can make the most abstruse word easy. I once compiled a list of words of identical origin between English and German, and thus found about 1,600 words; 1,300 of these I then arranged into a continuous series, like the "language" series in the first lesson, making them doubly easy to learn. From the above 1,600 words I was able to deduce about 3,000 more words. This would make 4,600 words in all. I admit

that amongst these there were a number of words which do not occur frequently; but, supposing that only 3,000 words were useful ones, one would have already learned in a most easy manner more than half the stock of words that we need for conversation, for 5,000 words is all that people use in ordinary conversation. With a number of words the affinity is not conspicuous, and if put before the pupil mixed with words of no affinity whatever he would not notice the marks of identity of origin. But if they are placed before him under the heading of words of identical origin, or as words deduced from words of identical origin, he will try to find out the marks of affinity, concentrating his mind on them, and thereby impressing them deeply. Here are a few examples:

"Water" is, in German, "Wasser"; from this we can deduce; waterfall, Wasserfall; water-cure, Wasserkur; water-jug, Wasserkrug; water-mill, Wassermühle; watery, wässerig; mineral waters, Mineralwasser; water-apple, Wasserapfel; water-bath, Wasserbad; water-cart, Wasserkarren; water-crane, Wasserkrahn; watergang, Wassergang; water-god, Wassergott; waterlily, Wasserlilie; water-rat, Wasserratte; water-works, Wasserwerk; to water, wässern; waterless, wasserlos.

"Sign" is, in French, "signe"; signer, to sign; signature, signature; signifier, to signify; signifiant, signifying; signification, significance; significatif, significant; signal, signal; signaler, to signal.

As a great many French words were introduced into the English language by the Normans, we can find quite as many words of identical origin in the French, Spanish, Italian, and kindred languages as in German, Dutch, Danish, etc. In fact, since the English language consists half of Germanic and half of Romanic roots, the English people ought to know more languages than other nations, whereas, in reality they are in this respect outdone by many other nations.

And if we do not want to say that this is owing to a lack of natural ability, the reason can only lie with unnatural methods of teaching and learning languages.

I shall now give examples for learning by correlation words between which no identity of origin whatever can be traced. The words in italic type are the connecting intermediates.

French.

tear, *misfortune, alarm,*	larme.
to make, *sell, fair,*	faire.
mouth, *moustache, bushy,*	bouche.
iron band, *prisoner, worry, fret,*	frette.
phlegm, *illness, insane, glare,*	glaire.
to speak, *parley,*	parler.

German.

pleasure, *grief, lose,*	Lust.
large, *quantity, gross,*	gross.
picture, *room, house, build,*	Bild.
pen, *quill, feather,*	Feder.
to ask, *beg, bread, bite, bitten,*	bitten.
bell, *alarum, clock,*	Glocke.

Spanish.

finger, *point, stab, dead,*	dedo.
sticks, *fire, cook, broth,*	broza.
small, *chicken,*	chico.
nice, *neat, poor, garret,*	garrido.

Greek.

fruit, *dinner, fish, carp,*	κάρπος.
to join, *cabinet maker, clever, apt,*	ἄπτειν.
time, *chronometer,*	χρόνος.
cup, *kettle, pot,*	ποτήριον.

Latin.

man, *wife, home,*	homo.
dry, *thirsty, feverish, sick,*	siccus.
healthy, *sanitary,*	sanus.
table, *wood, tree, immense,*	mensa.

If you already know some languages, you can use the words of any of these languages as intermediates for learning fresh languages; you can also use the words you have already learned for learning fresh words of the same language.

Sanskrit.

tooth, *tan* (Swed),	danta.
roof, *ceiling, tejadilho* (Port),	chadis.
army, *bullet, bala* (Span),	bala.
to give, *dare* (Ital),	da.

The Power of Reproduction.

As the final purpose of this training is, not to give the pupil a collection of expedients for certain cases only, but to make his perceptive power more trustworthy, and his retentive power more tenacious, so that in the end he will retain everything without using a special device, he should recall each day from memory everything that he has learned in the above way during the preceding six days; but *in thus recalling correlations, the extremes only should be repeated, and not the intermediates.* By this he will also train his memory to return to him promptly whatever he has entrusted to it, at any time he likes; and that alone forms a reliable and useful memory. It is but little use to us to retain knowledge if we cannot recall and apply it at the right moment; but the power of reproducing needs to be trained just as other powers, and therefore it is of importance that you should carry out the directions just given.

Developing the Sight-Memory.

In order to strengthen the sight-memory, look, say, at a quill attentively, then put it away, or cover it up, so that you cannot see it, and then try to draw it from memory. When you have done this, bring out the original again, and compare your drawing with it. You will then see that you have missed several points which you now notice in the original; look again at it closely, and then put it away together with your first drawing, and make a second drawing; when you have done this, compare it with the original and the first drawing. If you find your fresh attempt satisfactory, lay it all aside, and, after a few days try to draw it again, without having in the meantime looked at either the original or your former drawings; only when the fresh drawing is finished, fetch them out and compare again. Those not expert at drawing will when beginning represent balls, or any other globular bodies, by round disks. The reason is that at first they do not notice sufficiently how light and shade fall on these bodies, and in what gradations, and thus they do not mark them in their drawings. In fact, the art of drawing and painting lies more in a keen observation—discerning light, shade, and color—than in the ability of the hand or the mixing of the colors. Little by little you should go on to more difficult objects, especially also to human faces and bodies, because these often influence the retention of names. The inability to remember names may be the consequence of various causes. Either the eyes do not observe closely; i. e., they do not trace any peculiarity in the face, figure, carriage, or gait, etc., of the person, or the sight-memory fails to retain what the eyes have seen, or the ear does not grasp the sound of the name sufficiently, or does not retain it, or the mind cannot connect the impression of the eye with that of the ear. Through a rational training each of these faculties can be wonderfully developed and

strengthened. If a stranger looks at a flock of sheep, it seems to him as if the sheep look all alike; not so to the shepherd who knows each single sheep. And surely human faces, figures, voices, etc., offer still more distinguishing marks. In the same way an artist who has seen a landscape will carry it long after in his memory with all its details. We have seen what the Red Indian can do by his ear; a Chinese savant who had visited India in the 7th century also reports that many Hindoos knew whole books by heart after having heard them read once.

Remembering Names of Persons.

About the fact that two strong impressions which are received at the same time will recall each other, I have spoken in Part II. Those, therefore, who cannot remember names ought to study one face closely every day, or every second day, pronounce the name a few times slowly and distinctly, then try to draw the face from memory, paying special attention to the individualizing traits, and think over the connection of name and peculiarity. If a person is introduced to you, you must observe quickly any little peculiarity you can find either in the face, figure, carriage, gait, or voice, and then connect it with the name, thus:

beautiful voice, *sing, play,* Miss Playwright,
tailor, *merchant tailor, clerk,* Mr. Clarke,
lawyer, *fee, fare, hansom,* Mr. Carr,
small foot, *bird, shoot,* Mrs. Bowman,
billiard player, *much walking,* Mr. Walker.

Of course, you must choose a peculiarity of which you are sure to think when you want the name. At first you may find it a little difficult to see a distinguishing mark in every person in a moment; but, if you will train your observing powers in accordance with the directions given in these lessons, you will soon solve the difficulty. Nowadays it is very easy to practice observing faces, as portraits are very patient, and

take no offense however much you stare at them. Next day you will recall face and name from memory, and add another one, and so on.

A Daily Practice.

In the evening you ought to devote some time to recalling minutely all that has happened during the day, the persons you have met, what has been said in conversation with them, what you have read, and so on. You will soon find that your memory gets more and more exact as to the details. If you have heard a sermon, a speech, or a lecture, or seen a play at the theatre, you ought to try and recall it as minutely as possible. If possible narrate it to somebody else, because then your ambition leads you to give as good a description as possible. A good shorthand writer can watch the progress of his memory by writing down the occurrences of the day, contents of lectures, etc., from memory in the evening, and comparing the length of his notes of the first day with those of the last day of the same month. Those who cannot write shorthand, or have not the time for writing down all the occurrences of the day, ought to recite them to themselves instead of only vaguely thinking of them. The precise, the exact, the thorough, work, is what we must ever strive after; unfortunately this is neglected by our modern educational system just as much as is the training of the memory. **Only that is of real value to us which the mind has thoroughly digested and converted into its own idea.** He who produces but *one* new idea by his own thinking is mentally much farther advanced than those who have hundreds of ideas of other people. **The true aim of education is to make us think for ourselves.** The knowledge of hundreds of grammatical, mathematical, and other rules, long lists of historic names, dates, and facts, etc., is of little value to us if it does not teach us to think ourselves, so that we may learn and profit by the

experience of others, by deducing the right conclusions. Grammatical rules, tables, forms, etc., were originally introduced in the schools to make people think, and to teach them how to think; they were then a means to an end, whereas nowadays the end is entirely overlooked, and the means itself is made the end. The modern examiner does not ask: "In how far have the rules, historic facts, etc., taught you to think?" but only: "Do you know the rules, the facts, etc., themselves?" He who does not know them, even if he be the keenest thinker, will not pass. And yet, if we look at the practical side of life, only those who have learned to think are of real value, for they alone can make inventions and improvements. "An Oxford Man" writes in his "Self-Formation, or the History of an Individual Mind": "It has been observed that there are two "kinds of education—one wherein we are taught by "those about us, and another, wherein we teach ourselves; that the former method is the more common, "and the latter infinitely the more valuable and effective. "This is admitted universally, and to my judgment "it is indeed astonishing that we should have been so "busy about the less worthy of these two subjects, while "we have neglected almost, if not altogether, the far "worthier one; that the universal young mind should "have been weighed down to the very dust by the multitude of institutional books, while the spirit of self-"instruction is left to be stifled under the heap, or, "at best, to find its own way up to the surface. One "would suppose, from this neglect, that it is the easiest "of all possible uses, as easy as the exercise of the senses, "as natural as seeing and hearing; whereas, in plain "truth, nothing is so difficult. Self-instruction and "thoughtfulness are nearly, if not entirely, convertible "terms; and to think effectually is more than one man "in a thousand is able to do. The art of thinking is "the key of philosophy, and its mastery is nothing else "than the perfection of the intellect."

