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ON TEACHING THE ENGLISH LANGUAGE.

LECTURE II.

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WHENEVER any new study claims to be introduced into schools, a very natural question at once suggests itself to every practical teacher—"Will this new study give our pupils systematic work to do?" If the answer is in the negative, the intrusive study stands a poor chance of being welcomed. Latin and Greek are eminently working subjects in which, perhaps, the work is often disproportionately large compared with the results. But the undoubted fact that Latin and Greek do make a boy work—or, at the worst, shew that a boy has not worked—is a great point in their favour. Naturally, in the eyes of teachers, this virtue covers a multitude of faults, and the virtue is undeniable. In the first place, the mere turning of dictionaries and thumbing of grammars gives a boy something to do. Regarded as a mere athletic exercise, it is not contemptible. Then the words or inflections and anomalies keep the memory at work, and the concords and rules of syntax appeal more or less to the boy's intelligence. There is also a kind of reasoning in the simplest Latin sentence. Take any sentence containing the Latin word "*ago*." The boy looks it out in the dictionary, and he finds that it means "give" before "thanks," "wag" before "tail," "plead" before "a cause," "drive" before "sheep," and that it has some dozen or so more different meanings before a dozen other different words. Out of these sixteen meanings, or more, the boy has, by some process, to reject the wrong and select the right. The process is too often mere guess-work, and guessing wrong; but it may be an intellectual process of elimination. And emphatically the writing of good Latin prose composition is a severe intellectual test, and the attempt to acquire the power of writing it is a good intellectual training. It cannot be denied, then, that Latin, if well taught, does exercise the thinking faculties in us, as well as the mere digging and hunting faculties, which are tasked in the disinterment of words, with their derivations and inflections, from the dark recesses of a dictionary. Can the same be asserted of English? Is it a working subject? What can the pupil prepare in the way of an English home-lesson? How is the clever idler to be distinguished from the laborious boy of average ability, and to be prevented from getting to the top? I prefer to look upon the subject from this very plain and practical stand-point, because I think no one will deny that, if these practical difficulties in the way of the introduction of English can be surmounted, there are no others in the way. If English teaching can stimulate boys to work, and if idleness and industry as well as cleverness and dulness can be tested by an English lesson, few will be disposed to deny that the subject is one of peculiar interest and value; and even the most austere advocate of severe training, and opponent of useful information, will scarcely assert that, *cæteris paribus*, a subject of peculiar interest and value should, for the very reason that it is interesting and valuable, be rejected from our schools.

The practical way of answering the question—"What is to be taught in English?" is to open an English book, and, imagining ourselves in a class-room, to ask what would our boys require to be taught in order that they might understand the passage before us. Take, then, the first Scene in the first Act of Shakespeare's Richard II, where Bolingbroke and Mowbray are accusing one another in the presence of the king. We will read a few consecutive lines, from the 18th to the 27th:—

"*K. Rich.* High-stomach'd are they both, and full or ire,
In rage deaf as the sea, hasty as fire.

Enter Bolingbroke *and* Mowbray.

Boling. Many years of happy days befal
My gracious sovereign, and most loving liege!

Mow. Each day still better other's happiness,
Until the heavens, envying earth's good hap,
Add an immortal title to your crown.
K. Rich. We thank you both; yet one but flatters us,
As well appeareth by the cause you come,
Namely, to appeal each other of high treason."

Now, here, there are several questions in English grammar which do not belong to this part of our subject. I would venture to assert that many boys, if asked to parse *befal*, would say that it was used indicatively instead of optatively, which would shew that they had quite misunderstood the sentence; and some would even make the same mistake about *better*. The use of *but*, and the manner in which it came to be used thus, might form another useful question; and, if our pupils were also asked to explain and illustrate the omission of the article before *others*, and to explain the phrase "the cause you come," there would, I think, be some basis for the preparation of an English lesson, and nothing would be requisite but the necessary text-books in order to enable us to demand, and them to make, this preparation. But this is by no means all; and, indeed, this is not connected with the subject we are now considering, but rather with English grammar. There are other questions, natural and important. What does *appeal* mean here? How did it come to have that meaning? Can we illustrate if from the words *repeal, appellation*, or any others? Here, then, comes in derivative etymology. Again, what is the exact meaning of *high-stomach'd?* How does it differ from *angry*, or *haughty?* This opens up the question how we can ascertain the exact meaning of a word, and it naturally introduces the subject of synonyms. We shall find that boys require to be asked, What is meant by the "heavens envying earth's good hap? and such a question at once introduces metaphor. Then, under the same head, there are other questions connected with diction—Why is the *sea* selected as the representative of deafness? Why say full of "ire," and not "anger?" Under what circumstances would *ire* be more appropriate than *anger?* Then, is a boy to read, "In rage, deaf *as* the sea, hasty as fire?" and if not, on what principle are we to lay the accent on *deaf*, and on the first, instead of the second, syllable of *hasty?* Lastly, when these and similar questions have been asked, it is surely reasonable for a teacher to ask whether King Richard is right in arguing that, because two of his subjects accuse one another of high treason, therefore one of them is necessarily a flatterer. And thus, in the most natural way possible, we open the door to Logic.

The course of English training may be conveniently subdivided for the purpose of description, even where not for actual use. In practice, etymology, diction, and logic ought all to be applied together for the study of English—the two former certainly, and from the very first, though in a most elementary manner, But it will be convenient, in the present instance, to classify our subject under these three heads, and to deal with them distinctly. We will take them in order, as they have been mentioned—Etymology, Diction, and Logic. Etymology, usually so called, deals with the changes and inflections of words. It takes a word, such as *treason*, in the passage above quoted, and after deriving it from the Latin *traditio*, through the French *trahison*, will illustrate the law of derivation by other words, such as *reason, season*. But another kind of Etymology deals with the changes of meaning and thought which a word has undergone; this latter Etymology will point out how the word, which originally meant "handing over," subsequently was narrowed to the meaning of "betraying," and then was narrowed again to "political betraying." Both kinds of Etymology are important; but as the latter is more closely connected with the true object of an English lesson, the teaching of thought, I shall pass at once from the former to the latter.

It may be thought a serious objection against both branches of Etymology, that they seem to depend on a knowledge of Latin, and are inapplicable where Latin has not been previously taught. I do not think this objection either is or need be a serious one. Many treatises on Etymology are probably in existence, in which the principal Latin roots are classified, and the English words arranged under their respective heads, attention being also directed to the law of formation in each case. A little study of a few Latin roots, such as *trad-, fer-* (with the derived root *lat-*) *jung-, mitt-* (and the derived *miss-*), with a knowledge of the corresponding French forms, added to a knowledge of the English affixes and prefixes, would go a long way to render the study of English etymology possible even where Latin was not taught. At the same time, I fully admit the great value of the systematic study of Latin for this purpose, wherever it can be systematically studied.

But upon what principle is the boy to prepare the etymological part of his English lesson? Is he to look out the derivations of every word as it comes; for example, in the above passage, *ire, deaf, rage, sea, hasty*, &c.? Will the pupil learn anything from discovering that these words are derived from similar words in Latin and Anglo-Saxon; that *ire* comes from the Latin *ira*, and *deaf* from the A. S. *deaf?* Very little, I think; certainly not enough to repay the trouble of looking the words out in a dictionary. An indiscriminate study of the derivations of all words in an English lesson will take up as much time as the study of words and inflections in Latin, with even less mental training. Such an undistinguishing avidity for useless information would be ruinous to English teaching. At the outset, therefore, we must prevent our pupils from doing too much, and this we shall best do by ourselves giving them, before each lesson, a list of the words whose derivations they will be expected to know. This plan will, at all events, be found useful at first. Boys ought not to be called upon for the derivation of any word not previously mentioned by the teacher, unless some obscurity of meaning attends the word, which may receive light from the derivation, as in the case of *appeal* in the passage above. According to this rule, we should expect our pupils to know the derivation of *appeal*, because it is essential to the understanding of the passage; but we should not expect them to derive *ire*, or *sea*, or *deaf*.

But I am far from saying that we should always confine the questions in Etymology to those which merely elucidate the meaning of the particular passage that happens to be studied. Other derivations might with advantage be asked, that illustrate the laws of etymological thought. Some of these laws I will briefly enumerate. I should like to call especial attention to them, because, though the etymological laws regulating the chances of letters are generally recognized, those that regulate the changes of though have attracted comparatively little attention. Some of them have been treated of and tastefully illustrated in Archbishop Trench's Synonyms, but many are still almost unrecognized.

(1) First, then, let us take *the law of change*. Point out to a boy that words, like individuals and nations, have a kind of life, that nineteen hundred years or more cannot pass over a word without, in most cases, altering its signification. This law, once firmly grasped, will do more than anything else to eradicate, in boys who are beginning to write Latin prose, the tendency to use, as the translation of an English word, the most similar Latin word they can find. Boys will see that the chances are that one thousand nine hundred years ago the Latin *oppressit* meant, something different from the meaning of the English word *op*

press. Whatever other error they may make, they will not be led astray by the plausible jingle of similarity. But even for boys who will never study Latin, this law has a great value. It will prevent them from trusting entirely to an etymological dictionary for the discovery of the meanings of words, and will throw them upon their own resources—I mean upon their own knowledge of idiomatic English.

(2) *The law of extension.*—When a technical word is introduced from one language into another, the narrow technicality, after being preserved artificially by the learned for a time, must soon be impaired, and finally destroyed. Thus, "influence" was once a technical term of astrology, to denote the mysterious power that flowed from the stars upon the destinies of men. Now, it means any modifying power, and not merely that of the stars. The word "triumph" is not now confined to a procession celebrating a victory over a conquered enemy; "ovation" has been widened till it has been applied to a favourable reception of any kind. "Civil" has preserved its technical sense as opposed to military; but it has also been affected, in one of its meanings, by the law of extension, and, in the sense of "courteous," even a military man may now be called "civil." The same law may be illustrated by *decimate, impediment, pomp, privilege, legion, province. prejudice, prevaricate, idea,* and *fine.*

(3) *The law of contraction.*—Words that are not technical, when imported into English, often contract instead of extending their signification. In the influx of French and Latin words into the English language during the sixteenth century, many were introduced to express ideas that either could be, or were already, expressed in the existing vocabulary. These words were at first used by English authors in their Latin sense. Thus, "speculation," in a well-known passage of Shakespeare, is used for "power of seeing." But there was no reason why our native word "sight" should be expelled by the Latin intruder. "Sight," therefore, retained its place; and "speculation," finding the broader room which it had once filled in its native Italy, pre-occupied in England, contented itself with retiring into a narrower meaning, "the sight, or looking, or watching after gain." In the same way, "extravagant," though used by Shakespeare in the sense of "wandering," now means a particular kind of wandering, a wandering beyond the bounds of economy. "Exorbitant," in Latin; meant "out of the way;" in Elizabethan English, "uncommon": now, it is only applied, in a narrower signification, to that which is "uncommonly expensive." The same law may be illustrated by *aggravate, journal, advertise, capitulate, fable, corroborate, modest,* and *ferocious.* The law of contraction is naturally more general than the law of extension. As words are multiplied, their meanings become narrowed and defined. This especially applies to all words denoting measurement. The words *pole, rood,* and *yard* speak for themselves; and the law is confirmed by the derivations of *acre,* (a field), *furlong* (furrow-long), and *peck* (poke, or bag), and others.

(4) *The law of metaphor.*—It is scarcely necessary to say that when a derived word loses its meaning, it very often adopts a meaning connected with its original meaning by metaphor. Thus *bombast,* which once meant "cotton stuffing," now means padding composed of words. *Aggravate,* instead of meaning, to add to a burden that can be borne, means, to add to a burden of sorrow or vexation. This law is very common.

(5) *The law of deterioration.*—The natural politeness of mankind, and perhaps a deficiency in the moral sense, induces men to give a good name to moderately bad men. Hence the good names are dragged down with the bad men. Thus, the misuse of *cunning* and *craft* has degraded them from a good to a bad sense. *Impertinent,* which once meant "not to the point," now involves a more serious charge; *officious,* which meant "exact in the performance of duty," is now applied to a bustling busy-body; and a *libel* no longer means and innocent "little book." This law is still in, force. "A sharp fellow" is not always a term of praise and no one speaks with approval of "sharp practice." Historical influences may here be frequently traced; as in the words *villain, churl,* and *boor,* which express the contempt of the higher classes, for agricultural labourers, and probably in *brats, knave,* which show how the vocabulary of the lower class was selected for abuse.

