

2. CAUSE OF VARIEGATION OF LEAVES.

According to Mr. Morren, the difference in the colour of the leaves of the variegated plants, which form so ornamental a feature of our green-houses, is due to a disease which is at once contagious and capable of being transmitted from one species of plants to another, by a kind of inoculation. He considers that the alteration of the chlorophyl (which he compares to the red globules of the blood), or green coloring matter, gives rise to variegated leaves, which consist of a mixture of green parts with others more or less yellow. If the discoloration is general, it produces death. Among the higher orders of plants only those which are parasitic can exist when entirely deprived of chlorophyl. Variegation is a sign of organic disease; the discolored or variegated portions of the leaf have lost their power of reducing the carbonic acid of the atmosphere; the plants are generally weaker, smaller, their flowers and fruit much poorer, and their powers of resisting cold diminished. Variegation can be propagated by means of layers, buds, or grafts, showing that the buds themselves are infected. The seeds, however, from variegated individuals usually produce normal and healthy plants.—*EDITOR'S SCIENTIFIC RECORD, in Harper's Magazine for September.*

3. TO BOYS WHO WANT TO BE CLERKS.

Many of our youths are afflicted with the infatuation that city clerkships are the most eligible position, while the trades are not "respectable." Let them learn that intelligent mechanics have a better chance of securing wealth, eminence and influence than the overcrowded clerkships can afford. The present and last Governor of Connecticut, each, in his boyhood, learned a trade and thus became a thorough master of the business in all its details, in which each has achieved brilliant success. The most extensive manufacturer of silverware in the world, John Gorham, of Providence, declined the position of clerk in the counting-room, that he might master the trade in his father's shop as a regular apprentice, where he learned thoroughly how to do with his own hands all that he has had to direct others in doing. A multitude of similar facts might be cited to show that the mastery of a trade is one of the best preparations for practical life and prosperity in business. Clerks are often paid less than skilful mechanics, and are less independent. In their precarious positions they are liable to disappointment and humiliating struggles with thousands of others looking for a place. Every advertisement for a clerk brings swarms of applicants. How pitiable the condition of this superabundance of book-keepers and exchangers wasting their lives in "waiting for a place," while our factories, railroads and trains are clamoring for educated superintendents, foremen, engineer, skilful manager and cunning workmen! The position of the educated and well trained mechanic is far preferable to that of average city clerks. The latter may dress better, talk more glibly, bow more graceful, not to say obsequiously, but they compare unfavorably with the best mechanics in independence, vigor of thought, strength of character.

Too many young men leave the homestead on adventures less safe and reliable than the arts of industry. A good trade is more honorable and remunerative than peddling maps, books, pictures, patent rights and clothes-wringers, or in a city store, to be cash or errand boy, store-sweeper, fire kindler and counter jumper generally. Without in any way disparaging the useful position of the clerk, our young men may properly be cautioned against further crowding this "plethoric profession." To the boys in the country we say, instead of aspiring to the uncertain and precarious clerkship, stick to the farm, or learn a trade, and you will lay the broadest foundation for prosperity. Those who have well improved the opportunities now offered in our free schools, can well afford to apprentice themselves at sixteen years of age, supplementing their education by evening schools or by self-training in their evening and leisure hours.—*Hearth and Home.*

VII. Miscellaneous.

1. THE NEW ENGLISH LAW ON PUBLIC EDUCATION.

The Act to provide for public elementary education in England and Wales has been issued. There are two sections and five schedules in the statute, which is one of the longest of the recent session. The Act is divided into two parts—"local provision for schools" and "Parliamentary grant"—and then apportioned under several heads. The new law does not extend to Scotland or Ireland. On the "religious question" there are several regulations not requiring children to attend religious instruction. The Education Department is to make school districts, and provide school accommodation

for the children resident in each district. A weekly fee is to be paid by each child attending school, which may be remitted on account of poverty. Free schools may be established. Any sum required to meet a deficiency in the expenses is to be paid out of the local rate. With regard to "attendance at schools," the Education Department may make by-laws, and require the attendance of children not less than five years nor more than thirteen years of age. No penalty with costs is to exceed 5s. After the 31st March next, no Parliament grant is to be made, except to a public elementary school. In the schedules annexed to the Act there are rules as to school boards in the metropolis and elsewhere, with a description of the school districts, and the rating authorities, are mentioned in the statute.