Individuality.

The author is certainly right in saying that the youthful mind is almost smothered by the multitude of institutional books; one thing is certain, that very little, if any, attention is paid to the mental peculiarity of each individual. There can be no doubt that men vary still more in their mental gifts than in their bodily qualities, and that the more a man possesses of one gift, the less he does of another; nor that nowadays only those men achieve great results who devote themselves exclusively to one branch. The more the school-teaching is cast in one mold the more geniuses will be smothered in the embryo. The school has never made a man great. Napoleon, Edison, Mozart, Shakespeare, and so on, became great men by the gift of nature and their own thinking. On what then is self-dependent thinking based? On memory. In order to think successfully we must compare our various experiences and ideas relating to the question on hand. But how can we do that, if our memory does not present them at the right time? By seeking the connection between two ideas, as described in the first lesson, and by making correlations, the purely receptive work of the usual learning by rote, which soon tires us, is converted into productive work, which continually increases the efficiency of mind.

What to Do.

You have now reached a stage where you can begin to make practical use of the system in your own studies. But you should not on that account discontinue the exercises described in the first and second lessons. Recite daily, forwards and backwards, the "Language" series (Lesson I., pages 13-15), the "Columbus" series, and the series constructed by yourself. Add 25 words daily to your own series. Practice translating words into figures and finding words to express groups of figures. Do not on any account neglect the "Recon-

structive Method" (Lesson II., page 13) or the "Searching Method" (Lesson II., page 14), as both are of great value in training the mind. With regard to the present lesson, you should, during the next four weeks, treat one word each day in the exhaustive manner indicated in the example given on page 5 herein. You need not send this for correction.

Practice correlation at every available opportunity, until the process can be accomplished almost without effort.

Exercises.

Correlate the following pairs or words (taken at random from a newspaper paragraph), according to the principles explained on pages 8, 9, 10 of this Lesson. The first three pairs of words are already correlated as examples:—

Horse	head	overhead	Sky.
Carpet		carp	Fish.
Train	carriage	wheel	circle
Hand			Angle.
School			Knife.
Road			Tree.
Prone			Cry.
Fancy			Girl.
Pen			Afternoon.
			Clock.

Translate the dates given below according to the principles explained in Lesson II., pages 9, 10, 11, and in Lesson III., pages 9, 12, 13, 14, and correlate from the events to the words thus found. Write the date word immediately in front of the date. The first two examples are worked out for you.

Discovery of America - Red Indian - *turban*	1492.
Battle of Waterloo - water - drown - *fatal*	(1)815.
Battle of Gettysburg	(1)863.
Battle of Manila	(1)898.
Battle of Trafalgar	(1)805.
The Emancipation Proclamation	(1)863.
Accession of Queen Victoria	(1)837.
Declaration of Independence	(1)776.

Give phrases which will embody the following dates, attaching a figure value to the first sounded consonant only in each word. Read carefully page 12 of this Lesson, and study the examples given on pages 12, 13, 14. The first two cases given below are already worked out in order to show you once again the method of proceeding.

The Earthquake of Lisbon, 1755. THe Catastrophe Levelled Lisbon.
The French Revolution, 1789. CHaracteristic French Behaviour.
The Spanish Armada, 1588.
The Capture of Gibraltar, 1704.
The Battle of Alma, 1854.

The poet, Keats, was born in the year (1)795 and died in the year (1)820. Translate these two dates into words and correlate from the name "Keats" to the first date-word, and continue the correlation from the first date-word to the second date-word. Study the examples relating to Lord Beaconsfield, Dante, and Beethoven, on page 12 of Lesson III.

If you are studying any foreign language, give six examples of correlation between English words and their foreign equivalents, similar to the examples given on pages 18 and 19 of this Lesson.

When sending in exercises, write *your name and address legibly, also your registered number.*

Printed solely for the pupils of The Pelman School of Memory Training.

Note.—No part of these lessons is to be said or shown to anyone.

(4)

MEMORY TRAINING

ITS LAWS

AND

THEIR APPLICATION

TO

PRACTICAL LIFE.

BY

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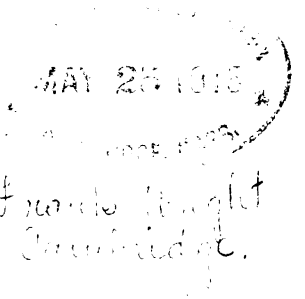


On Learning Languages.

The study of languages is, no doubt, the oldest branch of learning in the history of the world; for never was there a time in which tribes and nations were so completely separated from one another that they did not barter with each other, and for this purpose the knowledge of language was to a certain extent necessary. Now, one would think that from the experience gained during so many centuries such a perfect method of learning languages would have been built up that our contemporaries could learn a language in much less time and much more perfectly than our ancestors did. And yet one might say that the very opposite is the case. Our ancestors were such masters of even the dead languages that they could write and speak them with fluency and elegance; while most of our contemporaries never get so far, even with the most ordinary of modern languages. The reason, as mentioned once before, is that languages were formerly learned by the ear and by simply imitating, while nowadays we waste our time with subtile grammatical rules, the most exact knowledge of which will never lend us fluency in speaking. My plan is, in a few words, as follows:

First of all, acquire a good pronunciation; spare no pains on this point, for, if you have once accustomed yourself to a bad or negligent pronunciation, it lies almost beyond human strength to amend and improve it. This is no exaggeration, but the result of many years' careful observation. If you pronounce a word badly at first, your ear gets accustomed to your own bad pronunciation, and after a short while you do not even hear that you pronounce badly or differently from other people, and hence you cannot correct yourself. A perfect pronunciation cannot be learned from a book. The living

voice is absolutely necessary, and that of a well educated native, or at least of a person who has lived in the respective country for many years and mastered the language. Further details are found in my pamphlet: "The Natural Way of Learning a Language."

Acquiring a Vocabulary.

The method of learning foreign words I have shown in the last lesson. You may also translate the "language" series into the foreign language, and increase it by 20 words daily, reciting the whole of it, as far as you have done, daily forwards and backwards. If you have a difficulty in remembering the gender of certain words, make one series of words of the masculine gender only, and one of words of the feminine gender only, and recite these for some days forwards and backwards. By reciting such series of foreign words you will also learn to *think* in that language; and that is of great importance, for as long as you think in your mother-tongue and translate you cannot speak either fluently or correctly. If you learn the language in the country itself, for one year at least you should absolutely shun your countrymen living there, and should speak as much as you can with the natives; for you have come to learn *their* language, not your own or the mistakes of your countrymen. Carry with you a small dictionary in which you can find the meaning of words unknown to you, if you cannot make out their sense by gesticulation; if the latter, so much the better, because it will impress your mind more; otherwise, puzzle out the derivations, or learn them by correlation. Gesticulations have often a comic effect, but you will sometimes find that a comic incident impresses itself much more vividly than others.

If you hear or read a new expression, or a sentence of new construction (I mean new to you), repeat it attentively several times; analyze each single word, paying attention to the order in which it follows an-

other; and try to grasp the exact sense it is meant to convey to you. When you are already somewhat advanced in the knowledge of the language, try to construct a similar sentence; compare it carefully with the model sentence; and see that it contains the peculiarity which attracted your attention. You will soon find that you use that particular construction spontaneously, and become aware of it only after having already uttered the sentence. Let no occasion of speaking with natives pass.

Spend the rest of your time in reading good stories and novels, but not scientific works at first, as the former contain more familiar language. Read slowly, especially when beginning, for only by reading slowly has your mind time to assimilate matter, *i. e.*, to learn. The greatest damage to memory is done by the fashionable wholesale devouring of everything that is printed.

Learning a Language at Home.

If you cannot go to the country whose language you mean to acquire, and have to learn it at home (the same plan holds good for learning dead languages), you ought to learn at first those words and their derivations which are related to those of your own language, and such other languages as you have already mastered. Then take up an easy story, and a good translation of it, and try to find out the sense of each word, marking the order in which the words follow one another. When you have made fair progress in that, put the translation out of sight, and try to translate from the foreign language into your own solely with the aid of the dictionary. As often as you have finished a page, turn to the printed translation and compare your own with it, to see whether you have comprehended the sense aright, for even the best translations differ in words and expressions. After having gone through several chapters in this way, use only half your time in translating from the foreign

language into your own, and the other half in turning the beginning of the story from your own tongue into the foreign one. After every page, compare your translation with the author's original, and if you have made many mistakes tear up your own work and translate that page again on the following day, and thus continue till you get a proper translation. Do not read or learn any poetry until you are well advanced in the language, for the liberties which the poet may take cause the greatest damage to the prose style of those who have not yet a firm command over the language. Never miss an opportunity of speaking with a foreigner when you come across one; speak as well as you can, but do not be afraid of making mistakes. Learn first of all the following two sentences: "Please, what do you call this?"; and "Please, will you tell me the right expression, when I make a mistake?" You will find these two sentences extremely useful. In order to acquire fluency in speaking, learn a good story or novel by heart in the way indicated in the next lesson, as by so doing the style of the author will become absorbed into your mind and afterwards will tend to mold your own style of composition.

If you must learn according to grammar, you may find the following hints useful:

Declension.

Latin: **rosa, a rose.**

Singular:

Nom. **rosa,** *Sa*bbath, preach, *say*,
Gen. **rosae,**
Dat. **rosae,** *sai*lor, Atlantic, uncle *Sam*,
Acc. **rosam,** Samuel, Elisha, Eli*za*,
Voc. **rosa,**
Abl. **rosa,** savages, account, es*say*.