(6) *The law of amelioration.*—It is rare, indeed to find a word improved by time, Occasionally a great moral influence, like Christianity, steps in, and raises a word like *humility,* from being a comtemptible fault, to the level of a virtue; or, in quite a different way, words that once expressed faults are sometimes used in jocose manner to imply cleverness, as *shrewd;* much as *imp* and *devil* are still occasionally used. Party terms sometimes exemplify this law. There is nothing that succeed like success. *Whig* and *Tory* were once terms of contempt; they are not now, I think; nor, probably, is the word *Radical. Christian* has now a far nobler meaning than when the nick-name was first invented by the populace of Antioch

Such are some of the laws that regulate the changes of the significations of words. They ought, I think, to be shortly and clearly brought before the attention of our pupils; and whenever a derivation is asked by the teacher, the answer should refer to some one or more of the above laws. That will give definiteness to the answer; and will afford some kind of landmarks by which the journey of exploration can be guided. The answer can be written, and then either read in class, or looked over by the class-master, and I believe the exercise would be found practicable and valuable.

But side by side with, or rather, I am inclined to say, before, thiz exercise, is another, which is perhaps of still greater importance. To determine the present meaning of a word from the meanings which the sources of the word had nineteen centuries ago, is, as I said above, a very difficult matter. I think we may say it is impossible. The derivation may mark out certain limits, within which the modern meaning may be looked for; but it can do no more. Modern custom must be summoned to our aid, if we are to draw the boundary line still closer. Here the great advantage of an English lesson comes prominently out. Boys can experimentalize with it. Boys who speak English pretty well carry about them, as it were, their chemicals, and in kind of apparatus for the analysis of the meanings of words. Take the word *oppress.* A boy who spoke English idiomatically would know very well that when Gibbon speaks of "an army was *oppressed* by the enemy," he is using the word wrongly. *Oppression* is not warfare on equal terms, or indeed warfare at all. When two boys fighting, there is no oppression, even though one be much the stronger. Oppression implies non-resistance, at all events for some time, on one side. Here we get one boundary line. Could *oppression,* then, be used of one army butchering another non-resisting army? No: the word does not mean destruction, nor active violence, so much as injustice, relying on superior force. Here we draw another line. Then, if a highwayman, relying on his pistol, takes your purse, is that *oppression?* No: it must be systematic injustice, continued over a long time, and relying on superior force. Here we draw the boundary still closer, and may be said to have defined the word. Now, if boys have what I may call a scheme of elimination like this carefully drawn up for them, and illustrated by a few clear examples, I cannot

see why they should not be able to eliminate for themselves in the same way. To prevent mere conjectures, mere blind rushes at the meaning, I would insist that each definition should be accompanied by a sentence made by the boy, or quoted from some author, exemplifying the use of the word in accordance with his definition.

At the end of this process of elimination would come, in cases where boys studied Latin, the confirmation of the derivative process, which, in the particular word above, *oppress*, would show that the word once meant "to come suddenly on and crush," or else to "crush up," whereas now it means merely "to crush" or "keep down," without any sense of motion or completeness. The same double process of elimination and derivation might be applied to other words, some of which are sadly and unnecessarily ill-used—such as *circumstance* and *individual*. Custom would tell a boy, perhaps, that he could not say, "The assassination of Cæsar war an important *circumstance*," but that he could say, "The assassination of Cæsar was one of the most important *circumstances* that influenced the life of Octavianus." And the inference from this elimination would be confirmed by the derivation, which would of itself indicate, not any occurrence, but an occurrence considered in relation to some person or thing as a centre. And so of *individual*.

To give one word as an explanation for another, I need scarcely say to teachers, the common method of definition adopted by English boys. If you ask what "precious" means, you may expect the answer "nice"; and in the same way, "original," or "versatile," or "thoughtful," would all be explained by "clever." Against this boyish tendency we must take careful precautions. First, we can point out how absurd it is to suppose that two words can mean precisely the same thing, or, at all events, can be used in precisely the same way. For if it were so, there would be a waste of words which we have no right to impute to our ancestors. Unfortunately the English language, more than any other, is calculated to encourage this boyish delusion that one word can be represented and defined by another. The quality of English, has given rise to a few pairs of words which are so nearly similar that we can only distinguish them by saying that the one is more colloquial than the other, or that the idiomatic use of the two is not quite the same. The meaning of the two words is sometimes indistinguishable. Thus *commence* is somewhat less colloquial than *begin*, and commence seldom or never takes an infinitive after it, while *begin* does; but as regards meaning it would be difficult to distinguish the two words.

Against the possible misunderstanding arising from these very few exceptional synonyms, we ought to fortify our pupils by warning them that they are emphatically exceptions, and that it is next to impossible that in any language any two words should be precisely synonymous. Some additional help might be given hy a careful explanation of the meaning of definition or "drawing of boundaries.' After pointing out that more than one word is absolutely necessary for the definition of another word, we may illustrate the defining process by a diagram on the black board. Take the definition of a lion: A lion is a quadruped; but the class of quadrupeds, which may be represented by a parallelogram, is too large, and must be narrowed; a lion is a quadruped with a mane; the diminishes the parellelogram, but it includes lions and horses: a lion has claws, which a horse has not, and thus, by gradually taking slices from our parallelogram, we narrow it down, or *define* it, till we have nothing left but the slice representing lions.

Or again, any two straight lines that are not parallel will mark out a point by their intersection. Suppose we want to define *resentment*. Resentment is a kind of anger. Now feelings may be excited by different motives. Anger, for instance, may be prompted by the sense of incvonenience, or by injured pride, or by jealousy, or a sense of injustice done to one-self, or by a simple sense of injustice without any thought of one-self. Draw a straight line, then, not paralled to the first, representing the feelings that spring from the sense of injustice. That line does not define resentment, for it includes many other feelings, as sorrow, pity. But let this line be produced till it intersect the first. The intersection will define at once the kind of anger, and also the kind of feeling excited by injustice, and will denote *resentment*.

It will be necessary to warn boys not to select, for their defining classes, a class that does not explain any important peculiarity of the object we are endeavouring to define. We may remind them that man was once defined as a biped without feathers. The definition was at once ridiculed by the exhibition of a plucked cock, and has since been rendered untenable by our familiarity with monkeys.

I attach great importance to the exercise of defining words, and have been for some time in the habit of making it a regular part of the preparation of an English lesson. I should not restrict myself to the words that happened to be in the passage that was to be prepared for the next lesson. There are some important words in common use of which it may be said that the majority of our pupils use them and misunderstand them; and there are others which our pupils would be the better for using, but never use at all, because they do not understand them. These last are not misunderstood, for no conception whatever has been formed of their meaning. Among the former class are the words mentioned above, *circumstance* and *individual*, and others of which the misuse is far serious, such as *resentment*. Some words are notoriously used in double senses, which require careful distinction, such as *nature, representative*. It has always seemed to me, therefore, a valuable part of an English lesson that boys should explain the differences between a certain number of pairs, or groups, of such words as *power* and *authority, definition* and *description, thoughtful* and *prudent; fault, crime, sin, vice*, and *immorality; clever, original*, and *able; anger, vexation, resentment, wrath*, and *annoyance*. No answer should be received which does not clearly delineate the common thread of meaning which pervades each pair or group of words. In this way we shall ascertain that the answer is not mere string of excerpts from a dictionary. But there is another class of words which few ordinary men use in the course of their whole lives. Some of these are technical words imported from various sciences, and now used in a metaphorical sense. Thus politicians speak of "the unstable equilibrium of power," "the leverage of past success," "the resultant of many political forces;" and other scientific terms have been utilized in the same way. I do not so much speak of these, though I consider a lesson on such terms would be of value, as of others, to be destitute of which is to be in danger of being destitute of the corresponding conception—*imaginative, conventional. intellectual, vindictiveness, esoteric, electic, analogy, synthesis, analysis, hypothesis, pedantry, disinterestedness, impassioned, indiscriminate, phenomena, induction, syllogistic, sensation.*

Doubtless there is great exaggeration in the statements that have been made about the limited vocabulary of a ploughboy; and I should be sorry to originate any similar exaggerations about the classes of schoolboys. But I think we should be startled at finding how very small a store of words relating to things that are not the immediate objects of our senses, is found sufficient not only for an English schoolboy, but even for an ordinary English

man. We all know what is meant by *touch* and *taste*. *sight* and *smell*, but how many of us between birth and death ever use, or think of using, the word *sensation*? This absolute privation of abstract terms must be an injury to the power of thinking as well as to the power of expression. Without some knowledge of such terms, a man can never feel safe in reading anything but novels and newspapers. Certain I am that half the difficulty of writing good Latin prose arises from the fact that boys cannot employ, and do not understand, English words, and their exact significations and distinctions. Hence they are always shambling and shuffling in their composition, for they never know quite what their author means, or even feel quite certain what they mean themselves.

For the sake of Latin, therefore, as well as other considerations, I attach a good deal of importance to the exercise of distinguishing the significations of words; and I will mention one more form in which it may be practised. We may tell our pupils the dictum of Aristotle, that every virtue may be considered as the mean between two extremes which are faults. Thus the virtue of *bravery* has for its excess *rashness*, and for its defect *cowardice*. When this law has been illustrated by a few clear examples, we may dictate to them a list of names of virtues to which they may assign the corresponding faults, which are the extremes. After a time we may point out that some of the extremes, though they undoubtedly exist in practice, are not sufficiently recognised to have words of their own. Thus the virtue of *resentment* has far its excess *unforgivingness*, but its defect has no one word to express it. "A blunted moral sense" would perhaps be a correct periphrasis. "Self-respect," again, has "pride" for its excess; but the defect, though it has Greek and Latin words, has no one English word to express it. Uriah-Heapishness might express it, or *humble* pronounced without the *h*. Sometimes, again, the fault of excess or defect has a definite name, while the virtue which is the mean has none. Thus *ambition* is generally considered a fault of excess, we have no word to express the virtue of the Greek *philotimia*, except *public spirit or proper ambition*; and the defect, which consists in shirking public duties and indifference to public esteem, has no name, and scarcely even a short periphrasis. The moral as well a intellectual benefit of such exercises as these seems to me most valuable. They open boys' eyes in a remarkable manner to the influence of thought upon language, and also to the reaction of language of words, and show him that there may be more faults and more virtues than have been formally and distinctly recognised by the national conscience. Lastly, to end by repeating a practical consideration, such exercises are easily adapted for class-teaching, and are most valuable not only for English, but also for Latin composition.

Now let us consider the part that should be assigned to diction in an English lesson. By diction I mean the act of speaking and writing well; that is to say, with clearness and appropriateness, and of understanding the exact meaning of that which is well spoken or written. Under this head I think might come some brief explanation of the distinction between poetry and prose. Poetic diction might be roughly classified as being either forcible, or elevated, or graceful. Examples might be given of each School—the Elizabethan poets of the forcible the Paradise Lost of the elevated, Tennyson of the graceful—care being of course taken to protest that we be no means assert that Shakespeare was never elevated, Milton never graceful, and Tennyson never forcible. A brief sketch might explain how, in serious poetry, the forcible and the elevated diction of the 16th and first half of the 17th centuries was supplanted by the graceful diction of the second half of the 17th and 18th centuries, which, in turn, gave way to the reaction against conventional gracefulness, heralded by the Percy Ballads, and by Cowper, and carried on by Wordsworth and his followers. This sketch might be illustrated by a few instances of the errors of each School. Boys might be enabled to see that when Macbeth speaks of Duncan's "silver skin laced with his golden blood," and the daggers as being "unmannerly breech'd with gore," this language is not forcible but forced and unnatural, though, perhaps, natural in the mouth of a conscious murderer dissembling guilt. Still more easily they could perceive that it is not "graceful" to call a man a "swain" or a woman a "fair," because you happen to be writing poetry, or to avoid mentioning a feature of the face by name. as in—

> "Mark him of shoulders curved and stature tall,
> Black hair and vivid eye, and meagre cheek,
> *His prominent feature* like an eagle's beak,"

where "prominent feature" is used, even by Wordsworth as a polite periphrasis, to avoid the supposed vulgarity of "nose." Pope's Iliad, and, still more, the Odyssey, would supply abundant instances of the application of the elevated style to a subject which rather demands the forcible or the graceful.

