

through F draw F G parallel to A D meeting A C produced in G ; similarly for other side of the octagon. We have now remaining the most difficult of these figures, viz: 5th, the Pentagon—take base A B as before, bisect it in C through C draw perpendicular CD, the vertex of the pentagon, as it is symmetrical must be in this line. To find this point, from C mark a point E, so that C E equal A B, join B E and produce it making E F equal to one half A B, then from centre B with radius B F draw an arc of a circle cutting C D in D, the point required. To finish the figure, measure arcs from A, B, D, cutting in points G and H respectively, and thus complete the pentagon. These plans of drawing geometrical figures may seem at first sight more difficult than those frequently given for free-hand drawing, but all these latter depend more or less on mere approximation, and cannot really be done well by those unaccustomed to drawing. We may, however, give the plan of finding a pentagon, both as an illustration of this fact, and as a useful exercise for pupils. Taking the lines A B and C D as before, through a point in C D a little lower than E, draw a line parallel to A B, making it slightly longer than A B, then by trying the lengths from A, B, D we may at last obtain a pentagon. When the figures are drawn let them be well "strengthened" in, and in doing this cause the pencil to be held more upright than in ordinary drawing. Then let the pupils place them in different positions to the eye by turning the paper round horizontally, when the least symmetrical inaccuracy will be easily detected.

Exercise.—(1) Draw a line of 2 inches long, upon it describe a square, on each side of square describe an equilateral triangle outwards, join vertices of these triangles, (when another square should be produced), within the first square inscribe a hexagon by means of circle. (ii) Draw a line 2 inches long. Upon one side of it draw a hexagon, and upon the other a pentagon.

#### THOUGHTS FOR TEACHERS.

From a column of "Thoughts from the N. Y. State Teachers' Association, collected by the N. Y. School Journal, we cull the following ;

Education is necessary to the continuation of a Republican form of government.

Courage, patience, self-control are the products of bodily health. Biliousness is as catching as the measles.

Cheerfulness is always a characteristic of a successful teacher.

Few teachers appreciate the full value of neatness.

It makes a difference to a teacher whether he keeps his finger nails clean.

The kingdom of heaven only comes to us when we are in the condition of little children.

Many teachers hold a normal diploma who cannot write a letter correctly.

Mental discipline is worth paying for.

Conceit comes from partial training.

So long as gold is valued as an ornament it will be counterfeited by many.

Will the best elements in a teacher command their price? The truth is, his commercial value must be rated at an approximation of his value.

There is a great difference between illustrative and demonstrative teaching.

A microscope belongs as much to a common school as a Webster's Dictionary.

How shall our teachers receive instruction how to teach physiology properly?

The law compelling teachers to attend the teachers' institute is not a good one. The institute should draw teachers to it. Very little good is done by requiring a teacher to sit and hear.

Many institute instructors often aim to convey the impression that they are "mighty smart men."

"More benefit comes from the institute than from all other sources combined."

"Institutes are first-class frauds."

The members of the Board of Education should be examined as to their abilities as well as the teachers whom they supervise.

Oh, for a superintendent who dares to tell all he knows about the qualifications of teachers under his care!

"An examination shows nothing as to teaching power." An examination on technical subjects does show a good deal as to teaching power.

If we live up to the laws we have, we may expect by and by to get better ones.

One of the prime causes of the superficial character of teaching is, that it has not definite point enough. We try to teach too many things.

All new methods are not golden ones, neither are they improved methods.

The greatest attention in reading should be given to the thought presented on the printed page.

There are many methods, both old and new, that may be used with great success.

Don't do in reading as one did who went to one of our large hotels and supposed he was expected to go through the bill of fare from the beginning to the end.

There may be too many practical operations in things, and not enough in that which the things represent.

Who shall stand in the hill of the Lord; who shall enter into His holy place? He that hath clean hands and a pure heart.

Most young teachers cram instead of teach.

There is no psychology that can be followed in a course of training.

Get a mental impression first; and then get or give the name.

We must discover the special needs of our teachers and then strive to meet these needs.

The dogmatist has no place in a true school.

Drop an authoritative manner.

Attempt but little, but do that little well.

Some one has divided teachers into two classes, those who teach from patterns, and those who teach from principles.

If young children do by doing, why can not the young teacher learn to teach by teaching.

Daniel Webster said of Mr. Choate's writing, that it looked like a gridiron struck by lightning. Yet Mr. Choate was a great man.

#### Educational Notes and News.

This is a slice out of the verbal part of a recent examination for a good Civil Service post. "What is the principal property of heat?" Answer: "To expand." "And that of cold?" Answer: "To contract." "Give me an example?" Answer: "The days are long in summer and short in winter."

The Commissioners of National Education in Ireland state, in their Fifty-first Report lately issued, that the number of pupils on roll who made any attendance at school between the 1st of January and the 31st December, 1884, was 1,089,079. The meaning of this is, says *The Schoolmaster*, "that upwards of a million distinct individuals were in attendance for some time throughout the year, and if this time were for only one day we still get knowledge of the fact that so many children require instruction, and that, under a properly regulated system of public education, a large proportion of them would be in attendance at the schools aided or supported by the State. When it is understood that the average daily attendance of pupil for the year 1884 was only 492,928, it is apparent enough that an undue proportion of the children requiring education are not receiving it. The number in average attendance in 1870 was 359,199, and, though the latest recorded average shows a substantial increase, still it is paltry and insignificant compared with the rapid strides in this respect made in Great Britain during the same period. An effective system of compulsory education,