Plural:

Nom. **rosae,** settle, rouse, al*arum,*
Gen. **rosarum,** rum, water, oa*sis,*
Dat. **rosis,** cistern, Carisbrook castle, *ass,*
Acc. **rosas,** assert, uncertain, hear-*say,*
Voc. **rosae,** sabre, danger, cri*sis,*
Abl. **rosis.**

Degrees of Comparison.

Greek: **beautiful,** tender, callous, Καλός.

Masc. Καλός, loss, mislaid, *lay,*
Fem. Καλή, ladle, tea-spoon, Cey*lon,*
Neut. Καλόν, London, volunteers, batta*lion,*
Comp. Καλλίων (Κάλλιον), Leo, Pope, Cardinal Newman, Callista,
Sup. Κάλλιστος (η, ον).

With both of the above languages the new or Continental pronunciation has been used.

Conjugation.

German: **to be,** existence, *sign* of life, **sein.**

I am, ample, roomy, bin **ich bin,**
thou art, artful, monkey, beast, **du bist,**
he is, east **er ist,**
we are, birth, original, sin, sinned, **wir sind,**
you, are, friends, side by side, **ihr seid,**
they are, army, bivouac fire, cinder, **sie sind.**

Astronomy.

The times which the planets take for one rotation round their own axes are as follows:

Planets, plan, business, commerce, *Mercury, Nero* (24 hours), *Venus,* chastity, *name a saint* (23 hours 21 min.), heaven, *Earth,* animals, deer, *an emu easily shy* (23 hours 56 min.), bold, warrior, *Mars,* battle, guns, *near smoke* (24 hours 37 min.), pipe, father,

Jupiter, sedate, *buy slowly* (9 hours 55 min.), shopping, Saturday, *Saturn,* rings, *this star* (10 hours 14 min.).

Distance of the Earth from the Sun 92,000,000 miles.

Earth, mine, copper, *penny* (92).

Chemistry.

The formula for water in chemistry is H_2O=2 parts of hydrogen +1 part of oxygen of their combining weight. In order to remember *water*=H_2O, you connect water with a word beginning with **h** and ending with **n** to express the quality 2, and this word with another beginning with **o** and ending with **t**, **d** or **th** to express the quality 1. *Water,* duck, *Hen* (H_2), cock-crow, *Oath* (O). The air consists of 23% oxygen (symbol O) and 77% nitrogen (symbol N). *Air,* pressure on body, *On me* (O 23%), down on me, *Nagging* (N 77%).

Botany.

The Violaceae have 5 sepals, 5 petals, 5 stamens, anthers 2-celled, ovary unilocular; style single with an oblique stigma; fruit a 3-valved capsule; seeds numerous. We must connect violaceae with words beginning with Sep (=sepals), Pet (=petals), Sta (=stamens), An (=anthers), Ov (=ovary), St...l (=style), Ca (=capsule), and the following consonant of which expresses the figure, hence:

Violaceae, flower, *sepal, petal,* pettish, old, *stale,* useless, *annoy,* dry study, *Ovid,* clever, *stolid,* smart, *oblique* (stigma), mountain-side, stone, *cameo* portrait. ancestor, Abraham, *seeds numerous.*

Anatomy.

The branches of the External Carotid Artery are eight in number; viz., three directed forwards, the superior thyroid, the lingual, and the facial; **two**

directed backwards, the occipital and the posterior auricular; and three extending upwards, the ascending pharyngeal branch, together with the temporal and internal maxillary, the two terminal branches into which the artery divides.

The only right way of studying anatomy is, of course, by dissecting bodies, but, if that alone will not suffice, you can fix the details in your memory in the following way:

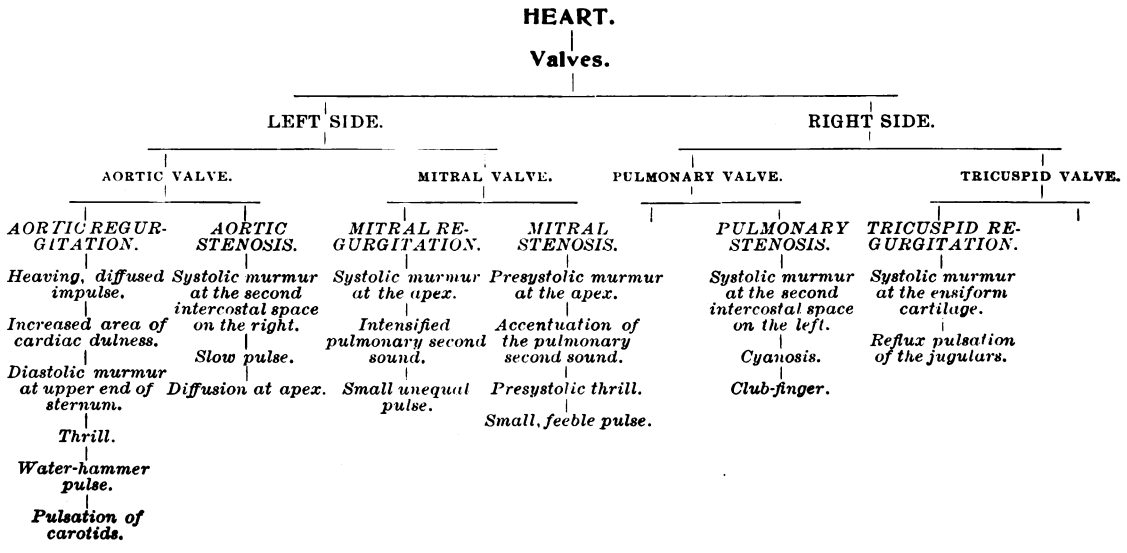
Carotid, carrot, red, green, **Ivy** (eight branches) creep, vanguard.

Forwards, pushing trade, Thyrus, **Thyroid,**
Phoenician language, **Lingual,**
tongue, face, **Facial,**
front, back,

Backwards, Chinese, Orient, Occident, **Occipital,**
hospital, ear hospital, auricle, **Auricular,**
auricula, grow,

Upwards, high up, pharos, **Ascending Pharyngeal**
Pharaoh, imperious, temper, **Temporal,**
temple, commandments,
maxim **Maxillary.**

Physical Signs of Valvular Disease of the Heart.



The above table, giving the valvular diseases of the heart and their physical signs, can be memorized without effort by a single careful analysis of the series of words given on the following two pages. This series is given as an example, and it is not intended that the classification of the series should be sent for correction.

Physical Signs of Valvular Disease of the Heart.

VALVULAR DISEASE
heartsease
HEART
valves
valueless
left off
LEFT SIDE
lift
displace
order
AORTIC VALVE
tick
noise
gurgle
AORTIC REGURGITATION
resurging
wave
heaving motion
heaving, diffused impulse
diffuse
spread over
increased area
area steps
tradesman's cart
cardiac
card
afternoon call
dulness
dull color
colored (clerical) stole
dye a stole
diastolic murmur
diatonic scale
upper end
end
stern
sternum
stir up
anger
tremble
thrill
rill
water
water-hammer pulse
pulsation
beating
whipping
make careful
care
carotids
rot
preserve
ice
arctic
AORTIC
ought
shorthand
stenography
STENOSIS
stentorian
stolid snore
systolic murmur
complaint
no space
double space
second space
second sight
ghostly intercourse
intercostal
cost
account
correct
right
right foot
instep
sloping
slow pulse
slow fire
fusion
diffusion
differ
point of argument
apex
head
mitre
MITRAL VALVE
mitre and crozier
bishop
urge to reformation

MITRAL REGURGITATION
regal system
systolic
seize
remonstrate
murmur
low whisper
high
apex
extensive
intensified
tense
drawn tight
pulled
pulmonary
pullet
carve
cut
sector
second sound
second-hand
third-rate
three
small uneven number
small, unequal pulse
repulse
hold aloof
sovereign
might
MITRAL STENOSIS
stencil
print
book
precious
presystolic murmur
prevent
alarm
bell
steeple
apex
summit
ascent
accentuation
increased power
pulley
pulmonary
pool
farm
couple of pigs
second sow
second sound
intone
priest's thrilling voice
pre-systolic thrill
precise
minute
small, feeble child
small, feeble pulse
feeble
strong-hearted
HEART
valves
vault
right over
RIGHT SIDE
"right away"
railway guard
Pullman car
PULMONARY VALVE
monetary
bankrupt
broken
brokennose
pulverized noses
PULMONARY STENOSIS
tenacious
strong
cistern
systolic murmur
systematic murder
sensational trial
no room
second space
spacious
coast
intercostal
costermonger's barrow
stale food
left over
left
left behind
sigh
cyanosis
sign
pass-word
secret society
club
club finger
hand
gesture

French	*systolic murmur*	recoil
Tricolor	assist	*reflux*
TRICUSPID VALVE	hoist	flax
customary	ensign	crop
costume	*ensiform*	wheat
regirt	uniform	pulse
TRICUSPID REGURGITATION	accoutrements	*pulsation*
	harness	movement
	carter	dexterous
Cupid's agitation	*cartilage*	juggler
love	cartridge	*jugulars*
sisterly objection	gun	

Medicine.

In learning the preparations of the British Pharmacopœia, indicate the nature of the preparation (as Pill, Plaster, Decoction, etc.) by the initial letter of a word, the following consonants of which indicate the proportion. You can either learn each separately, or string all together, examples of both methods being given below.

The nature of the preparations is indicated by the following letters:—

Acids	= A	Mixtures	= M
Confections	= C[hard]	Ointments	= O
Decoctions	= D	Pills (bolus)	= B
Discs	= Di	Plasters	= Pl
Extracts	= E	Powders	= P
Glycerines	= G	Spirits	= Sp
Hypodermic Injections	= H	Suppositories	= Su
		Syrups	= S
Infusions	= I	Tinctures	= T
Liniments	= Li	Vinegars	= Vi
Liquors	= L	Waters	= W
Lotions	= Lo	Wines (vinum)	= V
Lozenges (trochiscus)	= Tr		

Confections = C^hard

Pepper, spice, aroma, tea,	**caddies**	1 in	10
Senna, sent away, ship	**cadet**	1 in	11

Decoctions = D.