When these distinctions had been clearly drawn out, and well illustrated by examples, boys might be asked to refer certain passages in the poem which they happened to be reading, to one or other of these subdivisions, and to point out apparent errors of excess or misapplication. The direction of prose would then demand notice; and we might mark out the region of polite prose as distinguished from poetry, from conversation, from slang, and from provincialism. A few instances might make this clear, one of which will suffice on the present occasion. The great danger of boys, derived from their study of poetry and of newspapers, is that, if they try to write anything that is not slang, they think it necessary to use poetic diction. Thus Alison writes, "Parliament, during this Session, was mainly occupied with the Emerald Isle," meaning Ireland. Now this is just what a boy of fair ability, beginning to write English pretty well, would be likely to say. It is, therefore, desirable to warn our pupil that, as the object in prose is very often simply to convey information, and the object in verse is to give pleasure, there is of necessity a distinction between the two styles, and the words used in prose should be selected with a view to their intelligibility above every other consideration, while in verse other considerations are both allowable and fit. Poetic diction, even when perfectly intelligible, is offensive and exasperating in prose. It is like a fresco in the waiting-room of a railway-station, where our sole thought is how soon we can get away. No doubt the historian might have said, "Accustomed to the arid and barren deserts of Arabia, the eye of the traveller rested with pleasure upon the rich bright vegetation of the Emerald Isle." For here we desire to do more than simply give information; we wish to express feeling also.

So far as my experience goes, it would tend to shew that this, the poetic side of prose, is the quarter from which danger may be most apprehended. Boys think it the correct thing, if they are answering a question about Julius Cæsar, to write *ere* instead of *before*, *unto* for *to*, and insist upon it that the great usurper shall spur his *steed* or *charger*, anything sooner than his horse, across the Rubicon. It is, therefore, necessary to inculcate again and again, that poetry is not only to be intelligible, but also euphonious, picturesque, at times archaic, and always averse to unemphatic lengthiness. In prose, these qualties are often, and some of them always, out of place. Who would

reject the word "unquestionably" in prose? Who would not prefer "questionless" in poetry?

Now, applying these principles of poetic diction even to the very simple passage from Richard II., we may find, at least, one question that we may fairly expect to be answered—Why is "ire" used for anger? The answer will be, because it is (1) less lengthy, and (2) more out of the common, and therefore better fitted for the elevated style of poetic diction. We might also ask our pupil to refer this and other passages to one of the three classes of style above enumerated. This particular passage might be called both forcible and somewhat elevated; while some lines in the same page—such as,

> "With a foul traitor's name stuff I thy throat,"

and

> "First, the fair reverence of your highness curbs me
> From giving reins and spurs to my free speech,
> Which else would post until it had returned
> These terms of treason doubled down his throat,"—

can scarcely claim to be called elevated, though we may freely admit that they are forcible.

Questions like these might, I think, easily be made to form part of a school lesson, when some classification of the different kinds of direction had been set before the pupil. Still more obvious and natural are questions about the fitness of epithets. The value of such questions can scarcely be exaggerated. The density of boys on this point,—their incapacity for seeing, until it is clearly pointed out to them, that each epithet ought to be able to give a reason for itself, and that if you change the epithet, or take it away, you make a change for the worse,—is a phenomenon that is really curious. Let me give an instance. Pope is satirizing the old Duchess of Marlborough, under the name of Atossa—

> "Full sixty years the world has been her trade,
> The wisest fool much time has ever made,
> From loveless youth to unrespected age,
> No passions gratified except her age."

If you ask a boy why Pope calls Atossa's youth *loveless*, instead of choosing some other bad name, as *thoughtless*, *selfish*, why her old age is called *unrespected* instead of *avaricious*, *morose*, or some more obvious epithet, I think you will find that there will be at least one or two pupils in a class of twenty who have not seen that the epithets express that Atossa's life, from first to last, was destitute of the most natural virtues; *even* in her youth she was not lovable; *even* in her old age she was not respected. Few passages of English poetry will fail to suggest some such questions at these. Even our Shakespearian extract above suggests the question, Why does King Richard say, "deaf as the sea"? why not "deaf as a stone," or any other inanimate object? And, why "hasty as fire"? why not "hasty as lightning"? And I think it would be a good exercise for boys to point out the special fitness of the boisterous sea, which renders all sounds but its own roar inaudible, to represent theself-willed deafness of the combatants, and the appropriateness of the devouring fire to represent their hasty greed for vengeance.

I scarcely like to mention, as an argument in favour of the study of English diction, that it would probably diminish by a half the time at present requisite for learning to write tolerable Latin verses. As soon as boys see the force of epithets, and the necessity that they should be at once appropriate and picturesque, they cease to think that *magnus* and *malus* are epithets that can be applied indiscriminately to any person, place or thing. With this bad habit disappears much of the difficulty of writing a tolerable elegiac couplet. I do not lay much stress upon this argument, because I am not convinced of the importance of teaching Latin verses. At the same time, I believe much that has been said against them applies, not to the teaching of versification, but to the bad teaching. Latin verses can be made a very fair lesson of taste and diction; and my only objection to them is, that all, and more than all the benefit of them can be derived in less than half the time from the study of English.

I have left till the last what seems to me the most important and interesting part of the study of diction. I mean the analysis of the metaphor and the simile. To this I have for some time given especial attention; and if I only dwell lightly upon it now, it is because I do not wish to repeat what I have written elsewhere on this subject. The simile is "a sentence expressing a similarity of relations." I don't suppose a boy would understand that definition, and I should certainly not give it to him till I had prepared the way for it. We want to describe to a man some phenomenon that he has never seen; for example, to a landsman, who has never seen the sea, we wish to describe the action of a ship upon the water. He has a difficulty in comprehending what we tell him, that the ship forces its way through the water, thrusting it aside, and at the same time turning the water up in fragments called spray. How can we put this clearly before his eyes? It will be a long business. But it occurs to us, though our friend has not seen a ship, he has seen a plough Well, then, "very much as the plough acts on the land, so the ship acts on the sea." This is a sentence declaring that the relation between a ship and the sea is somewhat similar to the relation between a plough and the land, and it is called a simile. But a simile is long, and somewhat cumbersome, rarely fitted even for dramatic poetry, and still more rarely for prose. We compress it therefore into an audacious falsehood—true with certain allowances, but literally false. We say "the ship," not, "*is like*," but, "*is* the plough of the sea." Instead of saying, the relation between the ship and the sea *is like* ploughing, say it *is* ploughing; *i. e.*, we transfer to the ship and the sea the relation between the plough and the land. Such a compressed simile is called a *transference*, or, which is the same thing, only that the word is derived from Greek, a *metaphor*. The next stage is to show boys how the metaphor may assume different forms, and is constantly implied in single verbs and adjectives, as, "the thought *struck* me," or "this is a *striking* thought." We may also point out that all language is founded on metaphor. We cannot describe anything that is not the immediate object of our senses without having recourse to it. Thus "purity," "spotlessness." are metaphors, transferred from the visible to the invisible world; in the sameway, "integrity" conveyed once the meaning "untouched," "eminent" meant "projecting out from or above others."

Having taught them how to detect an implied and latent metaphor, we must now teach them to analyse it. We have shown them how to compress the simile into the metaphor; we must now teach them how to reverse the process, and expand the metaphor into the simile. Thus, "the ship is the plough of the sea," can be expanded back again into:—As the plough is to the land, so the ship is to the sea. So we can analyse "a striking thought:"—As a blow is to the body, so the thought is to the mind.

In these two proportions the unknown quantity to be determined is the relation between the third and fourth term, and the datum for determining it is the relation between the first and second term. Sometimes we have no one word to express this unknown relation. Thus, in the first case, we can only say:—As the plough turns up the land, so the ship turns up the sea. This is generally the case when visible things and their relations are illustrated by orders that are invisible. But in the second

case it is not so, and we can give a name to the unknown relation. As a blow suddenly and distinctly strikes the body, so a thought suddenly and distinctly *suggests itself to* the mind.

(*To be continued,*)

Meteorites.

The phenomena which meet the student of nature are of greater interest than those connected with the fall upon our earth of the remarkable bodies which are known as "meteorites." This subject has recently been very ably discussed by the well-known Mineralogist, David Forbes, in a lecture delivered at St. George's Hall, London, who put together in a connected form all the leading facts which are as yet known with regard to the nature and source of meteorites. By "meteorites" or "aerolites" are understood such meteors as have at various times fallen down upon the earth, and which have thus afforded us the means of determining their chemical and physical nature. It has been long known that such bodies in their descent towards the earth present themselves in the form of balls of fire, or take the appearance of what would popularly be understood by the term "meteor." It is not, however, by any means certain that all these luminous bodies which we term meteors are truly due to the fall of meteorites. It has, however, been proved that *some* meteors are of this nature; and it has been rendered very probable that falling stars, and even comets, are bodies of a similar if not actually identical composition, differing only in the unimportant particular of size. The fall of meteorites has been noticed from an extremely early period, and, as was to be expected, was in early ages regarded with superstitious awe as of an altogether supernatural character. Many aerolites have been regarded with the highest veneration, and even worshipped, by the natives of the regions where they fell; and they have commonly been regarded as the harbingers of war, pestilence, famine, or the death of some illustrious individual. In parts of Europe also, it seems that the curious idea prevailed that these visitants from the outer spaces must contain in their interior some hidden treasure of great price. Accordingly, instances of meteoric falls are recorded, even in this century, "in which the spectators, once recovered from the mortal fright occasioned by the phenomenon, have allowed their cupidity to overcome their veneration, by smashing the newly arrived stone into fragments, in order to see whether it did not contain gold or precious stones within it." Mr. Forbes, however, thinks that the pre-historic races might sometimes have obtained from meteorites what would be far more valuable to them than gold or silver, namely, *iron*. Many meteorites are known to be composed almost wholly of metallic iron, and all contain this metal in greater or less quantity; so that there is some ground for Mr. Forbes' belief that "there cannot be a doubt as to the meteoric origin of the first iron implements," and that meteoric iron was used ages before the art of extracting iron from its ores had been perfected. "The iron weapons mentioned by Homer as in use at the time of the siege of Troy, some eleven centuries before the Christian era, were most probably made from meteoric iron, which would account for the enormous value, as compared with other metals, which was at that early period put upon them. We read in Eastern stories of magic swords, forged from iron which had but recently fallen from heaven, a manufacture which was imitated by Captain Sowerly, who, some half a century ago, had one made of meteoric iron, and presented it to the Emperor Alexander, of Russia. It is quite certain, however that in many parts of the globe the first iron known to the inhabitants was a meteoric product—as, for example, in Mexico, where iron had never been smelted, the Indians of Tolnea, employed for making their agricultural implements meteorites, which had fallen in very large numbers in that district; in Siberia the Jakuts also use similar iron for their weapons; and in the British museum there can be seen a harpoon and rude knife, from the Esquimaux of Western Greenland, formed of pieces of meteorites flattened out and fixed in bone handles."

In historic times the Chinese were the first to study meteoric phenomena, and their astronomical literature contains the record of meteors observed during more than two thousand four hundred years. The Greek and Roman writers paid little attention to natural phenomena, but a few scattered notices of meteoric falls are to be found in their works. In the early part of the Christian era and during the middle ages, at least in Europe, the records of the fall of meteorites are to the last extent scanty, and only some seventy falls are noted up to the year 1500, only a single one of which is now represented by the actual stone which fell. This single specimen fell at Ensisheim in Alsace, and was for three hundred years hung up by a chain in the church of that place. It was carried off during the French revolution, and pieces were broken off it; but the main body of the stone was ultimately returned to Ensisheim, where it still remains.

For a long period, even in quite modern times, scientific observers showed an extraordinary apathy and scepticism as regards the fall of meteorites. No interest in this subject was manifested by the learned world till the year 1777, when there arrived in St. Petersburg the enormous and celebrated mass of meteoric iron which was discovered in Siberia by the naturalist Pallas, and which weighed three quarters of a ton. This famous meteorite gave rise to a memoir by Chladni, in which he maintained that this mass had fallen from the heavens, an opinion which drew down upon him almost universal derision. Very shortly afterwards, however, several falls of meteorites occurred, which were carefully observed, and which set the question completely at rest. Chladni's views were thus established beyond all doubt, and scientific men unanimously accepted the occasional falling of masses of stone from heaven as part of the ordinary course of nature. The following are the chief phenomena which accompany the fall of a meteorite;—When seen at night, as all have observed in watching a falling star, the meteorite appears in the distance as a more luminous point like an ordinary star, becoming larger and larger, as it approaches the spectator, till it ultimately looks like a globe of fire surrounded by a luminous vapour, and having a tail like a comet. In the day-time, however, the appearance is that of a small cloud of singular form and colour, which often ultimately bursts with a loud explosion. Generally, when the meteors are of any size, they burst upon entering our atmosphere scattering their fragments, usually with a terrific explosion, and often to the number of many thousands, over a vast area, and frequently many miles apart. The noise of the explosion is often followed by a whistling sound, caused by the rush through the air of the stone or its fragments as it descends towards the earth, into which it may bury itself several yards if the ground be soft. If it shou'd fall upon rock, the meteorite may be shattered into fragments, and there are numerous instances on record in which the roofs of houses or the decks of ships have been penetrated, or in which animals or men have been severely wounded or killed. The light emitted by meteors is usually very bright, and has been variously explained. Some suppose that it is due to the actual combustion of the falling body; others suppose that they

are surrounded by an atmosphere rendered luminous by the enormous pressure engendered by their rapid motion (a velocity of twenty miles per second being equal to a pressure of not les than a million and a half of pounds to the square inch), whilst others regard the luminosity as having an electrical origin. Tne velocity of meteorites is calculated as being from sixteen to thirty-two miles per second. They move faster than the earth rotates, and are often seen to catch up and outstrip the earth. From their high rate of speed, they meet with such resistance when once they enter our atmosphere that they fall with much smaller force than might be anticipated. Meteorites, lastly, are known to have fallen in all climates, during all seasons of the year, and at all hours of day and night. It is calculated that about seven hundred fall upon the earth every year; but this number is probably far below the truth.