The correspondent of the *Globe* in a recent letter says:—*Mr. Forster has evidently borrowed one of the main ideas of his Bill from the Ontario school system.* In that Province, I believe, the schools are in theory denominational, while in practice they are virtually unsectarian—embracing children of different creeds. Mr. Forster has all along contended that the religious difficulty would vanish if it were put to the test of experiments. The success of Canada, however, affords no guarantee of a similar result in this country. There are no remains of the feudal system on the free soil of Ontario. You have no abject, dependent class, who dare not call their souls their own, and who are either the serfs of the clergy, the squirearchy, or the great employers of labour. That is the difference between the two countries, and it is that difference which, in this instance, prevents what is "sauce for the goose" being also "sauce for the gander." Trust the School Boards to do what is right, to abstain from wounding any man's conscience, to impose no shackles on free-born Englishmen—says Mr. Forster; but in the rural districts the School Boards can be trusted with no such powers.

2. ALSACE AND LORRAINE—A THOUSAND YEARS AGO.

It is certainly one of the greatest curiosities in history that exactly one thousand years ago, in the year of our Lord 870, the people of France and Germany fought under their kings upon the same soil—that of Lorraine—for very nearly the same reasons, and with the same result. This happened as follows: The empire of Charlemagne and that of his son who succeeded him, Ludwig I., called the Pious, was divided by his three sons, the grandsons of Charlemagne, in 843, at the Congress of Verdun, between themselves in such a manner that Lothaire received, besides the title of Emperor, Italy and what was then called Middle Franconia, a strip of land running from the North Sea to the Mediterranean, and there joining Upper Italy, a broad strip of land containing modern Holland, Belgium, the Lorraine, the Alsace, and all that part of Southern France lying between the Rhone and Soane and the Alps on the east. Ludwig received Eastern Franconia, which was from that time called Germania, or Germany, and from which he, as Germany's first king, was called Ludwig the German.

Carl, who was called the Bald, from his bald head, received Western Franconia, from that time called Franconia or France. Lothaire died in 855, and again subdivided his empire amongst his three sons. To the oldest, Ludwig, he gave Italy and the crown and title of emperor; to the second, Lothaire, the northern part of his dominion, comprising a part of modern Holland, Belgium, and the province called up to this day Lorraine of Lotharingen, the Alsace, and all the land extending down to the Soane. To the youngest, Carl, he gave all the land south of the Soane to the Mediterranean, under the title of Kingdom of Provence.

In 869 Lothair died without heirs, after he had previously become possessed also of his brother Carl's kingdom of Provence, and it was then that Carl the Bald, King of France, stepped forward to take sole possession of his nephew's kingdom, comprising all the eastern part of modern France, and extending from the Meuse to the Rhine, and from the Rhine to the Alps, and from the north Sea way down to the Mediterranean. He was completely successful, for his nephew Ludwig, the Emperor in Italy, and his brother Ludwig, the King of Germany, had both their hands too full to claim their share of the rich inheritance.

But a year later, 870, just one thousand years ago, suddenly a large and well-appointed German army crossed the Rhine, broke into France, and defeated Carl the Bald and his armies at once, and so completely that he was compelled to sign a treaty of peace in the same year (870), by which he ceded to his brother Ludwig, the German, all the eastern part of those lands which he had appropriated from his nephew, and comprising the modern provinces of Alsace, Eastern Lorraine, and the territories around the cities of Trier, or Treves, Cologne, Maastricht, and Utrecht, down to the mouth of the River Rhine.

The first grand fight for the Rhine provinces on the part of