Aloes, allow, argument	**deduces**	1 in	120
Pomegranate, bark, tree, forest	**dale**	1 in	5

Waters = W.

Camphor, camp, war, plague, fatal disease, carried away,	**what a disease**	1 in	1100
Carraway, wayward, good for nothing, hops, stupify,	**weeds**	1 in	10
Chloroform, operation, careful, old people,	**worse eyes**	1 in	400
Elderflower, large bloom, small, pimple,	**wide**	1 in	1
Pimento, memento, prize,	**wins**	1 in	20

Poisons and Antidotes.

Soap and Sulphide of Potassium counteract metallic poisons, e. g., arsenic; **Metallic,** lick, clean, soap, wash, soft skin, soft hide, **sulphide,** sully, dirty, pots and pans, **potassium.**

Oil, milk, and other fatty substances will protect the coats of the stomach against acrid poisons, e. g., oil of vitriol. **Acrid,** vinegar, **oil, butter, milk.**

A drunken man can become sober by taking ten drops of ammonia in a glass of sugared water.

Drunk, sweet wines, **sugared water,** oasis, Jupiter Ammon, **ammonia,** medicine, toss down, **toss** (10).

Telegraphic Alphabet.

I give here the old Morse Code as an example; improvements have since been made, but not generally

adopted. Anyone seeing the application shown below can adapt the principles to any other telegraphic alphabet.

We use the letter **S** (full **S**top) or **C**^{soft} or **Z** for Dot, and **D** or **T** or **Th** for **D**ash. Vowels are not counted. The consonant following **S**, **Z** **C**^{soft}, **D**, **T** or **Th**, indicates how many of them occur in direct succession, if more than one; e. g. **S**oar=4 dots.

A, ale, intemperance,	**S**ad	·—
B, be, existence, God,	**a**theism	—···
C, sea, victory, banquet,	**T**oasts	—·—·
D, deed, draw up	**D**esign	—··
E,	ease	·
F, efficient, remedy, sea air	**S**ands	··—·
G, gipsies, Spain, Denmark,	**D**anes	——·
H, aspirate, high aspiration,	**S**oar	····
I, eye, light,	**S**un	··
J, jay, nut-tree,	**S**tem	·———
K, cayenne,	**D**ust	—·—
L, ell, cloth, manufacturer,	**C**itizen	·—··
M, empty, hollow,	**D**en	——
N, endive, garden,	**D**aisy	—·
O, oath, holy, church,	**D**ome	———
P, pea, green, grass,	**S**tains	·——··
Q, cute, statesman, king,	**D**ynasty	——·—
R, arm, chair,	**S**eats	·—·
S, essay, school, arithmetic,	**S**um	···
T,	**T**ea	—
U, yew-tree, forest, silent,	**S**ound	··—
V, view, mountain,	**S**ummit	···—
W, double width,single width,silk	**S**atin	·——
X, expense, income	**T**housand	—··—
Y, why, query, questionable,	**D**isdain	—·——
Z, said, recital, Enoch Arden,	**T**ennyson	——··
&, join, carpenter,	**D**oor	————

The Comparative Method.

In the first lesson we have dealt only with ideas between which a Necessary Connection, Contrast, or Accidental Connection exits; and with words connected by Similarity of Sound. Now, if we go a step farther, we shall find that the same laws can also be applied to facts, principles, callings, periods, groups of ideas, etc., and that comparisons of two or more persons, theories, chemicals, plants, animals, laws, etc., will be a most useful means for impressing on our memory details connecting or contrasting them, which otherwise would easily lapse from our retention. Let us take an historical example, because it will be of general interest.

The Roman Emperor Augustus died 14 A. D.

Charlemagne died 814 A. D.

Napoleon I. abdicated in 1814 A. D.

Here we find thrice the same position, emperor (necess. connection), thrice death—abdication being political death (necess. connection)—twice natural, once political, death (contrast); thrice 14, *i. e.,* in 14, 814, 1814; thrice A. D. Augustus was the founder of the Roman Empire; Charlemagne, the founder of the Holy Roman Empire of the German Nation (this was the official style); Napoleon, the founder the French Empire. Thrice founder (nec. conn.), twice Roman Empire (nec. conn.), Roman and German (contrast), likewise German and French. The Roman Empire was heathen; the Holy Roman Empire of the German Nation, Christian; the French Empire, political (contrast). Christ was born under the reign of Augustus (accid. conn.): the successors of Augustus tried to exterminate the followers of Christ with fire and sword, whilst Charlemagne endeavored to propagate Christianity by the sword in his wars against the Saxons, and to defend it with the sword against its new enemy, Islam, in the wars against the Moors in Spain: Napoleon I. when at the height of his power made the

Pope, the head of his Church, prisoner, whilst in his banishment he declared that the most beautiful day of his life was not the day of any of his great victories, but the day on which he first went to the Lord's Supper. The Roman Empire founded by Augustus was gradually broken up by different German tribes taking one province after another. Charlemagne tried to bring these separate German tribes under one head, and was actually crowned Emperor of the Holy Roman Empire of the German Nation, 800 A. D. This Empire was broken up by Napoleon I. in 1806, while the Empires of Napoleon I. and Napoleon III. were brought to a fall by the united German nations. If we compare the reign of Augustus with other Roman periods, we may call it, on the whole, a reign of peace; while the reigns of Charlemagne and Napoleon I. consist of an almost unbroken chain of wars, Charlemagne fighting for the sake of Christianity and civilization, Napoleon mainly for the sake of ambition. Charlemagne and Napoleon were themselves commanders-in-chief; Augustus, on the contrary, left the conduct of his operations entirely to his generals. Augustus and Napoleon were of small, Charlemagne of tall, stature. Charlemagne laid the foundation stone of German civilization by calling English scholars to the Continent, and opening many schools; Roman culture reached its climax under Augustus, his reign being still known as the Golden Era of Rome; whilst under Napoleon art especially was on the decline in France, and in other countries almost smothered by his continual wars. In the reign of Augustus Italy was full of treasures of art brought as booty from Greece, whilst Napoleon I. had the Italian treasures of art carried to France. Augustus, Charlemagne, and Napoleon I. were all great legislators, and part of their laws are still in force on the Continent; but none of the three came to the throne in a lawful way, Augustus by abolishing the Roman Republic and by civil war, Charlemagne by setting aside the

Merowingians, up to then kings of the Franconians, Napoleon by his coup d'etat, abolishing the French Republic which had deposed the French kings: and with none of them the crown was handed down to many successors in the direct line.

Find the relationship where I have not inserted it, and send it for correction.

Law.

An extract from the Commentaries on the Laws of England by Sir William Blackstone, Book the Second, Chapter the Twelfth:—

An estate in **joint-tenancy** is where lands or tenements are granted to two or more persons, to hold in fee-simple, fee-tail, for life, for years, or at will: joint-tenants own the estate in common, and this possession cannot be divided. An estate held in **coparcenary** is, on the contrary, where lands of inheritance descend from the ancestor to two or more persons. Joint-tenants as well as coparceners have unity of interest, unity of title, and unity of possession. Both may sue and be sued jointly for matters relating to their own lands: and the entry of one of them shall in some cases enure as the entry of them all. They cannot have an action of trespass against each other; but herein the coparceners differ from joint-tenants, that they are also excluded from maintaining an action of waste; for coparceners could at all times put a stop to any waste by writ of partition; but, till the statute of Henry VIII., joint-tenants had no such power. Parceners also differ materially from joint-tenants in other points: 1. They always claim by descent, whereas joint-tenants always claim by purchase. 2. There is unity of time necessary to an estate in joint-tenancy, but not in coparcenary. 3. Parceners, though they have a unity, have not an entirety, of interest, which joint-tenants have.

Statute Law.

The year of the Parliamentary Session and chapter of an Act may be memorized in the following way:

The name of the sovereign under whom the Act was passed can be expressed by a homophone (see "King" series in Part I.). In the case of the Victorian Acts the name may be omitted, as no other sovereign can be meant. The number of the year of reign is translated into words. In the case of the Victorian Acts the number of the first of the two years indicating the date is sufficient. Using our common sense, we may take many liberties to facilitate matters. The number of the chapter is also translated into a word, and as the chapter always stands last, the word *chapter* can be omitted, hence:

Libel Act.
6 & 7 Vic. c. 96
Each abash

Bankruptcy Act.
53 & 54 Vic. c. 71.
All may get

Mathematics.

$$\sin \alpha = \sqrt{\frac{1 - \cos 2\alpha}{2}} \qquad \sin \frac{\alpha}{2} = \sqrt{\frac{1 - \cos \alpha}{2}}$$

$$\cos \alpha = \sqrt{\frac{1 + \cos 2\alpha}{2}} \qquad \cos \frac{\alpha}{2} = \sqrt{\frac{1 + \cos \alpha}{2}}$$

You will notice at once that the value of the α on the left side always appears doubled under the radical sign, hence

$$\sin \alpha = \sqrt{\ldots . \cos 2\alpha}, \qquad \sin \frac{\alpha}{2} = \sqrt{\ldots . \cos \alpha}$$

This is explained by the fact that the ground-form for the above four formulas is:

$$\cos\frac{2a}{n} = \cos^2\left(\frac{a}{n}\right) - \sin^2\left(\frac{a}{n}\right)$$

in which we also find $\frac{2a}{n}$ on the left and $\frac{a}{n}$ on the right. We also find that a sin on the left is always followed by a — under the radical sign and a cos on the left by a + on the right.

sinus, minus } simil. of sound cos, plus } simil. of sound

$\sin = \sqrt{\ldots -}$ $\cos = \sqrt{\ldots +}$

This similarity of sound is easy to remember because it appears in a similar way also in the Mollweidt formula·

$$\frac{a+b}{c} = \frac{\cos\frac{\alpha-\beta}{2}}{\cos\frac{\alpha+\beta}{2}} \qquad \frac{a-b}{c} = \frac{\sin\frac{\alpha-\beta}{2}}{\sin\frac{\alpha+\beta}{2}}$$

Keeping in mind the similarity of sound, no mistake can be made in the formulas deduced from the four first ones: it is therefore easy to remember:

$$\tan\frac{\alpha}{2} = \frac{\sin\frac{\alpha}{2}}{\cos\frac{\alpha}{2}} = \frac{\sqrt{1-\cos\alpha}}{\sqrt{1+\cos\alpha}}$$

$$\cot\frac{\alpha}{2} = \frac{\cos\frac{\alpha}{2}}{\sin\frac{\alpha}{2}} = \frac{\sqrt{1+\cos\alpha}}{\sqrt{1-\cos\alpha}}$$

also the formulas tan α and cot α and those deduced therefrom.