Regarded mineralogically, meteorites are divided into *aerolites*, or atmospheric stones *siderites*, or masses of meteoric iron, and *siderolites*, or masses composed partly of iron and partly of earthy matter. Meteorites are found upon reaching the earth to be extremely hot to the touch, and, with one single exception, they have always been found to exhibit a thin vitreous black glaze upon their surface, something like a coat of varnish. It is needless to say that this latter phenomenon is due to the rapid fusion of the exterior of the meteorite caused by the heat developed in its headlong passage through the air. The "siderites," or metallic meteorites, consist mainly of an alloy of native iron with from one to fifteen per cent, of nickel—an alloy wholly different, both chemically and physically, from all known terrestrial products, whether these be natural or artificial. These metallic meteorites are often of very large size, a South American example weighing thirteen tons, and one from Greenland reaching the weight of twenty-two tons. The stony meteorites consist in the main of certain silicates, along with varying proportions of native iron, nickel, and other metals. These also are wholly unlike any minerals which are know to occur in the crust of the earth; although all these elements are themselves present in terrestrial bodies. Nineteen elements in all are known for certain as occurring in meteorites, and all of these occur also in the earth. "One of the most extraordinary points in the chemistry of meteorites is the discovery, by the late Professor Graham, that meteoric iron contains, secluded in its substance, a large amount of hyrogen gas, which may be regarded as a sample of the atmosphere in which it was formed, and consequently as indicating cosmical conditions totally different from those which obtain on our sphere. It is also strange that the metal nickel, which is comparatively rare on earth, and never occurs in the metallic or alloyed state, should be so constant in meteorites of all classes."

As regards the problem of the origin of meteorites, the wildest and most fantastic ideas have, as a matter of course, been entertained in pre-scientific times.

"Towards the end of the former century, La Place sought their origin at a greater distance; he concluded that as gravitation on the moon is some four times smaller than on the earth, it might be possible that the volcanoes there could propel stones with such a force as to go beyond the limits of lunar attraction into the sphere of terrestrial gravitation, as a velocity double or triple that which we can give to a cannon ball would be sufficient to accomplish this result; this hypothesis was accepted for a time, notwithstanding the objection of astronomers and chemists, the former proving that the observed velocity of the bodies and the force with which they strike the earth were much greater than they could possibly obtain from a source so near as the moon; in fact, astronomers proved that aerolites possess a planetary velocity. Chemists, from their side, pointed out that the chemical composition of aerolites was by no means that of matters ejected from volcances, but that they were compounds of metals, as found in earth, but combined in a way different from any terrestrial mineral known; in fact, that the greater number of aerolites were imperfectly mixed alloys of iron and nicked, with 4 to 14 per cent, of phosporus, the iron being on the average present in the quantity of 60, the nicked of 12 per cent. Chladni, in the beginning of this century, founded his theory in regard to the origin of the arcolites on the opinion of Kepler, who maintained that there were more comets and smaller bodies of different kinds flying about in space than fishes in the ocean. Chladni's theory was that, in the interplanetary and interstallar spaces, small masses of solid matter are moving about in countless numbers, either in regular or irregular orbits, and that when they happen to come within the sphere of gravitating attraction of any planet, they will fall towards the surface with a velocity the resultant of their own planetary velocity *plus* the newly-acquired velocity of gravitation, *minus* the resistance of the air which surrounds the planet. On reaching its surface these velocities are destroyed, and the necessary consequence is the evolution of heat, this being nothing but molecular motion when the latter is forcibly prevented from continuing. This accounts for the heat of the masses when picked up immediately after their fall, while the train of fire exhibited in many instances is easily explained by the consideration that they originally may contain combustible substances which had no chance to burn in the hightly-rarefied interplanetary medium; but coming in contact with the oxygen in our more dense atmosphere, and that with the immense planetary velocity, the friction, combined with chemical action, raised the temperature rapidly to the point of combustion."

More than one of the Greek philosophers held that meteorites were truly derived from the sun, and it is curious that the conclusions of modern science appear to point in the same direction. Thus Mr. Mattieu Williams, in his work on the "Fuel of the Sun," considers that meteorites are solar projectiles which have passed the boundaries of the "Zodiacal light—a view which is supported by the fact that hydrogen gas is found secluded in meteoric iron, and has been at the same time shown by recent spectroscopic enquiries to be present in preponderating quantity in the atmosphere of the sun. Mr. Procter also has drawn attention to the tremendous eruptions which are continually taking place in the solar surface, by which gageous matter is thrown up at an initial velocity of more than five hundred miles per second, to a height of over two hundred thousand miles. This distinguished observer comes, therefore, to the conclusion that if any denser material be ejected from the bowels of the sun by these explosions, it will fly off into space, revolve for some time round some planet, and finally descend upon the surface of the same, as meteorites do upon the earth. If this view be correct, the specimens of meteorites preserved in our museums are actually pieces of the sun.

"If we take in account that the spectroscope shows that the most prominent substance in the sun is iron, and that the same is the case with the meteorites, that they are combined chiefly with nickel, another metal found in the sun, forming an alloy not found on earth: that they also show a peculiar crystalization, and in general a common origin, the view is by no means so improbable, however startling it may be; it is moreover sustained by the unanimous testimony of all modern observers, who affirm that the solar eruptions surpass in immensity any volcanic eruption which ever takes place on earth, or which, in past ages, must have taken place on the moon."

Of all the startling theories which have at one time or another been put forward with regard to meteorites, none probably is more extravagant than that recently promulgated by Sir William Thompson, the late President of the British Association. In his Presidential address last year, this eminent philosopher maintained that the origin of life on our globe, and the introduction from time to time of new species, might be referred to the arrival of meteorites, which, being fragments of other worlds upon which life already existed, had carried with them the germs or seeds, or even "living animals or plants," to populate our globe. This theory, in reality, in no way evades the difficulty as to the origin of life, and has been unhesitatingly rejected by the scientific world. It is summarily disposed of by Mr. Forbes, because "the now generally received theory of meteors teaches us to regard them as bodies which have been revolving, probably for countless ages, in spaces destitute of atmospheric conditions requisite to sustain life; and, secondly, because the meteorites with which we are acquainted have, in their descent, had their external surface actually melted by the intense heat produced by the friction and oxidation of the air; so that the very supposition that any vegetable or animal being, seed or germ, could by any possibility retain its vitality, or reach the reach the earth unconsumed, seems in the very highest degree improbable."

Deaf Mute Education.

The issue of the first annual report of the Ontario institution for the Deaf and Dumb, brings under review what has been done in the sister Province to aid and instruct a class having large claims upon the sympathy and protection of the community. The pioneer of deaf mute education in Ontario was Mr. J. B. McGann, who commenced a school in Toronto in June, 1858, and, having removed to Hamilton in 1864 continued the school there till July, 1870. During this time about 180 deaf mutes came under instruction, and much interest in the work was excited throughout the Province. The Ontario Institution at Belleville was formally opened to pupils on the 20th of October, 1870, and the reports of the Inspector and Principal now before us indicate the progress made during the first year. At the outset, four teachers were appointed and the school was divided into four classes. A fifth teacher was soon added, and now that the number of pupils in residence has reached 110, it is proposed to form a sixth class to be placed under the charge of an educated young lady, herself a deaf mute, who is qualifying for the task.

For a first year, this statement of the members in attendance may be regarded as foreshadowing a successful career for the Institution. Nevertheless, it appears that there is much to be done in order to bring all the deaf mutes in the Province within reach of instruction, for it is computed by the Principal, Mr. W. J. Palmer, that there are certainly not less than 250 in Ontario who have not yet been sent to the Institution. The reason for this neglect is apparently the poverty of the parents, who are unable to pay for the maintenance of their children at the school, and are thus unable to avail themselves of the Government provision of their education. Inspector Langmuir remarks that in order to enable every deaf mute of school age—seven to nineteen—to be placed under instruction three methods are open for selection. First, the enactment of a law requiring every municipality in which there are deaf mutes, whose parents are unable to send them to the institution and support them whilst there, to pay for their transfer to and from the school, and to defray the expense of board. Secondly, to make the institution free to all, without any charge for board on the part of the government. Or, thirdly, to make the education of all deaf mutes in the Province compulsory. At present, parents or friends who are able to pay for the board of pupils are charged the cost of food, half the stipluated amount being required in advance. Parents unable to pay for the board of their children must apply to the council of the county, township, town or village in which they reside, and if the municipality becomes responsible for the board of the child, it is admitted into the school. The question of the ability or inability of the applicant to pay is determined solely by the municipality. If the children are orphans and without means of support, they are boarded, clothed and educated at the school, at the expense of the government, on the application of the municipality in which the orphan resides. According to this classification, the 107 children in the institution on the 30th of last September were supported as follows:—54 by parents or guardians, 45 by municipalities, and 8 by the Province as orphans. Tne inspector observes that as only 16 counties have complied with the provisions of the law,—seven in a prompt and efficient manner and eight only partially so, conclusive evidence is furnished, if the present method of admission is to be continued, of the necessity of the legislature requiring every county to support in the institution the children whose parents are unable to bear the expense.

In some few cases the fault is with the parents who keep their children with them for the sake of their manual labour. In such cases there is evidently a necessity for state interference and the application of the principle of compulsory education, as the children thus unhappily kept back from instruction must grow up in a condition of the most deplorable ignorance and brutishness. If the Institution were made board free and the whole cost defrayed by Government, a large additional amount would have to be expended on maintenance; though this would perhaps be a less serious matter than permitting nearly two thirds of the class for whom the institution has been provided to lose the benefit of instruction entirely.

Among other features of interest in the report, we notice that a farm and garden are attached to the institution, and it is proposed to have a workshop erected that will afford room for carpentering, shoemaking and tailoring. A drawing master attends for the instruction of those whom the Principal believes to evince a taste for the pencil; and in other ways, it is sought to give the pupils opportunity for the development of their powers. Mere scholastic training will be a poor gift to the pupils, unless they are put in the way of earning their own living at some industrial pursuit after leaving the institution. There seems no reason why deaf mutes should not become proficient in mechanical exployments such as cabinet-making, shoe-making, and tailoring. The attempts made in this direction at the school have proved highly successful, the eight male pupils engaged at the carpentering trade taking a great interest in their work, and executing all the repairs and improvements necessary about the buildings and premises. As for the learned professions, deaf mutes are obviously under too great disadvantages to compete successfully with those enjoying all their faculties. One interesting exception is noted by Principal Palmer. The Messrs. MacDellan, barristers and attorneys, educated at the Deaf and Dumb Institution in Glasgow, have followed their profession at Belleville for several years with marked success.—*Gazette.*

POETRY.

I SHALL MISS THE CHILDREN.

CHARLES DICKENS.

When the lessons and tasks are all ended,
And the school for the day is dismissed,
And the little ones gather around me,
To bid me good-night and be kissed;
Oh the little white arms that encircle
My neck in a tender embrace!
Oh, the smiles that are halos of heaven,
Shedding-sunshine of love on my face!

And when they are gone I sit dreaming
Of my childhood too lovely to last,
Of love that my heart will remember
When it wakes to the pulse of the past,
Ere the world and its wickedness made me
A partner of sorrow and sin,
When the glory of God was about me
And the glory of gladness within.

Oh, my heart grows weak as a woman's,
And the fountains of feelings will flow,
When I think of the paths steep and stony,
Where the feet of the dear ones must go;
Of the mountains of sin hanging o'er them,
Of the tempest of Fate blowing wild;
Oh! there is nothing on earth half so holy
As the innocent heart of a child.

They are idols of hearts and of households;
They are angels of God in disguise;
His sunlight still sleeps in their tresses,
His glory still gleams in their eyes;
Oh! those truants from home and from heaven,
They have made me more manly and mild
And I know how Jesus could liken
The kingdom of God to a child.

I ask not a life for the dear ones
All radiant, as others have done,
But that life may have just enough shadow
To temper the glare of the sun.
I would pray God to guard them from evil,
But my prayer would bound back to myself,
Ah! a seraph may pray for a sinner,
But a sinner must pray for himself.

The twig is so easily bended,
I have banished the rule and the rod;
I have taught them the goodness of knowledge,
They have taught me the goodness of God.
My heart is a dungeon of darkness,
Where I shut them from breaking a rule;
My frown is sufficient correction;
My love is the law of the school.

I shall leave the old house in the Autumn,
To traverse its threshold no more;
Ah! how shall I sigh for the dear ones
That meet me each morn at the door;
I shall miss the "good-nights" and the kisses,
And the gush of their innocent glee,
The group on the green and the flowers
That are brought every morning to me.

I shall miss them at morn and at eve,
Their song in the school and the street;
I shall miss the low hum of their voices,
And the tramp of their delicate feet.
When the lessons and tasks are all ended,
And death says, "The school is dismissed!"
May the little ones gather around me,
To bid me good-night and be kissed!

OFFICIAL NOTICES.

Ministry of Public Instruction.

ERECTION OF A SCHOOL MUNICIPALITY.

The Lieutenant Governor, in Council, has been pleased to erect the new parish of St. Patrice de Beaurivage into a school municipality, as the same was erected for civil purposes by proclamation, dated 6th June last.

BOARD OF EXAMINERS, BONAVENTURE.

The Lieutenant Governor, in Council, has been pleased to make the following nominations:

The Revd. Antoine Chouinard, *vice*, the Revd. Charles G. Fournier, and Martin Sheppard, Esquire, *vice* the Revd. John Wells.

SCHOOL COMMISSIONERS.

The Lieutenant Governor, in Council, has been pleased to make the following nominations:

QUEBEC.

Protestant.—The Revd Charles Hamilton, M. A., continued in office.

Catholic.—François-Léon Gourdeau, Esquire, *vice* Jacques Crémazie, Esquire, deceased.

MONTREAL.

Catholic.—The Revd. Paul Leblanc, continued in office.

Protestant.—The Revd. John Jenkins, continued in office.

Chicoutimi, Métabetchouan, Messrs. Job Bilodeau, Joseph Laforest, Eusèbe Beaudreault, Solime Gagnon, and Damase Raymond.

L'Assomption, Ile Bouchard, Mr. Honoré Lescot, *vice* Mr. Léon Pelletier.

Saguenay, Tadoussac, Messrs. Thomas Maltais and George Déchêne, *vice* two Commissioners beyond the limits of the municipality.

Témiscouata, St. Epiphane, Mr. Pierre Chouinard, *vice* Mr. François Pelletier.

DIPLOMAS GRANTED BY THE BOARD OF EXAMINERS.

PROTESTANT BOARD OF QUEBEC.

ELEMENTARY SCHOOL, 1*st class* (E)—M. Archibald McConchy, and Mrs. Margaret McKillop.

ELEMENTARY SCHOOL, 2*d class* (E)—Misses Martha Graham, Jane Greaves, Sophia Redman, Emily Sturton, and Eliza Ann Thurber.

May 7th, 1872.

D. WILKIE,
Secretary.

PROTESTANT BOARD OF QUEBEC.

ELEMENTARY SCHOOL, 1*st class* (F)—Misses Mary Jane Maxwell, and Camilla Wilson.

August 6th, 1872.

D. WILKIE,
Secretary.

BOARD OF BEAUCE.

ELEMENTARY SCHOOL.—1*st class* (F)—Miss Philomène Poulin.

ELEMENTARY SCHOOL, 2*d class* (F)—Misses Marie Elmire Célanire Perreault, Marie Maheux, and Philomène Vaillancour.

August 6th, 1872.

J. T. P. PROULX,
Secretary.

TEACHERS' DIPLOMAS GRANTED AT THE JACQUES CARTIER NORMAL SCHOOL, JULY 10th, 1872.

ACADEMY DIPLOMAS, Messrs Gélase Boudrias, Edmond Généreux, and Dosithée Godin.

MODEL SCHOOL DIPLOMAS, Messrs. Evariste Leblanc, Ismaël Longtin, Jos. Bénard, Vitalien Cléroux, Julien Fille, and Delphis Martin.

—

CATHOLIC BOARD OF RICHMOND.

ELEMENTARY SCHOOL, *1st class* (F)—Misses Georgina Dionne' Victoria Demers, Rose de Lima Godbout, Adélaïde Hinse, Elise Johnson, P. Honorine Proulx, Philomène Pérusse and Hermaïse Pilon.

ELEMENTARY SCHOOL, *2d class* (E)—Miss P. Honorine Proulx.

August 6th, 1872.

F. A. BRIEN,
Secretary.

—

SHERBROOKE BOARD.

ELEMENTARY SCOOL *1st class* (F) Miss Eulalie Dubois.

ELEMENTARY SCHOOL *1st class* (E)—Misses Ellen Cunningham Amelia E. Stevens, and Ida Woodward.

ELEMENTARY SCOOL, *2d class* (E)—Misses Albina C. Handright, Esther Munn, Ella Parsons, Mary A. Rice, and Miss Mary A. Strain who held a diploma considered as good up to the present. She now holds one unconditionnally.

August 6th, 1872.

S. A HURD,
Secretary.

—

CATHOLIC BOARD OF MONTREAL.

MODEL SCHOOL, *1st class* (F)—Miss Marie Louise Chaput.

ELEMENTARY SCHOOL, *1st class* (F)—Misses Marie Osina Alix, Marie Célina Bardet dite Lapierre, Célina Beaudouin, Victoria Bergeron, Marie Selfrid Brunet, Marie Angéline Derome, Vitaline Desrousseaux, Euphémie Desrosiers, Régina Dion, Dame Farest Célanire Dudemaine, Marie Célanie Duhamel, Rose de Lima Dumontier, Sophie Gill, Edwidge Goulet, Angélique Jetté, Joséphine Laprès, Marie Flore Leclaire, Rose Hermine Marches. sault, Rose Exilda Pigeon, Rebecca Primeau, Rose de Lima Poissant, Elodie Rabeau, Marie Phébée Robillard, Marie Anne Têtreault, Emma Thibodeau, and M. Orphire Payment.

ELEMENTARY SCHOOL, *1st class* (F & E)—Miss Elizabeth Gorman.

ELEMENTARY SCHOOL, *2d class* (F)—Misses Mélanie Bédard, Elvina Brière, Marguerite Boisvert, Célina Gagné, Mathilda Golin, Rachel Goulet, Joséphine Leduc, Mélanie L'Ecuyer, Philomène Legault, Julie Célina Lisotte, Louise Normandin, Marie Asilda Phaneuf, M. Marie Rivard Dufresne, Célina Thibault, Léocadie Turcot, and Marie Louise Veronneau.

August 6th & 7th, 1872.

F. X. VALADE,
Secretary.

—

OTTAWA BOARD.

ELEMENTARY SCHOOL, *1st class* (F)—Miss Joseph Anne Gourdine.

ELEMENTARY SCHOOL, *2d class* (E)—Misses Christina Blackburn, Mary C. Daly, Adélaïde Pritchard, and John McCarty.

August 6th, 1872.

J. B. WOODS,
Secretary.

CHARLEVOIX BOARD.

ELEMENTARY SCHOOL, *1st class* (F)—Misses Elmire Allard and Clémentine Bolduc.

ELEMENTARY SCHOOL, *2d class* (F)—Miss Joséphine Trudel.

August 6th, 1872.

CHS. BOIVIN,
Secretary.

OFFICIAL LIST OF THE GRADUATES AT LAVAL UNIVERSITY DURING THE ACADEMICAL YEAR 1871 '72.—*Bachelors of Sciences.*—Arthur Desjardins, Ferdinand Gauvreau, Charles P. Richard, Raymond Caisse, Antoine Lamy, Ernest Duguay. *Bachelors of Letters.*—Antoine Gobeil, Lawrence Cannon, Thomas Michel Labrèque, Narcisse Parent, Napoléon Bernier, Peter O'Leary. *Bachelors of Arts.*—Alphonse Pouliot, *with Prince of Wales prize;* Philéas Boulet, Ernest Nadeau, Victor Huard, Auguste Bourbonnais. *Bachelors of Medicine.*—Narcisse Eutrope Dionne, Moise Rheault, Joseph Philippe Ladrière, Louis Napoléon Fortin, Richard Philippe Alleyn, Marie-Richard-Alphonse-Tancrède Fortier, Pierre-Joseph-Odilon Lauriault, William Maguire, Edwin Turcot, Joseph-Phidime Giguère, Honoré Labrèque, Louis-Ephrem Olivier, Louis Verner, Samuel Pouliot, Damase Rossignol, August Ross, Ovide-Amédée Arthur Toussignant. *Bachelor of Law.*—Théodore Paquet, Joseph Maltais, François-Xavier Lemieux, Joseph-Alphonse Rouleau, Charles Chartré. *Bachelors of Divinity.*—Henri Têtu, Edmond Marcou, Zoel Lambert, Benjamin Demers, Thomas Bérubé, Hônoré Leclerc, Daniel McIntosh. *Masters of Medicine.*—Joseph-Eusèbe Grondin, Basile Desrochers, Gustave Turcotte, Moise Rheault, Joseph-Edouard Ladrière, Joseph-Benjamin Blouin, Evens Rochette, *cum laude. Master of Law.*—Hubert-Edouard-Adjutor Turcotte. *Masters of Divinity.*—Rev. Adrien Papineau, *cum laude,* Rev. Clovis Laflamme, *summa cum laude. Doctors of Medicine.*—Malcolm Guay, Felix-Emile Dubé. *Sewell Prize.*—1st. P., Ernest Delisle, M. B.; 2nd. P., Eutrope Dionne, M. B. *Morrin Prize.*—(Second year.) 1st. P., Honoré Labrèque, M. B.; 2nd. P., Nérée Beauchemin. (Fourth year.) 1st. P., Felix-Emile Dubé, M. D.; 2nd. P., Benjamin Blouin, M. L.

ACADEMY OF MUSIC.—The annual examination of the pupils in the Quebec Academy of Music was held on Thursday and Friday, 18th and 19th July, in the Jacques Normal School building, which was very kindly given by l'Abbé Verrault for this purpose. The examiners were, among others, Rev. Mr. Lagacé, Messrs. Plamondon, Delisle, Ernest Gagnon, Letondal, Labelle, McLagan, Saucier, and A. Boucher. The instrumentalists, after executing their compositions, were required to read a page of music at first sight. At noon, the examiners for the piano having made their report, Mdlls. Paradis and Delmeze were declared members of the Academy, and Mdlls. Grove, Symn, Desnoyers and Caderre graduates. The examiners in the School of Harmony did not give a report, as Mr. Gustave Gagnon was the sole competitor. The examiners gave him a base part to compose, and then put him several questions on modulation and cadences. In the evening of Friday there was a brilliant exhibition under the auspices of the Academy. Several of our most distinguished artists and amateurs contributed towards rendering the concert agreable to the large and appreciative audience; l'Abbé Verrault, Principal of the Normal School, gave a brilliant and instructive sketch of the rise and progress of the musical art in this country, illustrating his discourse with æsthetic remarks. The prizes were then distributed, and afterwards the diplomas. The choir of the Gesu was present, and executed both instrumental and vocal music. After an address from Mr. Letondal, the exercises were brought to a close.

MISCELLANEOUS.

Simple disinfectant.—As a simple method of employing carbolic acid, C. Homburg, of Berlin, proposes to saturate sheets of coarse millboard with the disinfectant in question. These sheets may be hung up in the rooms requiring purification, or a small piece may be torn off when only a small quantity of carbolic acid is wanted. Sheets of millboard, having an area of about seven square feet, and containing about one-fifth of a pound of carbolic acid, are sold in Berlin, for a shilling a-piece. Dr. Hager also gives the composition of a simple disinfecting paste, for use as a washing powder. It consists of 100 parts of white clay, 1000 parts of distilled water, and 35 parts of nitric acid. The mass thus obtained is allowed to stand for a few days, being stirred frequently; the supernatant fluid is then to be poured off, and the clayey mass thoroughly washed with distilled water. Five parts of permanganate of potash are now to be added, and the composition, when dried, is made up into tablets and wrapped in paper saturated with paraffin.

Ink stains on wood can be removed by a solution of oxalic acid. Cover the spots with bits of the acid, turn on a spoonful of water and place a heated flat iron over it; when the hissing ceases the ink will have disappeared.