The cos and cot formulas have a peculiarity which makes them easy to remember; for, in contrast to the other formulas, with them cos is generally followed by sin and β by α, instead of sin, cos; α, β.

$$\left.\begin{aligned} \cos\frac{2\alpha}{n} &= \cos^2\left(\frac{\alpha}{n}\right) - \sin^2\left(\frac{\alpha}{n}\right) \\ \sin\frac{2\alpha}{n} &= 2\sin\frac{\alpha}{n}.\quad \cos\frac{\alpha}{n} \end{aligned}\right\}\text{contrast}$$

$$\left.\begin{aligned} \sin(\alpha+\beta) &= \sin\alpha\cos\beta + \cos\alpha\sin\beta \\ \cos(\alpha+\beta) &= \cos\alpha\cos\ \ - \sin\alpha\sin\beta \end{aligned}\right\}\text{contrast}$$

$$\left.\begin{aligned} \tan(\alpha-\beta) &= \frac{\tan\alpha - \tan\beta}{1 + \tan\alpha\tan\beta} \\ \cot(\alpha-\beta) &= \frac{1 + \cot\alpha\cot\beta}{\cot\beta - \cot\alpha} \end{aligned}\right\}\text{contrast}$$

Geography.

As a geographical example, let us take the counties of England. If the counties must be learned in the succession in which they are given in a school book, their names must be correlated in that order. But if their position has been studied in the map, their order does not matter, and they may be so arranged that the name of one county, or a homophone of it, immediately suggests the name of the next county. To make the matter very plain I shall give marginal notes, which are superfluous to the practiced student.

England	London is now a county by itself.
London	London is the centre (middle) of English life
Middlesex	
Essex	Eastsex
Sussex	Southsex
Surrey	Simil. of Sound, *r* in the alphabet next to *s*.

Suffolk	Simil. of Sound, Southfolk.
Norfolk	Simil. of Sound, and Contrast, Northfolk (Norfolk)
Northumberland	Simil. of Sound.
Northampton	Simil. of Sound, notice also *hum, ham.*
Southampton (Hampshire)	Contrast
Westmorland	Accid. Conn. (south-wester).
Huntingdon	moorland—hunt.
Kent	to ken, kennel, deer-shed, deer.
Hertford	hart.
Buckingham	buck.
Rutland	ruck, rug, hairy.
Hereford	herd.
Oxford	oxen.
Cambridge	ford—bridge.
Lincoln	link; a bridge connects two banks.
Lancaster	Linc—Lanc.
Chester	both "caster" and Chester are derived from the Latin *castra*=fortified camps.
Cornwall	camp—wall.
Somerset	corn—summer.
Gloucester	summer—glowing.
Devon	devil.
York	fork.
Stafford	staff (handle)
Berkshire	birch.
Durham	ob*dur*ate.
Derby	Simil. of Sound; note Dur *a*, Der *b*.
Dorset	Derby, horse*back, dorsal.*
Monmouth	dorsal (spine)—mouth (Monmouth).
Salop	salt.
Nottingham	Contrast, to lop—to knot.
Worcester	knot—worsted.
Leicester	worsted—lace.

Bedford	lace—bed.
Cumberland	bed—heavy—cumbersome.
Warwick	war encumbers a land.
Wilts	war consequence of unbending will.

By such a rearrangement the memory-task can often be reduced to a third or a fourth of what it would otherwise be.

In comparing single words, as in Part I., or words of our own language with foreign ones of the same root, or such as are deduced therefrom, as in Part III.; in comparing periods, facts, laws, etc., as shown in this Part; also in making correlations; we follow exactly the laws of psychology, by leading the mind **gradually** from the known to the unknown, and captivating the attention by the task set before us. It may be well to draw a comparison between this method and the usual learning by rote. How does a schoolboy learn that *"domus"* is the Latin word for *"house"?* The answer will be: Why, by saying 20 or 30 times or more *"domus, house"; "domus, house."* Now, it is a psychological fact that the mind is ever on the search for fresh ideas; it cannot stop with the same idea or word, unless it can at least gain a new aspect of it; it must go on to fresh ideas. Hence it is that the boy may twice or thrice repeat *"domus, house,"* attentively, but after that his mind wanders on, whilst his lips say mechanically, *"domus, house"; "domus, house."* This is what is called mind-wandering, or distraction; our lips say one thing whilst we think of something else. Now, if our boys learn 5,000 or more Latin, Greek, or French words in this manner, which they do in the schools and colleges, then I ask, are not these schools merely institutions for training our children in the bad habit of mind-wandering, instead of training them in concentration? And is it not high time that the method of learning practiced in the schools should undergo a thorough reformation? If a boy could force

himself to think of nothing else but *"domus,"* and *"house,"* during the whole of the 20 or 30 repetitions —he might manage it with a few words, but not with 5,000—he would act directly against the laws of nature, and thereby injure his bodily and mental health. Hence this way of learning must be rejected. How different if the pupil establishes the following connection: *house* (gen. and spec.), church (whole and part), dome (simil. of sound), *domus*. By the similarity of sound between *domus* and *dome* the word *domus,* at first quite strange, gains a familiar aspect; the "unknown" becomes "partially known." In making the correlation the mind is productive of something fresh, but it cannot be so without concentration; by repeating the correlation forwards *and backwards,* and then leaving out the intermediates, our concentration remains fixed on the task; our thoughts cannot wander off.

Ear Memory.

I have spoken already of observation by the ear; we come now again to the training of the ear memory. For this purpose take an essay or a story which you have never read, so that impressions of the eye cannot counteract the training of the ear, and get a friend to read to you the first sentence slowly and distinctly; then try to repeat the sentence exactly. If you do not succeed, have the sentence read again, and try again to reproduce it. When you have succeeded, then think the sense of the sentence over carefully, so as definitely to fix it in your mind. Then have a second sentence read to you, and try to reproduce it. When you have succeeded, then think its sense over in your mind, and also its connection with the first sentence. This concludes the first day's task. On the second day, repeat by heart the two sentences learned on the day before, and learn two more by having them read to you. On the third day, repeat the four sentences learned on the two previous days, and learn two more: and so on,

daily repeating by heart—in this the training of the memory consists—all that you have learned previously, and learning two fresh sentences. Later, have one or two sentences read to you, then immediately occupy yourself with something else for about half an hour, and then try to reproduce the sentences heard half an hour earlier. Later again, you can have several sentences read to you, and try to reproduce them after one or two days. But be careful to practice with easy tasks well before going on to more difficult ones, and increase the difficulty very gradually, so that the memory is not overburdened, and has time to develop, instead of breaking down under the burden.

The training of the ear-memory is most important to the student of foreign languages. No man who goes to a foreign country will learn the 5,000 or 6,000 words necessary in conversation from a dictionary; he will try to pick up fresh words in the course of conversation. But this picking up is not so simple for the man with an untrained ear. He may hear a word many times before he catches it correctly and remembers it spontaneously; whereas a man with a well-trained ear will not take half the time.

For Musicians.

For the musician it is essential to train the ear —not only the hearing, but also the ear-memory. He can make use of the above plan, by taking, instead of sentences, 2 or 3 bars, according as they form a group, having them played instead of read, and then reproducing them on the instrument.

Smell, Taste, and Touch.

Most people neglect these three senses still more than the hearing. And yet how many people must use them as partial substitutes for lost eye-sight or hearing. Only then do they become aware of the degree to which these stepchildren may be developed. Those also who

are lucky enough not to have lost the use of any of the five senses will gain not only pleasure but often also material profit from a complete development of these three senses. Their province is, of course, not so large as that of the eye and ear; but it is much larger than most people think. Thus, the sense of smell may be trained by ascertaining different kinds of flowers by their odor alone, the eyes being closed. It is not difficult to distinguish a rose from a pink by the scent alone; but to distinguish different species of roses or buttercups, marguerites, forget-me-nots, etc., requires some training. Other experiments can be made with different kinds of food, by trying to trace certain articles or plants, such as fruit, mushrooms, truffles, etc., by smell alone.

Sharpening the taste does not mean to make a gourmand of one's self. On the contrary, tea and coffee tasters depend entirely on their taste for their living. And to such perfection do they develop their sense of taste that they can judge the value of tea and coffee to a farthing. In a similar way taste may be developed by other kinds of food and drinks. One can practice daily on different kinds of meat, vegetables, potatoes, and so on. It is a well-known fact that most people, if tasting with eyes closed, cannot distinguish beef from mutton, or port from sherry. We think that we judge by our taste, but half of the judgment is made by our eyes. Try for yourself, and you will prove this.

The touch has the greatest extent of any of our senses, for it extends over the whole of the body, and it can be trained and its sensibility quickened in any part, according to our calling, mode of living, or aim in view. Take, for example, the hands. Lay a number of large coins on a table, close the eyes, pick out one, and try to determine what is stamped on it. Another exercise would be to try to describe articles which you have not seen before, to their smallest details, by touch alone, or to find your way through the house or

garden by touch alone; to find articles in cupboards, chests of drawers, etc., in the dark; to find out one small article from a number of other similar ones with eyes closed, and so on. Of course you must be careful, in performing some of these exercises, not to cause damage.

Exercise for Training the Eyes: VI.