What is in the Bed-Room?—If two persons are to occupy a bed-room during the night, let them step on a weighing scale as they retire, and then again in the morning, and they will find their actual weight is at least a pound less in the morning. Frequently there will be a loss of two or more pounds, and the average loss throughout the year will be a pound of matter, which has gone off from their bodies, partly from the lungs, and partly through the pores of the skin. The escaped matter is carbonic acid and decayed animal matter or poisonous exhalation. This is diffused through the air in part, and part absorbed by the bed-clothes. If a single ounce of wood cotton be burned in a room, it will so completely saturate the air with smoke that one can hardly breathe, though there can only be one ounce of foreign matter in the air. If an ounce of cotton be burned every half hour during the night, the air will be kept continually saturated with smoke, unless there be an open window or door for it to escape. Now the sixteen ounces of smoke thus formed is far less poisonous than the sixteen of exhalations from the lungs and bodies of two persons who have lost a pound in weight during the eight hours of sleeping; for, while the dry smoke is mainly taken into the lungs, the damp odours from the body are absorbed both into the lungs and into the pores of the whole body. Need more be said to show the importance of having bed-rooms well ventilated, and of thoroughly airing the sheets, coverlids, and mattrasses in the morning, before packing them up in the form of a neatly-made bed?

The Back Ache.—The small of the back is the weak or strong point of every person. It is the centre of voluntary motion. Nearly three hundred muscles are directly or indirectly connected with the motions of which the back is the pivotal centre.

One very prominent cause of weak backs and crooked spines is the unhygienic and unanatomical seats and benches of our school houses, and churches and halls; nor are seats and benches provided on steamboats, railroad cars, or at stations or ferry houses any better. It is impossible for any person to occupy these seats long without being forced out of shape. And when school-children are confined to them for several hours a day for months and years, their backs will inevitably be more or less weakened, with corresponding deformity of body, for life. If we go into private families, even into the palaces of the opulent, we find the seats made more for show than for use. Girls suffer much more by using such seats than boys, for the reason that boys are taught to run, jump and exercise themselves all over and all through, while girls are expected to keep still and be pretty. It is certainly one of the strange problems of the nineteenth century that no parent, teacher or mechanic will give any attention to anatomy or physiology in the construction of seats for the human body. Must our chairs, and sofas, and settees, and divans, and tetes-a-tetes, and pews forever be dictated by fashion, and never conformed to nature? Must our tortured bodies forever be compelled to shape themselves to the seats, instead of the seats being adapted to our bodies. Go through all the great chair-factories of the country, and you will not find a single article that is not put together in gross violation of the rules of health and comfort. If some Cooper, or Peabody, or Stewart, or Vanderbilt, or Astor, would invest a little million of dollars in establishing an immense chair-factory "on strictly hygienic principles," he would do more to improve human health, promote longevity and remedy the backache, than any medical college in the land.—*Science of health.*

Halls and School Rooms.—While sulphurous acid, chloride of lime and carbolate of lime cannot be used without inconvenience, on account of their unpleasant odor, in frequented rooms, chemical science has recently brought out a disinfectant apparently more effective than either, which can be safely and conveniently used anywhere, since it is free from odor, and when properly diluted does no harm to the color or texture of carpets or furniture. This is bromo-chloralum. Would it not be worth while, as a sanitary measure occasionally to sprinkle the floors of our school rooms, churches and other assembly rooms with it? If this were done at the close of a session, the air, instead of being kept in its foul condition until the next gathering, would be cleansed of its impurities. If the sprinkling were repeated just before the pupils assemble, there would be a tendency to lessen the accumulation of unhealthiness in the atmosphere of the room. No thoughtful person can doubt that the question: How may we secure the best sanitary condition of our school rooms and public halls? is worthy of more attention than it has generally received.—*Professor M. C. Stebbins, in Scientific American.*

Paralysis—Speaking of a certain home for incurables, *Hall's Journal of Health* says: It is worthy of notice that by far the greater number, in fact three times the number, of any other ailment in the institution, is hemiplegia, that is, a paralysis of half the body, arising from some form of inflammation of the brain, or derangement of the nervous system. Nervous diseases are becoming alarmingly more frequent among all classes of persons, especially since the war It takes so much more to make a fortune nowadays. A man, to have a fortune, must possess at least three times as much as twenty years since; it requires three times the energy to make a living, and men in their hurry and struggles, their desperation to bring about their ends, so tax their bodies and their brains, as to overdraw on their vitality. and as a result, in thousands of cases, they are stricken down in a moment with a paralysis of some portion of the body, to be an affliction for life. The best means for avoiding any form of paralysis is to live temperately, regularly; obtain abundant sleep; "let your moderation be known unto all men; curb excesses in living—the appetites and passions of our nature; in whatever business you may be engaged, pursue it calmly, steadily; repress all false, all worldly ambition, which impels you to efforts beyond your strength; in doing these things, you will find a blessing alway.

The Key to the Mys ery.—To most people the mind of a child is an unsolved riddle, to some people a riddle unsolvable. Most of the bad management of children comes from a lack of understanding. The people who are cruel to children, and the people who spoil children, are generally those who know nothing about them. And it avails little to tell people to endeavor to know children. They do not know how to begin to know them. A man cannot set himself to study a child as an intellectual problem. Childhood will not be deciphered like a problem in algebra. The man who would investigate a child in a coldly intellectual way, will find that the child yields no result to all his patient thinking. Not by that door can he enter. The one word that solves the enigma is sympathy. We all have precious bits of childhood left in our natures, and by holding to these threads we penetrate the labyrinth and make a map of it. It is only by trying to feel like a child that we are able to understand him. It is only the man who can play with children that ever comes to comprehend them. The people who pat them on the back and call them "little dears," are not the people who know anything about the little dears, or indeed who are likely to find out anything about them. The kind parson who says "My dear children" at the beginning of his address very often understands nothing at all about what is going on under the curly locks of the little blue-eyed boy who is pinching his neighbor or chewing a spitball. But if the dominie had cherished his own sympathy for children, if he would even yet spend half an hour of each evening in an edifying romp with his own or somebody's children, he would not find it so hard to understand his audience. If the father who does not know what to do with his unruly little boy would play jack stones with him on the cellar-door he would soon find out. For there is one key, and but one key, to the mystery of childhood, and that is sympathy. And it is not knowledge alone that is gained by sympathy, but influence. By the quickest intuition the child detects sympathy. People may love and do love children without sympathy. It is sympathy that brings return. Love for childhood without sympathy is like the passion of a dumb man.—*Hearth and Home.*

Treatment of Hydrophobia.—Something to cut out and keep.—A correspondent of the Detroit *Tribune* gives an account of the treatment pursued in the recent case of hydrophobia at Flint, Michigan: The subject of so much discussion, Burt True, was bit by a rabid dog last May. The dog had bitten him in the center of the right hand. Being in the country at the time, it was some twelve hours before he reached a surgeon, who cauterised the wound with nitrate of silver. The wound healed and remained so until it became irritable and broke out again. Soon the first marked symptoms of hydrophobia showed themselves, convulsions, "barking like a dog," frothing at the mouth, and making strenuous exertions to bite everything that came near. During his convulsions the patient would seize the pillows from his bed in his teeth, and shake and rend them with all the ferocity of an angry dog.

An intense dread of water also exhibited itself, the sight of which threw him into the most terrible convulsions, at these times requiring the united strength of five men to keep him under subjection; in fact, every symptom of hydrophobia made itself conspicuous. The patient was attacked on Friday evening, January 19th. On Saturday evening, his physician, Dr. Axford, reached him, and at once was convinced of the terrible nature of the disease. Having had a case similar seven or eight years since, where the patient recovered under his treatment, and has remained well ever since, after consulting the physician present, Dr. McCall, it was decided to place the patient under the same treatment which had been successful in this former case, which, for the aid it may be to others who suffer from this disease, we here give as follows: The injection under the skin of

large doses of morphine, and the administration of large doses of castor, which is a powerful anti-spasmodic. About one grain of the sulphate of morphine, was injected, under the skin, once in four hours, and half a drachm of the powdered castor, mixed with syrup, given internally.

The effect was to produce sleep in about half an hour, which lasted about an hour and a half, when the convulsions returned at intervals of an hour to an hour and a half until 9 o'clock on Sunday morning, when the last convulsions occurred, after which he suffered severely from obstinate vomiting until Monday at 10 o'clock, when that also ceased, leaving the patient comparatively easy, but very much prostrated. Since that time he has gradually improved, and now is, to all appearances quite well. In addition to the above treatment, small quantities of chloroform were inhaled at times, and on Sunday morning the patient was wrapped in a woolen blanket wrung out of a warm solution of muriate of ammonia. This was the treatment which checked this fearful malady, and which Dr. Axford, for the sake of humanity, is anxious should be published to the world and thoroughly tested.

The Motions of the Stars.—It will seem utterly incredible that astronomers have learned not merely whether certain stars are receding or approaching, but have actually been enabled to determine respecting this kind of motion what they cannot determine respecting the more obvious thwart motion, viz, the rate at which the motion takes place. This is rendered possible by what is known of the nature of light. If a star is approaching, the light which comes to us from it will have its waves closer together than if the star were at rest, and *vice versa*.

Now, the distance between the wave crests of light signifies a difference of colour, the longer waves producing red and orange light; waves of medium length, yellow and green light; and the shorter waves producing blue, indigo and violet light. So that, if a star were shining with pure red light, it might, by approaching very rapidly, be caused to appear yellow, or even blue or indigo, according to the rate of approach; while if a star were shining with pure indigo light, it might by receding very rapidly be caused to appear green or yellow, or even orange or red.

But stars do not shine with pure-coloured light, but with a mixture of the colours of the rainbow; so that the attempts to estimate a star's rate of approach or recession by its colour would fail, even though we know of the star's real colour, and even though stars moved fast enough to produce colour-changes. The spectroscopist has, however, a much more delicate means of dealing with the matter. The rainbow-tinted streak forming a star's spectrum is crossed by known dark lines; and these serve as veritable milemarks for the spectroscopist. If one of these lines in the spectrum of any star is seen to be shifted toward the red end, the observer knows that the star is receding, and that swiftly; if the shift is toward the violet end, he knows that the star is swiftly approaching.

Now, Dr. Huggins had been able nearly four years ago to apply this method to the case of the bright star Sirius, though his instrumental means were not then sufficient to render him quite certain as to the result. Still he was able to announce with some degree of confidence that Sirius is receding at a rate exceeding twenty miles per second. In order that he might extend the method to other stars, the Royal Society placed at his disposal a fine telescope, fifteen inches in aperture, and especially adapted to gather as much light as possible with that aperture. Suitable spectroscopic appliances were also provided for the delicate work Dr. Huggins was to undertake. It was but last winter that the instrument was ready for work; but already Dr. Huggins has obtained the most wonderful news from the stars with its aid. He finds that many of the stars are travelling far more swiftly than had been supposed. Arcturus, for example, is travelling toward us at a rate of some fifty miles per second, and, as his thwart-motion is fully as great (for this star's distance has been estimated), the actual velocity with which he is speeding through space cannot be less than seventy miles per second. Other stars are moving with corresponding velocities.—*Popular Science Monthly for September.*

Danger from lightning.—The notion that lightning does not penetrate the earth to any considerable depth, was in ancient times a widespread one. It is still prevalent in China and Japan. The Emperors of Japan, according to Kœmpfer, retire during thunderstorms into a grotto, over which a cistern of water has been placed. The water may be designed to extinguish fire produced by the lightning: but more probably it is intended as an additional protection from electrical effects. Water is so excellent a conductor of electricity, that, under certain circumstances, a sheet of water affords almost complete protection to whatever may be below; but this does not prevent fish from being killed by lightning, as Arago has pointed out. In the year 1670, lightning fell on the Lake of Zirkitz, and killed all the fish in it, so that the inhabitants of the neighbourhood were enabled to fill twenty-eight carts with the dead fish found floating on the surface of the lake. That mere depth is no protection is well shown by the fact that those singular vitreous tubes, called fulgurites, which are known to be caused by the action of lightning, often penetrate the ground to a depth of 30 or 40 feet.