Take figures of varying number of angles, also circles of different diameters, and try to state, after one glance, the number of figures you have seen, the number of angles of each figure, the length of the diameter of each circle, and the colors of every figure. Instead of figures, various flowers, etc., can also be used. The exercise with flowers is especially recommended in the case of children, but we must be careful not to tire them; according to their age, one-fourth or one-half hour daily is sufficient. As mentioned before, the above are suggestions; we can use any other article for practice. In fact, during sleep is the only time when the senses are not occupied with some object; and every object, from the loveliest landscape and the most brilliant star-studded sky down to the small steel pen with which we write, can be used for the development of our powers of observation and memory.

EXERCISES.

As an exercise on this lesson take the historical example on pages 16-18, and insert the nature of the connection where it has not already been given in brackets. As all the requisite facts are expressed on the pages mentioned, you will not find it necessary to consult any historical volume in order to work through this exercise. If preferred, the legal extract on pages 18-19 may be taken instead of the historical example. In

either case you should send also an example worked out by yourself, and chosen from any branch of study or daily life with which you may prefer so to deal.

When sending in exercises you are asked, in your own interest, to put your *name and address legibly, also your registered number.*

Printed solely for the pupils of The Pelman School of Memory Training.

Note.—No part of these lessons is to be said or shown to anyone.

5

MEMORY TRAINING

ITS LAWS

AND

THEIR APPLICATION

TO

PRACTICAL LIFE.

BY

CHRISTOPHER LOUIS PELMAN.

PART V.

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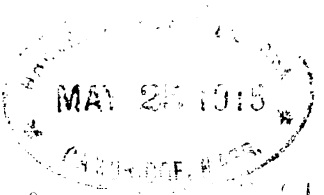


Frank Wright.
Cambridge.

ADVANCED APPLICATIONS OF THE SYSTEM.

Latitudes and Longitudes.

There being two kinds of Latitude and Longitude, we shall treat North Latitude and East Longitude as ordinary figures, and start the words expressing South Latitude and West Longitude with **S**. The Latitude always stands in the first, the Longitude in the second place.

London is North Latitude 51° 30′ East Longitude 0°.

London, literary life, **litmus** (51° 30′), blue, **sea** (0).

New York City is North Latitude 40° 52′ and West Longitude 73° 59′.

New York, belie of New York, girl, **Rosaline** (40° 52′), **scheme** elopement (73° 59′).

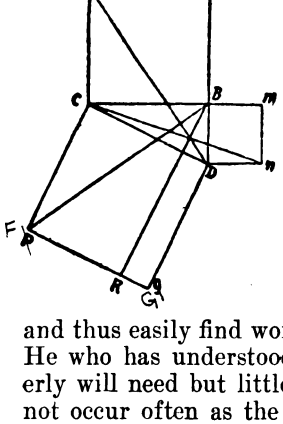
Sydney is South Latitude 33° 51′ and East Longitude 151° 11′.

Sydney, young colony, strive, **some may all do** (33° 51′), well done, **delighted thee** (151° 11′).

Rio de Janeiro is South Latitude 22° 54′ and West Longitude 43° 9′.

Rio de Janiero, southern country, donkeys, **asinine liar** (22° 54′), false reports, pest, **serum buy** (43° 9′).

Geometry.



In every rectangular triangle the square over the hypotenuse is equal to the sum of the squares of the other two sides.

Rectangular, 4 right angles, *square*, room, ceiling, stretch over, *hypotenuse*, straight, even, *equal*, equal sides and angles, *squares*, several, *sum*.

We use consonants only in naming the points, so that we can insert vowels ad libitum and thus easily find words for denoting lines and angles. He who has understood the thesis and argument properly will need but little help to his memory. As *c* does not occur often as the last letter in English words, we use also *ck* for *c*. In a thesis in which only a small number of letters is used, *p* and *t* may also be used for *b* and *d*. Everything that is self-evident is left out in the application of the system; of course, every pupil must decide for himself what is self-evident to him and what is not. In naming the figures always start from the same point and go a regular course. E.g. the following will then be self-evident, if you think of the proposition: Let B C D be a rectangular triangle with C B D as right angle; the square over C D shall be equal to the sum of the squares over C B and B D. Construct over C D the squares C F G D, and over C B and B D the squares C H L B and B M N D. (It is evident that we must construct the squares before we can prove anything about them. K is left out so as to avoid a possible mistake with C.)

Through B draw B R parallel to D G, and connect

B F and D H. *Prove,* clear, water, BeeR, liquid, river, banks, *parallel,* elk, DoG, line, *connect, neck,* bullock, BeeF, oxen, The Hay (T representing D).

The angle F C D is equal to the angle H C B, as each of them is a right angle. If we add to each of them the angle B C D, then the whole angle F C B is equal to the whole angle H C D. (The Hay), dried, BaKeD (B C D), heat aFfeCT (F C D), sorrow, HeCuBa (H C B), oFf CuBa (F C B), liberty, *equal,* dependent, HooKeD (H C D).

Book-Keeping.

If there are several customers of the same name in different towns, and their names are entered on different folios, choose words expressing the numbers of the folios, the first consonant of the first figure-word indicating the name of the town. If the customers are in the same town, indicate the name of the street, or the customer's Christian name, for distinction.

Examples:

Smith at Birmingham is entered upon folios 46, 164, 351.

Smith at Glasgow is entered upon folios 51, 262, 454.

Smith at Liverpool is entered upon folios 39, 593, 771.

Smith at Manchester is entered upon folios 14, 604, 842.

Smith, steel, spring, supple, **Birch** (**B**irmingham fol. 46), **teacher** (fol. 164), severe, **mild** (fol. 351).

Smith, iron **Gold** (**G**lasgow fol. 51), political economy, **nation** (fol. 262), **ruler** (fol. 454).

Smith, fire, light, **Lamp** (**L**iverpool fol. 39), read book, **album** (fol. 593), likeness, **coquette** (fol. 771).

Smith, engineer, **Motor** (**M**anchester fol. 14), motor car, **chaser** (fol. 604), hunting, forest, **fern,** (fol. 842).

In a similar way the prices of goods of different

qualities or sizes can be remembered; also, appointments at certain dates and hours; author, publisher, place and date of publication of a book; orders taken; arrival and departure of trains, etc.

Having practiced for some time the application of the laws laid down in Part I., it is well to pay special attention to the subdivision *Species of the same Genus,* and gradually to extend its application. Many people who might want to remember *tiger* in connection with *ice-bear* would make the following correlation: *Ice-bear,* bear, dog-family, cat-family, *tiger;* whilst the practiced pupil would think *ice-bear, tiger,* both beasts of prey, one in cold, the other in hot, regions; he would see a direct connection, whereas others must establish one. The province of Genus and Species, if carefully cultivated, is a very large one.

How to Prepare Speeches, Sermons, etc.

Young speakers or preachers work out their addresses or sermons even to the smallest detail, and then learn them by heart word for word, so as not to omit any of the beautiful expressions they have hunted together with the intention of astonishing the world with their gifts of eloquence. In practice a very different thing takes place. By learning the speech word for word, the speaker has tied himself to the exact words, and to the exact order in which they are written down. Now, if one of these words, or the beginning of a sentence, lapses from his mind, he comes to a dead stop, and often loses his self-command. And if, after some clearing of the throat and repeating the last word half a dozen times, he does remember the next, he will be nervous through the rest of his speech, whilst the sympathizing audience hears only half of what he says, thinking: "I hope he won't come to a stop again; I should be sorry for him." These and similar senti-

ments pass through the mind of the speaker. Whilst delivering one sentence he thinks of the next. By this the delivery suffers. At certain points his voice may get louder, or his arms gesticulate; but he is studied and mechanical, and nothing is spontaneous. Every one feels that the speaker recites what he has learned by heart. But, if you want to move others to do what you tell them, you must show above all that you yourself are thoroughly convinced of the truth of what you say, that it comes from the bottom of your heart, that this truth has become part and parcel of yourself, and that in delivering it you give a part of your own self. Therein lies the necessity for a free delivery of speeches and sermons. As long as a man reads from notes, he will never carry away his audience; they may acknowledge that what he reads is plausible or true; but they will not be moved or inspired to act up to it. They will go away as cold as they came; for to know a truth, and to follow it, are two very different things. If you want to speak about a subject, you must first enter into it thoroughly yourself, and what you say must be the result of your own reflections; but that does not hinder you from coming to the same conclusion as perhaps thousands before you, and often through the same arguments, for on some subjects there is but little new to be said. You need only go back a few hundreds or thousands of years, and you find the same thing, only under a different guise.

First, take your subject and co-ordinate it like the word *"house"* in Part III. By that you exhaust the subject and gather together all the material that stands in any connection whatever with it. Then you eliminate such points as may not suit the tenor of your speech. In reading over the rest you will soon discover which points should come together, and also that they group themselves under 2, 3, or at most 4, headings Each of these headings will be capable of subdivision

into 2, 3 or 4 points, to which quotations, illustrations, anecdotes, etc., may be attached. Suppose you have 4 headings, and to each of these, 3 sub-points; this would make 12 points in all. The principal thing is to fix these in mind. This is easily done; for some of the points will stand in direct connection with one another, and you have only to analyze that connection, as in Part I., whilst the rest can be linked together by correlations. When you have definitely connected the points to memory in this manner, start practicing in your room, laying your watch on the table before you, and beginning to speak on the first point. If you cannot manage it at all, then work out that point in writing, but do not learn by heart what you have written; try and reproduce it from memory. When you have finished speaking you may read what you have written to see whether you have left out anything, and then again try to reproduce the matter from memory. When you have succeeded, you take the second point, and so on. It is best to learn from the beginning to speak extempore, because later in preparing a speech you will thus save a great deal of time which otherwise would be wasted in writing out the speech and learning it by heart, word for word. Those who have once accustomed themselves to the latter method have seldom the courage to break themselves of it. Another advantage of speaking extempore is this: if you are interrupted by an objection, you will find it much easier to bridge over from your answer to the next point in your speech than when you have to bridge over to one particular word.

How to Deliver a Speech.

A few remarks on the delivery of a speech or lecture may not be out of place. They are so obvious that in former years I have never mentioned them; but, finding that so many speakers, and especially lecturers, do not act up to them, I shall state them briefly. The speaker

or lecturer must speak loudly, distinctly, and slowly. He must speak so that he is heard and understood by everybody, not only by the first two rows. If a man invites the public to listen to him, surely it is his absolute duty to speak loud enough to be heard by all who have come for that purpose. By "speaking loudly," I do not mean shouting. In shouting the distinctness suffers; shouting jars on the ear and causes nervousness, and the speaker must avoid this above all; for the nervousness of the audience will reflect on him, and he will come off the worse, since the public cannot break down, though the speaker can. He must speak distinctly, for if he does not he will not be understood by many, no matter how loud may be his voice. But if he speaks distinctly, and pronounces every single letter sharply, he need not speak very loudly, and yet will be understood by all. By this he husbands the resources of his voice, whilst the noisy speaker ruins his in a few years. Speaking before an audience is an art that must be learnt. An actor must learn so to speak that even his whisper may be heard by the whole house. It is certainly an omission in our educational system that we are not taught how to speak, for there is a great difference in speaking to one or two people in a small room and to a large audience in a wide hall, or in the open air. If we were born hermits, it would not matter; but, since we are born members of a community, and may be called upon to speak to that community for the sake of its welfare in one form or another, we ought to be taught how to do it. How many men of powerful intellect have refrained from throwing the weight of their arguments in the scales by a public speech, by which they might have averted a national calamity, for the simple reason that they had never learned how to speak, and therefore would not risk the ridicule which an untrained utterance might arouse.

The speaker, and especially the lecturer, must speak

slowly. He must remember that he himself is thoroughly conversant with his subject matter, because he has read it up, thought about it, and worked it out, for days, perhaps for weeks, but that a good deal of what he says is entirely new to his hearers. Therefore he must give them time to grasp each single idea as it is brought before them. If he speaks quickly, they cannot follow, get impatient, shuffle their feet, start talking to their neighbors, and the silence, so helpful to the speaker, is gone. In some cases—in patriotic speeches, for example —it may be necessary to speak quickly, so that the audience is carried away and has no time to detect flaws in assertions made.

In scientific lectures it is well to introduce a few anecdotes by way of illustration. If the hearers are not well up in science, they will not retain scientific definitions, or remember much of the lecture, after a day or two. But they will remember the anecdotes, and, through these, also what the anecdotes illustrated. But, even if the audience should consist only of strictly scientific people, the anecdote will do no harm; it is tiring to follow difficult problems for an hour or more. The anecdote is a time of rest for the mind, which can then follow the remainder of the lecture with increased attention.

How to Master a Book in One Reading.

Later, an extensive example is given of the skeleton of a lecture; but as the contents of a book can be retained in a similar way, a few words may here be added. A book is nothing but a lecture on a large scale: the principal points are the chapters, and the subdivisions are the paragraphs. *In many cases an abstract can be made of the principal ideas, and the ideas thus selected can be represented by leading words so chosen that they stand in direct relationship to each other, the whole contents of the book being thus con-*

tained in a series of leading words, similar to the "language" series in Part I. In such a series the ideas are given in the exact sequence in which they occur in the book, and therefore, secondary ideas need not be mentioned in the series, as they form the necessary bridge from one principal idea to the other, and hence are spontaneously recalled by them.

The general way of learning a language or science is to take a grammar or a text-book, and learn, page by page, leading rules, secondary rules, and exceptions, just as they come. Many scientific authors have the bad habit of being very explicit on the exceptions, but very short on the leading rules, because the latter have become quite obvious to them, and they do not realize that they are writing for beginners, to whom the leading rules are just as new and strange as the exceptions.

In studying, first pick out the leading rules or leading points, and become thoroughly conversant with them, without troubling about secondary rules and exceptions. Only after having a firm grasp of the leading rules or points can you go on to the secondary ones, and, after having managed these, to the exceptions. The secondary rules or points cannot be studied without implicitly thinking of and repeating the leading ones, nor can one study the exceptions without implicitly thinking of the leading and the secondary rules; so that the leading rules will stand foremost in the mind, then come the secondary ones, and last of all the exceptions, and this is also the gradation of their value. If you study a book in this way, which is in accordance with the natural laws of the human mind, the skeleton of the contents of the book will ever stand clear before your mind, whilst others have only a dim notion of the beginning of the book when perusing the last pages of it.

I have taken a philosophical matter as an example, because it is suited as much for lectures as for a book.

Preachers, barristers, M.P.'s, etc., will find it easy to work out their matter according to this pattern.

Scholastic Proof of the Existence of God.*

I. Metaphysical proofs taken from the essence of things.
II. Physical proofs taken from the order of the visible world.
III. Moral proofs taken from the unanimous consent of people.

I. Metaphysical proofs.

1. There is a higher being, which moves all things, but is itself immovable.
2. This higher being is the fountain-head of all other beings.
3. This being is of necessity and exists of itself.
4. It is the fountain-head of all the perfection which we admire in the various beings.

To prove 1, it must be shown:
a:—that everything which is moved is moved by something other than itself,
b:—that in the end we must come to a first mover, which itself is not moved;
a:—is proved:
α:—by experience, and
β:—by the reason:
a:—of bodily, and
b:—of spiritual beings;

2. is proved by calculating:
a:—that once there must have been a first man and a first woman, and by our knowledge that
b:—they could not beget themselves;

* These arguments do not pretend to prove the existence of God in the Christian sense, but only the existence of a power superior to that of man.

3. is proved:
   a:—by perishable being,
   b:—by necessary truths;
4. is proved by the various kinds and gradations in which perfection is found in things earthly.

II. Physical proofs.

1. The harmony of every earthly being.
2. The beauty of mankind.
3. The order of the universe.

1 is proved by observing that:
   a:—every corporeal being exists for a certain purpose,
   b:—all its organs and parts are fitted to help it to that end,
   c:—its wants, etc., correspond with the climate and environment in which it is found in nature,
   d:—its actions are regulated by certain laws.

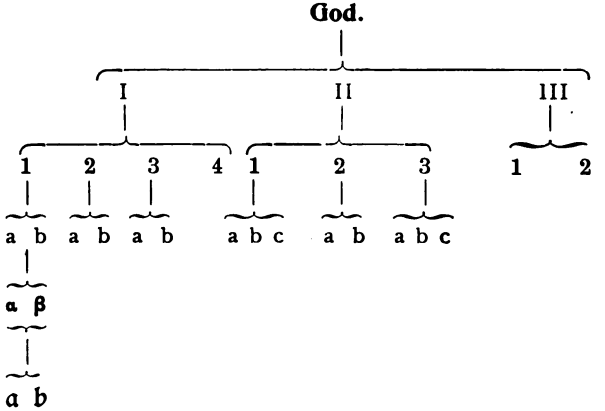
2 is proved by an examination of:
   a:—the beauty of the human body,
   b:—the beauty of the human mind.

To prove 3:
   a:—see how various and differing beings are found together, and take their proper places harmoniously and by degrees,
   b:—see how one influences the other, and
   c:—see how wonderfully one serves the other and helps it to fulfil its purpose.

III. Moral proofs.

1. The universal belief of all nations at all times proves the existence of a higher power,
2. The conscience, or the moral law written in the heart of man.

If the space would allow of a proper display, the skeleton would look like this:



This skeleton may be memorized in the following way:

God ....spiritual being ....*metaphysical* ...*physical* ....*moral* (twice contrast). *Metaphysical* (I) .... spirit .... life .... *mover* (1) .... influence.... *others* (a) .... own .... *experience* (α) .. lesson.... *reason* (β) .... brain .... *bodily* (a) .... *spiritual* (b)....the great spirit .... *fountain head* (2)....*first man and woman* (a) .... created .... *not begotten by themselves* (b) .... *existing of itself* (3) .... imperishable .... *perishable* (a) .... *necessary* (contrast) (b)....eternal....*perfection* (4) ....virtues....*gradations* .... *things earthly* .... body .... *physical* (II) ....sound .... *harmony* (1) .... *purpose* (a) .... means .... *organs help* (b) .... make returns .... *correspond to wants* (c) .... regulated life.... *regulated actions* (d) .... health ....*beauty of man* (2) .... *body* (a) .... *mind* (b) .... rule.... keep order .... *order of universe* (3) .... *various beings* .... different places .... *proper place* (a) .... climate

.... *influence* (b) .... one another .... *serve each other* (c) .... honest servant .... *moral* (III) .... trustworthy .... *universal belief* (1) ....religion .... *conscience* (2).

From this you can see how a complicated subject may be condensed into a comparatively small abstract.

In Part II. I have shown two methods of memorizing prose and poetry, especially intricate definitions, etc. These methods are excellent for *training* the mind; but *after* that training, the form can be abridged for practical purposes. We must see in what connection the ideas and words stand to each other, and the careful mental analysis of such connection will suffice to impress the text definitely on the mind. I deal below with the first verse of Longfellow's "Beleaguered City" as an example:

I have read, in some old marvellous tale,
Some legend strange and vague,
That a midnight host of spectres pale
Beleaguered the walls of Prague.

read—tale; tale—old—marvellous; tale—legend; legend—strange—vague; strange—midnight host; vague—spectres; spectres—pale; host—beleaguered; beleaguered—walls; vague—Prague.

Final Exercise.

Theory alone, as mentioned before, will not strengthen the natural memory; theory and practice must go hand in hand. No one can expect that, after neglecting his memory for many years, a course of lessons, which has occupied him perhaps a fortnight or three weeks, will have transformed his poor memory into a gigantic one. If he has followed the instructions conscientiously, he has no doubt derived great benefit; but, to achieve a lasting improvement of his memory, he must continue to practice for some time, and I shall offer some hints as to the course to be followed.