Another remarkable opinion of the ancients was the belief that the skins of seals or of snakes afford protection against lightning. The Emperor Augustus, before mentioned, used to wear seal-skin dresses, under the impression that he derived safety from them. Seal-skin tents were also used by the Romans as a refuge for timid persons during severe thunderstorms. In the Covenues, Arago tells us, the shepherds are still in the habit of collecting the cast-off skins of snakes. They twist them round their hats, under the belief that they thereby secure themselves against the effects of lightning. Whether there is any real ground for this belief in the protecting effects due to seal skins and snake-skins, is not known; but there can be no doubt that the material and colour of clothing are not without their importance. When the church of Chateau-les-Montiers was struck by lightning during divine service, two of the officiating priests were severely injured, while a third escaped—who alone wore vestments ornamented with silk. In the same explosion, nine persons were killed, and upwards of eighty injured. But it is noteworthy that several dogs were present in the church, *all of which were killed.* It has also been observed that dark-coloured animals are more liable to be struck (other circumstances being the same) than the light-coloured. Nay, more; dappled and piebald animals have been struck; and it has been noticed that after the stroke the hair on the lighter parts has come off at the slightest touch, while the hair on the darker parts has not been affected at all. It seems probable, therefore, that silk and felt clothing, and thick black cloth, afford a sort of protection though not a very trustworthy one, to those who wear them. The notion has long been prevalent that metallic articles should not be worn during a thunderstorm. There can be no doubt that large metallic masses, on or near the person, attract danger. Arago cities a very noteworthy instance of this. On the 21st of July, 1819, while a thunderstorm was in progress, there were assembled twenty prisoners in the great hall of Biberach gaol. Amongst them stood their chief, who had been condemned to death, and was chained by the waist. A heavy stroke of lightning fell on the prison, and the chief was killed, while his companions escaped. It is not quite so clear that small metallic articles are sources of danger. The fact that, when persons have been in every case affected by the lightning, affords only a presumption on this point, since it does not follow that these metallic articles have actually attracted the lightning stroke. Instances in which a metallic object has escaped, are more to the point, though some will be apt to recognize here a protecting agency rather than the reverse. It is related by Kundmann that a stroke of lightning once struck and *fused* a brass bodkin worn by a young girl to fasten her hair, and that she was not even burnt. A lady (Arago tells us) had a bracelet fused from her wrist without suffering any injury. And we frequently see in the newspapers accounts of similar escapes. If it be conceded that in these instances the metal has attracted the lightning, it will, of course, be abundantly clear that it was preferable to remove from the person all metallic objects, such as watches, chains, bracelets, and rings, when a thunderstorm is in progress.

The Homes of Other Days.—The Anglo-Saxon *ham*, or home, consisted generally of a *heal* or hall, with little rooms, *burs* (afterwards bowers) on the outside, or surrounded by an earthwork or wall, inclosing the house and a yard (*Geard*). The remains of these Saxon homes are often mistaken for early camps. Here the Anglo-Saxon nobleman or Gentleman kept a rude state, according to his means; and a very slight investigation into the manners of our fore-fathers, show how much they needed the polish and refinement of their Norman conquerors. They had strength of mind and body the latter predominating—but both obscured by sloth engendered by habitual drunkenness. There can be no doubt that the Norman Conquest infused into our race the energy which is our national characteristic. It as there is abundant reason to believe—many of the Saxon noblemen were like Athelstane of Coningsburg, depicted by Sir Walter Scott in "Ivanhoe," we cannot wonder at their incurring the ridicule and contempt of the more refined Normans. The English language survived because the unmarried among the conquerors selected wives among the beautiful Saxon maidens, and

these would naturally teach their children their native tongue. The same thing had happened before when the Scandinavian adventurers who settled in Normandy married in that country. The manners of the Anglo-Saxons previous to their conversion to Christianity, are shown in the romance of "Beowulf"—supposed to have been composed before they left the continent—and also in early graves, drinking cups and buckets are frequently found: the former are made so that they will not stand upright, so that they must be emptied at a draught; and the latter were used to carry the ale or mead into the hall. The hall generally consisted of one apartment (the retainers using it at night as a sleeping-room), but sometimes it had an upper room, approached by a *stæger*, or stair. The house and its belongings were nearly always of wood; the only Anglo-Saxon words for building are, in fact, *timbrian*, and *atimbrian*, to make of timber. *Ham* was not the only term for the dwelling; as a residence, it was called *hûs*, from its chief room, *heal*; or as an enclosure *tûn* (origin of town). A Saxon never dined in private—it was considered disgraceful to do so. Seated on the *heahsetl*, or high seat, he dispensed a lavish hospitality, every one being welcome. The rude walls were often covered with hangings, sometimes richly ornamented, on which arms and trophies of the chase were hung. The fire was made in the middle of the apartment, the smoke finding its way out of an aperture in the roof. Wood was generally burned, though it is believed the Saxons were acquainted with the use of coal. Breakfasting about nine o'clock, the Anglo-Saxon was ready for his dinner or principal repast at three, after which was the *æfen-mete*, or evening meat, the time for partaking of which is uncertain. Mr. Wright thinks the last-named meal was not originally in use among our Saxon forefathers. If the food was deficient in quality, it made up in quantity. The great oak forests fed large droves of swine, and bacon was largely eaten. Boiling seems to have been the chief mode of cooking meat, which was eaten with a great deal of bread (so that a servant was called *hafl-æten*, or loaf-eater) and vegetables. Many of our culinary terms are Saxon, such as kettle (*cytel*), cook (*coc*), kitchen (*cycene*), and broth (*brod*). Wine (*wiu*, from Latin *vinum*) was used by the Saxons, though only on state occasions, a few only of the monasteries appearing to have had vineyards. While indulging in their potations, the Saxons had various persons to afford them amusement, such as the *hearpere*, or harper; *pipere*, or piper; *gligman*, or gleeman. Minstrels were always welcomed to the hall, and for this reason spies generally came in this disguise. They had also the game of *tæfel*, supposed to have been like backgammon, to beguile weary hours either in the hall or the bowers of the ladies. The beds in the latter were of the rudest description, and generally consisted merely of a bench with a sack filled with straw placed upon it, hence the words for this article were *bæne* (a bench) and *streow* (straw.) People went to bed perfectly naked, and the bed-clothes consisted of a sheet (*scyte*) and a coverlet (*bed-felt.*) It is surprising to find that hot baths were frequently used, derived probably from the Romans Marriage was treated as a civil institution among the Anglo-Saxons; it is not, therefore, surprising that when a couple disagreed after marriage, they could readily separate and marry again. Nevertheless, Mr. Wright says, "The Saxon woman in every class of society possessed those characteristics which are still considered to be the best traits of the character of English women; she was the attentive housewife, the tender companion, the comforter and consoler of her husband and family, the virtuous and noble matron." It is a pity that ladies did not treat their servants better; there is little doubt that, as a rule, the fair sex used their slaves (for they were nothing else) very cruelly.—*Chambers's Journal.*

Gossip about great writers and their Haunts.—The writer of the "Piccadilly Papers" in London Society, discoursing of "Literary Nooks," contends that it is always an interesting point to determine the *habitat* of a great writer, to compare the writings with the surroundings, to see how the author has reproduced the scenery, and how the scenery has affected the writer.—And he adds: We like to think of our writers of pleasant fiction writing under pleasant circumstances. So Dickens wrote in his Swiss *chalet*, and Lord Lytton in the Summerhouse on the margin of his lake. We can very well imagine how Thackeray's notes were made, if not written out; in lodgings, in cabs, in boarding-houses, in his bedroom after heavy dinner parties, in the writing rooms of clubs, and so on. The late Mr. Lever, whose loss we all sincerly deplore, left the track of his travels on all his writings As an Irish surgeon he gave us rollicking Irish stories, and when he went abroad he took his readers abroad with him. His political friends sent him to Spezzia and Trieste, much as Shiel was sent to Florence, or Mr. Hanny to Barcelona. Then he gave us the scenery of Northern Italy and of the shores of the Adriatic. So, too, Mr. Trollope utilized all his travels for the post-office in that long series of stories, which, on the whole, have quite a cosmopolitan character. Poor Lever was moving about London only a few months ago as blithe and fresh looking as ever, though we now know that for him health and happiness were both gone. He had lost his wife, and his doctors had told him that he was hopelessly diseased. From first to last how boyish was his nature! And what a patriotic nature was his, from first to last trying to make Ireland understood, and to render her such service as a novelist might render.

The public doubtless take a great interest in Mr. Tennyson. A friend of mine was once staying at a country inn where the great man was also putting up. As my friend reclined in an arbor, he was more surprised than gratified by observing that various surreptitious peeps were taken of him by the people of the place, and compliments were freely passed on his magnificent brow, his intellectual eyes, and his wildly poetic hair. My friend was doubtless gratified that his personal qualifications were so liberally recognized, but the feeling must have been modified on learning that such compliments were not intended for him but for the Laureate. I have frequently "made tracks" by accident upon Mr. Tennyson in pretty scenery, and I find that he always likes retiredness. And he must find it hard to get. He was driven by the tourists from his pretty house near Freshwater; and I remorsefully recollect that, when I had the Tennysonian fever in my youth, I persuaded the gardener to give us some of his flowers, but at the time he was far away in Portugal. And the public follow him to his new home, which I will not indicate.

The little Norman Isle of Jersey has memories—strangely parallel memories—after the lapse of two centuries. Here came Edward Hyde, Lord Chancellor, Chancellor of England, Chancellor of Human Nature, in want, neglect, and, I am afraid, some natural bad temper, that perverted his political views, to write his "History of the great Rebellion." I have examined his manuscripts at the Bodlian, written in a beautiful Italian hand, and so closely that one page of manuscript would include many of Mr Combe's type. Two centuries later—and yet those days to me always seem so near—Victor Hugo came here, a literary exile, and playing a narrower part in politics, and a larger one over the imagination. Victor Hugo has a natural affinity, of the wisest kind, for human nature, especially Gallic nature. Clarendon affects only its loftier types. He is picturesque, he is even Dantesque. Strafford wears his imperial aspect, Falkland his melancholy smile. We see the frown on the corrugated brow of the Protector, and the laughter on the harsh lineaments of the younger Charles.

Then there are some spots of learned and religious retreat, which have a peculiar charm, as in the ancient cloisters and embowered shades of our Universities. What Oxonian has not lingered in the long avenue that takes its name from Addison? In the Broad Walk one chiefly thinks of Locke, perhaps the greatest man that Oxford ever produced, and for centuries accepted on the Continent as the only exponent of English philosophy. I suppose the Lime Avenue at Trinity College and the Broad Walk at Christ Church might be covered with the compositions dedicated to them. I am fond of that silent pictured solitude, the library of Christ Church; and there, I believe, the present Dean used to go and work at six o'clock in the morning, at the mighty Lexicon which he was basing upon Passow.

—Narrow Teachers.—The complaint is often heard that teachers become fussy, arbitrary and narrow in their views, aud good for nothing else. And this statement is true, except the last clause, for if one has fallen into that condition, he is certainly unfit to teach. Such, doubtless, is the tendency in this profession; but it can be resisted, and that successfully. There is, however, but one way in which to do it, and that is by a persistent and liberal culture of the mind. I have, in my experience, met with many teachers whose society was as rich and genial as any I have ever found; but this has always come of constant mental activity and discipline. Believe me, teachers, by this means, and by this only, can you resist the narrowing influence of your work. You must learn to wield a free and intelligent judgment in various spheres. You may, for instance, even in the midst of your work, by a proper training of mind and heart, possess tastes that shall be so far consonant with the true principles of as to catch the inspirations of nature. Sympathy with nature is one of the most potent preventives of the evils to which I have alluded. A teacher, further more, should be in constant communication with the great masters of thought, especially in our own language. To neglect this seems to me inexcusable. It argues a smallness of mind and perversion of taste that

should find no place in the work of instructing living souls.—*Conn. School Journal.*

—*Compulsory Education.*—Scotchmen have lately come out in a new character and are now prepared to dispute with the people of the New England States, the honour of having originated a system of compulsory education. Many facts connected with the state of education in Scotland, which hitherto had remained unknown, were brought to light during the debate on the Scotch education bill. According to the Duke of Argyle an act was passed by a Scotch parliament in 1494 imposing the heavy penalty of twenty pounds upon parents who failed in certain circumstances to send their children to school, the compulsion being, however, confined to freeholders, and that only in the case of eldest sons. Here is a remarkable fact that nearly 4 centuries ago a stringent compulsory rule was applied to a certain section of the population so as to secure the education of those likely to prove the more influential members of the community, and yet the bill for the adoption of a general compulsory law introduced during the present session of the British Parliament met with much opposition. Our American neighbours instead of originating the compulsory education system are reduced, when old records are searched, to th position of imitators of the Scotch rulers of four hundred years ago.