According to your calling, or the purpose you have in view, take a book in prose or poetry, a scientific work, or the Bible; but see that the work is written in good style, and, if possible, one that has not very long sentences to begin with.

On the first day, learn the first two sentences by one of the methods shown in these lessons. On the second day, repeat these two sentences *from memory,* and learn two more sentences. On the third day, repeat the four sentences by heart and learn two more sentences, and so on, repeating each day by heart all that you have learned on the previous days, besides learning two fresh sentences. The task is small at first, and increases but gradually; a sudden great exertion may break down the memory instead of developing it, just as the digestion may be ruined by too much food. Should you find that by learning two sentences each day the task becomes so great that you cannot repeat easily all that you have learned before, then learn only one sentence each day, but on no account fail to repeat daily what you have learned previously; for this is an act of the will, and therefore strengthens the will; it is an act of recalling what you have entrusted to your memory, and therefore strengthens the memory,—that is, the faculty of recalling past impressions at any time. The task of the memory increases daily, causing a corresponding increase in its development and strength.

After a short time you will find that, if you learn daily 3, 4, or 5 sentences, or more, the task of recalling all that you have learned will not be found more difficult than at the beginning, although the bulk of the matter increases much more rapidly now; and you will find that it does not take you longer to learn 3 or 4 sentences than it took you at first to learn two. The recalling from memory of what you have previously learned may be done during walks, in buses, in the train, etc., so that any quarter of an hour which otherwise might

be wasted may be employed usefully. It is also preferable that this recital be not always at the same time of the day, so that the memory may be trained to serve at any time, and not only in the morning or at night, as is the case with some people. After a few weeks the task will grow so heavy that sufficient time will not be found to repeat the whole of it daily, and also to learn fresh sentences. You should then make a division, and take two days in the week to repeat the first part learned, and on the other days learn fresh sentences, repeating only the new part. When this plan no longer suffices, take one week in the month for repeating the old part, and during the other three weeks learn fresh sentences, and repeat the new part.

For the sake of exercise, learn one book verbatim. When you have finished that, make an abstract of other books, and learn only the abstract, as shown on pp. 12-15 of this lesson.

By this constant practice, the text becomes part and parcel of ourselves; it may influence the train of our thoughts and even our character. Therefore it is of the highest importance that great care is taken in selecting the book to be learned in the above manner, paying as much attention to the style as to the contents. For it is obvious that, by continual repetition, we shall unconsciously adopt a great deal of the author's style, and, if it is better than our own, improve by it, whereas if it is worse, our own would deteriorate. If you wish to become an orator, choose the speeches of the best orators for your text: if you strive after a beautiful style and the complete mastery of your mother-tongue choose the best English prose classics, as poetic license spoils prose: if you want to master a foreign language, take a good modern classic written in an easy and plain style— I say a modern classic so as to avoid antiquated words and turns of speech: if you wish to study a science, choose an elementary work on it, written by a trust-

worthy authority, as you will thereby gain also a sound foundation. A business man may choose price-lists of goods, etc. There is no scarcity of matter for practice, and individuals can best decide what will be the most suitable subject in their own particular cases.

The above exercise should be continued until your memory is absolutely trustworthy, and you are satisfied with it as a critic.

Music.

If you wish to use the above plan for music, take, for the beginning, simple and easy melodies, and gradually more complicated ones; but never try to learn a piece by heart before you have mastered its technical difficulties. Of course you must repeat every day what you have learned before. In difficult polyphonic pieces, try at first to separate the melodies woven together, and practice them singly; then take two together, and so on.

Preparation for Study.

If you want to learn a new book or treatise, prepare yourself on the day before by trying to recall everything that you have already read or heard about it at one time or another—of course I am not speaking of novels, which are mere fiction, but of instructive books. I say on the day before, because during the night many things will come back to you of which you have not thought during the day. You will doubtless have noticed that many times, when you wished to recall a name, you could not think of it at the moment; but later on, whilst thinking of quite a different thing, the name suddenly flashed across your mind without the slightest exertion on your part, and you felt a certain relief. This shows that, although you had turned your thoughts to something else, the brain had not given up the search altogether, but kept the aim in view. The

mind catches hold of the remotest similarity of sound or other association of ideas, and brings it into connection with the aim in view.

When you have clearly recalled everything that you know about the subject, begin reading the book, and you will find that, thanks to the preparation, your knowledge will be increased with each new fact learned, not by one point, but by many; since you will connect the new fact with all the facts already known and just revived, thus gaining new ideas and fresh points of view.

If a passage seems of importance, stop and think about it for a while. So thoroughly ought one to enter into a subject that no notice should be taken of what goes on around. In my opinion, a quick and keen perception, complete concentration on the subject, and a well-trained memory, form the component parts of genius. Thus, we know of Napoleon that his quick and keen appreciation of the situation gave him the advantage over his enemies; that he put his whole soul—complete concentration—into whatever he undertook; and that he himself considered a good memory indispensable for success, for he said: "A man without memory is like a garrison without fortifications."

A good memory is nothing but a natural memory, and we find that the so-called savage, whose mind has not been contorted and darkened, and whose bodily health has not been undermined by the vices, perversity, and deficiencies inherent in civilization, has a keen observation and a good memory. Not only has nearly the whole of the civilized world completely neglected the training of the memory; it even sins directly against the laws of the mind. In schools the memory is overburdened without having been first trained and developed, and then there follows in most cases a nonsensical devouring of novels and newspapers.

Indiscriminate Reading.

Nowadays with many people the watchword is: "Read, read, read;" and they read everything which is printed, no matter how trashy it may be, because they are either too lazy to think for themselves, or incapable of doing so, and too lazy to learn. It once occurred to me to go as an observer to a circulating library. Amongst others, I noticed a lady who came daily, with a boy about eight years old, to change her books, and every day she took three fresh volumes away with her. One can easily imagine with what haste she had to devour these three volumes, and how little she could have troubled about her house and the education of her children. A healthy mind struggles against worthless fiction; it strives to forget it as soon as possible and retains only grand passages drawn from reality.

The Danger of Newspapers.

The reading of newspapers also has done great damage to the memory. Few people read newspapers and novels in order to learn something worth knowing from them and to keep it in memory; most people read them only for the excitement of the moment, or to kill time. Some read only the exciting paragraphs, police news, etc.: others read the paper from beginning to end, with the exception of such articles as are really instructive, and they omit the latter because they are "too dry." Of what real use is it to know that some two hundred miles away somebody has been murdered; that a cashier has bolted with $5,000; that at Monte Carlo somebody has been fool enough to lose all his money and then to shoot himself; that two French journalists will have a duel, in which, as everybody knows beforehand, neither will be hurt; that somebody has invented a flying machine with which one cannot fly; that in a cycle race at the other side of the globe a record has been beaten

by three seconds; and so on? Add to this, that about one-third of the news will be contradicted the next day, so that you have to exert yourself to forget the false news, instead of trying to remember. Then come the reports of sensational cases, by which rogues can learn that which they do not know already, but which can hardly serve to raise and ennoble the human mind. Then follows an article by a political opponent, which we are convinced must be wrong, even before reading it, because we are radically opposed to the writer, and readers are often one-sided because dictated by party spirit. It has been said that the press is the mirror which reflects public opinion; this is true in some cases, but in other cases public opinion is made by inciting articles in the press. Papers contain a number of disconnected articles, telegrams, etc., causing the mind to travel in five minutes from, say, London via Paris, Madrid, St. Petersburg, Lisbon, Melbourne, Rome, Berlin, New York, Pekin, and Vienna, to Calcutta. Disconnected facts and ideas do not improve the memory, which always tries to adapt and to join together. The press is a good thing, and a power; but, like every other good thing, it may be abused, and the reading of it may be turned to profit or to damage: If you read to remember, you will profit; but most people only read in order to forget.

The Value of Sport.

I said above that it was of no interest that a cycle record was beaten by 3 seconds. This might lead to the wrong impression that I am an opponent of sport, or at least that I do not appreciate its value. Nothing of the kind; for I am an ardent sportsman myself. But some people do not seem to have a clear idea of what sport is.

Sport is bodily exercise requiring skill, for the benefit, not the damage, of ourselves. Bodily exercise with-

out skill is not sport. Now, I ask: Where does a special exercise of skill occur in a cycling race run on a prepared path as smooth as a mirror? The man may ruin his lungs, but that is not sport. Nor is it sport where game is driven in herds before the muzzle of a gun; it is rather an acknowledgment of want of skill and enterprise. Real sport splendidly trains us to observe, to take in the position at a glance, to judge and decide quickly, to develop presence of mind.

Speaking of wrong notions, I may go on to the subject of schools. The school is not, as some people think, a machine for the purpose of cramming as many rules, dates, and facts, as possible into the heads of young children: its calling is to act upon the mind and heart of youth in such a way as to produce worthy members of human society. Education of the mind without education of the heart must lead to the ruin of human society. With the aid of my System of Memory Training, much time may be saved in acquiring knowledge, and the time so saved can be used for the formation of character, so important in life, and yet so little attended to.

Conclusion.

The student having now completed the course of Lessons in the System should henceforward put it to practical use by applying it at every available opportunity. The mind should become so thoroughly imbued with the principles laid down that in future all thinking, reasoning, and remembering shall be carried out on the lines indicated. If these instructions are conscientiously followed, each week will produce a marked improvement in the mental faculties, not only as regards memory, but also as regards quickness of perception and the power to reason logically. It only remains for me now to express the hope that you, as a student of the System, will derive from it all the advan-

tage which experience has proved can be obtained by its aid.

I am pleased at any time to hear from pupils who have completed their course, and will always gladly render them any further assistance in their memory studies. From those pupils who feel they can conscientiously send me a testimonial, I shall be glad to receive same.

CHRISTOPHER LOUIS PELMAN.

THE END.

Printed solely for the pupils of The Pelman School of Memory Training.

NOTE.—No part of these lessons is to be said or shown to anyone.