—*A School of Honour.*—Larceny from college rooms is a very rare offence. One can only wonder that it is not more frequent. All day long, from morning till night, every door swings upon it hinges. Any one, who is palpably a University man can walk unchallenged past the porter's lodge, march straight into his friend's chambers, and there—if the tenant be absent—make himself at home for the hour together. A free and easy style of life such as this naturally enough gives birth to a code of etiquette peculiarly its own. Your friend's decanter and seltzer water is your own, but it is a liberty to uncork a fresh bottle. You may invade his tobacco jar, but his cigar are sacred. You may read his books, but you must not open his album. And last, not least, you are expected upon departure to leave a cocked hat of paper notifying your visit. So strange a state of things reminds one of nothing so much as of the old legend which tells how Alfred the Great hung the trees by the roadside with golden braclets. That it should exist unquestioned is the best possible proof that it is not abused. Oxford and Cambridge under graduates may, it is true, do wild and foolish things—assault the police, ring bells, demolish flower-gardens, burn statues, and commit various other folies. But the undergraduate is the soul of honour, as his scout is the soul of honesty. The bills and letters which are thrust into the looking-glass remain there day after day after unread, exactly as the purse lies upon the mantel-piece untouched. The notion that his servant will rob him, or that his friend will play the Paul Pry in his absence, never enters the undergraduate's head. There is, indeed, an Arcadian simplicity about Oxford. From the tradesmen who gives unlimited credit, to the college dean whose cross examination is, "will you assure me, as a gentleman, sir, that you know nothing of the matter?" from the Bodleian Library, where priceless manuscripts are at your service in a moment, to "the schools" where the examiner placidly studies his newspaper, first saying, "I trust to your honour, gentlemen, not to copy; I may mention that I should be too blind to see you if you did,"—everywhere their reigns an atmosphere of the purest and most Arcadian simplicity. Here and there are black sheep it is true; and some once in every lustrum occurs a *cause célebre* serving only as an exception to prove the rule. But the force of public opinion is so keen and so irresistible that, against their very will, it infects even the unworthy. The Oxford Union, founded when Mr. Gladstone was an undergraduate, has a lending library as large as Mudie's You walk into it; you take down any book you like — no matter how valuable: you leave a voucher in a sort of ballot-box, and you march away. Books are lost through negligence or inadvertence, no doubt, and turn up years after in the most unexpected manner. But in the whole long history of the Oxford Union there has been but one instance of deliberate theft. What London club with similar rules could say as much?

—*Handwriting.*—It is natural to suppose that a man's particular occupation or calling should have some effect upon his handwriting, but I cannot say that I have myself been able to trace such an effect in many cases. Certainly I have never been able to discover that there is any sort of hand peculiar to soldiers, or clergymen, or lawyers, though, for aught I know, they may be. This, however, has been noticed with respect to mathematicians, and they generally write a small neat and precise hand—which may arise from two causes; either from the fact that they have very much to do with figures, or that the habits of order and precision in thought which the study of mathemathics engenders, communicates an analogous character to their handwritings. There is also a sort of family likness in the writing of physicians. Men of this profession generally write what at least a writing-master would call a bad hand, *i. e.*, a hand which is not very legible and anything but tidy. One reason for this may be, that many physicians either *are*, or wish to appear to be, always in hurry. The next is, that when in writing their prescriptions, their endeavour is to render them so that they shall be legible only to the chemist; and this engenders a particular kind of handwriting, and one which, of course, it is not easy to decipher. Such, at least, is the best explanation I can give of the matter. I before remarked that clever men were supposed to write bad hands. Of course every one knows that this is not universally the case; but, as there seems to be a general impression that such is the rule, there must be some foundation for the notion. It is not improbable that the strong workings of an active and powerful intellect may have rather a tendency to interfere with the regularity and symetry of the hand; and especially is this the case with men of genius—particularly poetic genius—is naturally erratic, and the original products of a creative mind come by fits and starts; so that the man of genius has to write his thoughts as they occur, and write them quickly too, for fear of losing them, which naturally tends to produce a loose and careless hand. I have, however, certainly known men of genius whose handwriting was the reverse of this. Both Arnold's and Southey's writhing was small, precise neat, and exact; but then this was owing, perhaps, to certain qualities in each of them which counteracted the erratic tendencies of genius. They were both laborious men, and one, if not both, was neat and methodical in his habits. Byron, who possessed all the defects usually attributed to men of genius, wrote a hand essentially characteristic of the class of minds to which he belonged. As a general rule, an uprigt hand is oftner found combined with strength of character and firmness of purpose than the reverse. When, however, the handwriting leans towards the left side, we may be quite sure that this is not natural to the writer; nevertheless, it indicates a feature which exists in his character. Persons who put this sort of constraint upon their handwriting, generally put a similar one upon their character; at least I can quote two instances, where I have every reason to believe that such was the case. The one was a noblemam, well known in the political and in the literary world, now deceased. His natural hand, I have been informed, was inclined to lean to the right side, but, in order to counteract this tendency, he forced it in the opposite direction. This was just the type of the sort of constraint he put upon his character. Naturally he was yielding, though amiable, and some of his friends considered that the want of backbone was his great defect, and yet those who knew him well said that to suggest anything to him was the surest way of making him not do it. I believe he was not the only man who, being conscious that he is is easily led, tries to counteract this defect and to assert his independence, by showing obstinacy in trifles, and holding out on occasions where it would be wiser to give in.—*Golden Hours.*

TACT.—There are some gifts which surely come direct from Heaven. They cannot be acquired by study, they cannot be assumed at will, they cannot be sought out elsewhere than in ourselves. Their seed must have been in us from the first day of our existence on earth; and all education and training can do is to cause the little seed to break through the surface which hides it, and to hasten its growth from a small and weak shoot into a strong and fruitful plant. Cared for and nourished, the plants will yield shelter against the storm, and shade in the noonday heats of life; neglected and untended, they will wither, decay, and finally die. Among such plants we may reckon memory, music, painting, and many more. All these have their counterfeits; the gilt bauble for the solid gold. These are all to be learned, and their practice acquired, by even the dullest of men. A memory like to that of a parrot may be built up in an out-of-the-way corner of our brain; we may be taught to bawl or screech out fugues, which some pretended lovers of fine music may term sublime, while we ourselves are conscious of having no ear for harmony, nor voice to charm "the savage breast." Many a silly youth, too, may be taught painting, so far as the servile copying of another's work, and subsequent daubing of colours over it, may be called by that name. But, however far these imitative attempts may be carried, they never can become the faculty they mockingly represent. Of all these many gifts which Heaven gives to man, there is

not one which blesses him more on earth—none which makes him more pleasant, more agreable, more welcome, and even more useful to his fellows—than tact; which has, moreover, no counterfeit. Perhaps nor everyone amongst us knows the meaning in which we use this little four-letter word. Our French friends use it in the sense in which we employ it—a sense highly complimentary to him who has it. In the original Latin, tact was but touch, which in our tongue is its first meaning; from touch comes its meaning of feeling, and, by a combination of touch and feeling, it came to signify a certain natural sense, telling a man how adroitly and appropriately to touch on all topics, and to deal with all men. Tact is the sense which enables us to speak and to act rightly at the right moment, on any and every occasion. Common-sense is a great, but not so high a gift as tact. The former is the rough Portland stone of human nature; the latter is the marble, and, like it, is capable of receiving a high polish. The one many men have without the other; but tact without common-sense is an impossibility. Take two men; the one has tact, the other common-sense. The voice of the people, as the phrase now runs, or their corrupt votes, or the bayonets of an all-powerful soldiery, raise to power a ruler, whom common-sense perceives to be bad and baneful for the nation Knowing this, the man of common-sense is seized with rage. He wishes—nay, perhaps he even attempts—to struggle against the bad ruler, and in doing this he fails; while he, who has tact, perceives the uselessness of all efforts now to overthrow the powerful one, and restrains his just, but useless rage, until the time for action comes. He will not pluck the apple until it is ripe to fall.—*The Hawthorn.*

Meteorological Observations.

From the Records of the Montreal Observatory, Lat. 45° 31 North, Long. 4h. 54m. 11 sec. west of Greenwich. Height above the level of the sea, 182 feet. For the month of July, 1872. By CHARLES SMALLWOOD, M.D., LL.D., D.C.L.

Days.	Barometer at 32°			Temperature of the Air.			Direction of Wind.			Miles in 24 hours.
	7 a. m.	2 p. m.	9 p. m.	7 a. m.	2 p. m.	9 p. m.	7a m	2pm	9pm	
1	29.923	29.820	29.831	76.0	78.0	73.6	W	W	W	246.12
2	.900	.920	.923	64.2	72.6	72.2	N E	N E	N E	221.81
3	.8 9	.72-	.676	69.0	87.3	76.0	S	S W	S W	91.16
4	.708	.782	.800	74.0	79.0	76.2	W	W	W	197.74
5	.85	.889	.974	70.0	80.8	72.3	W	W	W	220.17
6	30.026	.997	30.126	67.0	82.3	74.1	W	W	W	184.18
7	.081	30.100	.161	68.1	8 .4	75.0	W	W	W	205.18
8	.211	.200	.174	70.5	87.0	73.4	W	W	W	104.17
9	.130	.057	.026	68.1	90.4	77.0	S E	S W	W	81.74
10	29.949	29.911	29.850	73.3	81.0	74.9	S W	W	W	101.87
11	.890	.872	.850	51.1	85.1	75.0	N	W	W	146.13
12	.778	.7 4	.900	70.6	88.7	72.8	W	W	W	223.31
13	30.082	30.063	30.050	59.2	72.7	66.4	N E	W S W	W	281.70
14	.002	29.956	29.951	64.1	85.7	76.0	W S W	W	W	1-9.17
15	29.924	.872	.842	70.1	90.6	82.1	W	W	W	97.84
16	.788	.753	.750	75.3	90.8	81.5	W	S W	S W	76.20
17	.850	.846	.900	76.0	83.7	77.3	W	S W	S W	97.00
18	.900	.854	.881	69.2	73.0	72.6	N E	N E	N E	181.04
19	.920	.948	.951	68.0	80.8	72.0	N	N W	N W	101 71
20	30.000	.987	.965	64.5	78.9	71.2	W	W	W	163.70
21	29.876	.824	.776	67.0	69.2	66.0	S	W	S W	201.21
22	.721	.800	.861	63.2	69.0	64.2	N	N W	N W	194.11
23	.911	.874	.826	62.0	76.4	68.3	W	W S W	W	179.20
24	.821	.8 6	.911	65.2	79.1	68.9	W	W	N W	141.22
25	30.031	30.042	30.063	60.2	76.1	69.0	N W	W	W	104.11
26	29.851	29.656	29.650	64.7	65.8	61.0	S	S	S W	74.16
27	.823	.900	.926	57.6	69.2	62.0	N W	N W	S W	118 15
28	30.000	.9o6	.962	58.0	66.0	60.0	N W	W	W	101.12
29	29.976	.977	.950	58.4	61.8	60.3	N E	N E	N E	186.12
30	30.000	.985	.961	58.0	72.8	66.3	N E	N W	N by W	89.79
31	29.962	.904	.925	57.8	74.0	66.1	N W	W	W	101.14

REMARKS.

The highest reading of the Barometer was at 11.30 p. m. of the 8th day, and was 30.217 inches; the lowest reading occurred at 1 a. m. of the 26th day, 29,650 inches giving a monthly range of 0.567 inches. The mean reading of the month was 29,914 inches.

The highest Temperature was on the 16th day, and indicated 93° 8; the lowest was on the 28th day, and was 55° 3, giving a monthly range or climatic difference of 28° 5. The mean temperature of the month was 71° 97.

Rain fell on 14 days, amounting to 3.430 inches, and was accompanied by thunder and lightning on 4 days. Nearly half an inch of rain fell in 25 minutes on the 26th day.

—Observations taken at Halifax, N. S. during the month of July, 1872 Lat. 44° 39 N.; long. 63° 36° W.; height above the sea 175 feet; by Sergt. Thurlin A. H. C. Halifax.

Barometer, highest reading on the 9th	30.129	inches
" lowest " " 11th	29.539	
" range of pressure	0.590	
" mean for month (reduced to 32°)	29.691	
Thermometer, highest in shade on the 1st	90.2	degrees
" lowest " " 31st	44.9	
" range in month	45.3	
" mean of all highest	79.7	
" mean of all lowest	52.6	
" mean daily range	27.1	
" mean for month	66.1	
" highest reading in sun's rays	141.0	
" lowest on grass	36 0	
Hygrometer, mean of dry bulb	69.7	
" mean of wet bulb	63.0	
" mean dew point	51.9	
" elastic force of vapour	.480	
" weight of vapour in a cubic foot of air	5 3	grains.
" weight required to saturate do	2.7	
" the figure of humidity (Sat. 100)	66	
" average weight of a cubic foot of air	517.7	
Wind, mean direction of North	15.00	days.
" " East	2.00	
" " South	6.50	
" " West	7.50	
" daily force	2.4	
" daily horizontal movement	221 8	miles.
Cloud, mean amount of, (0-10)	5.8	
Ozone, mean amount of, (0-10)	3.4	
Rain, number of days it fell	10	
Snow, number of days it fell	1	
Amount of rain collected on ground	3.11	inches
Fog number of days	9	days.