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Contents:

(Illustrated articles are marked with an asterisk.)

ONE IDEA MEN.

An exchange says that "one idea men are seldom healthy wealthy, or wise." It adds that "It matters not whether they be crazy philanthropists, wild enthusiasts, or dull dirt diggers. Nature abhors such men quite as much as she does a vacuum and invariably punishes them. She loves variety and has furnished it in endless profusion in all her works." The above is a good example of the glittering generalities, which captivate the minds of men by their sound while sense is lacking. The statement is not true, while the illustrations drawn from nature are either false or inapplicable. The idea that nature abhors a vacuum was long since exploded, and although nature has furnished an infinite variety of all that is pleasing and useful to man, as well as some things which are not so obviously pleasant and useful, we find upon the most superficial observation each animal or plant confined to certain functions which are the purpose or the "one idea" of its existence. Cows do not attempt to fly, nor birds to burrow in the earth, unless they are sand-martins, and it is just as absurd to suppose that all men or that any man can know or do everything, as to suppose bees capable of giving milk, or pigs to hive together and make honey.

The truth in regard to this matter is that men who achieve great eminence, or accumulate wealth by their own efforts are "one idea" men in the highest sense of the term. Philosopher or reformer, inventor or merchant, each must have a definite aim in view to be successful, an aim to which all other knowledge, all side issues, all effort must converge, and this aim then becomes the one idea until its accomplishment.

It is difficult to conceive of any field of exertion where such concentration of thought and effort will not result in success and even fame. The best rower, the best skater, the best dancer, the orator who rules the hour, the actor who draws the crowd, the eminent jurist, the eloquent divine, all are men who have earned their supremacy by dint of persistent effort in one direction. No matter how humble or how frivolous an occupation may be, a man who is superior in it to any other has secured, if he has not attained, all the success which can be expected in his peculiar field; and whether in learned professions, or mechanical arts, it has been just such one idea men who have always gained distinction. And we repeat they always will gain it.

Nor is devotion to a single purpose opposed to liberal views and general attainments. On the contrary, we have always found those men who are called one idea men, more liberal in their views of affairs, more tolerant of others opinions, and more highly cultivated than the "Jacks at all trades," by far more numerous and blatant, with whom we come in contact. A distinguished clergyman once assured us that he never read the Bible with greater pleasure or profit, or attained more scriptural knowledge in an equal time, than when he perused the Old Testament with the one idea of tracing link by link the genealogy of Christ. It is impossible for the mind to closely examine any subject without making it a focus upon which is brought to bear the concentrated light of collateral science or philosophy. Hence it is that minds which have been closely kept upon a single subject of life study although they may not have skimmed over so many topics as others, who think more disjointedly, come to be recognized authorities. What they know they know thoroughly, and their opinions may be depended upon. Probably no man ever existed of more diversified attainments than Watt, and no man ever was a more strictly one idea man than he in the just sense of the term. A distinguished author forcibly remarks that "in the secular sphere it is conceded that the powerful minds are those who rigorously confine themselves to one department of thought. Newton cultivated science and neglected literature. Kant wrought in the quicksilver mines of metaphysics for fifty years, and was happy and mighty in his one work. These men made epochs, because they did not career over the whole encyclopedia. And the same is true in the sphere of religion. The giants in theology have dared to let many books go unread, that they might be profoundly versed in revelation. And the mighty men in practical religion, the reformers, the missionaries, the preachers, have found in the distinctively evangelical elements of Christianity, and their application to the individual soul, enough, and more than enough, to employ all their powers and enthusiasm."

In practical mechanics, as well as in philosophy, we have always found this class of men to be the most reliable, and successful, and for these reasons as well as many others we have not stated, we say give us the one idea men.

TREATMENT OF APPRENTICES BY "OLD HANDS."

The love of power and its exercise, the assumption of superiority in position and knowledge, tend to make tyrants of all men. But nowhere is the exercise of this disposition more unpleasantly seen and more unpleasantly experienced than in the shop. It is very hard for the boy, perhaps just from school, where his labor was merely that of the mind, and where, perhaps, he had the sympathy as well as the assistance of a judicious teacher in his tasks, to come as an apprentice in the shop and accustom his untried hands to the hard substance of metals and woods, without his being compelled to bear the harder taunts, jokes, and witticisms of his seniors. Yet these he must, not unfrequently, bear. Instead of trying to make the apprentice's course plain, smooth, and pleasant, it is too often the case that the journeymen, otherwise sensible and considerate, encourage if they do not inaugurate a system of petty annoyances and petty tyranny, as disgraceful to their character as men as it is confusing and cruel to the victim. There is nothing manly in this. If it is designed to impress the novitiate with the superiority of the attainments of his tormentors, that end could be gained as readily by quietly pointing out his failures, and instructing him in his duties.

This victimizing of apprentices is a relic of barbarism, imported here from the old countries, England especially, where the lower class of workers seem to have the idea that brutality is the only proof they can give of their superiority over their inferiors. We have seen many cruel experiments tried by this class of men who disgrace their nature and calling. Imposing upon ignorance, betraying confidence, and falsely swindling the trust given them, they take a demoniac pleasure in fooling, bothering, and annoying those they should be proud to instruct and assist.

To a lesser extent this course is pursued in almost every shop in the country. Where this spirit dares not be manifested openly, in the way of practical miscalled jokes, it is in either giving false information, or a refusal to give any; in a neglect of the common shop courtesies, and a supercilious manner and pretentious bearing. A miserably mean jealousy, born of a low spirit, is the source of all this nonsense. It does not pay. It impairs the confidence the apprentice should feel in the superior knowledge of the journeyman, tends to disgust him with his business and his future associates, and leads him to refuse to listen to the instructions of those wiser than he.

Possibly, before the time of his apprenticeship expires, he may learn to estimate these annoyances at their proper value, but it is more certain that the feeling engendered by the foolish tyranny to which he has been subjected will influence him through life. How much better for him, and more honorable for his seniors, that they gave him encouragement by word, and assistance by act, so that the young man striving to become one of the honorable guild of mechanics, should feel at once, in his introduction to a shop, a fraternal sentiment toward his fellow workmen, and be certain that any failures or mistakes he might make would be occasions of assistance from his superiors. The latter would lose no jot or tittle of their superiority, while the novice would be improved in his workmanship, his respect for himself and for his teachers. Deal justly by the apprentice, fellow journeymen.

IS BRAIN LABOR PECULIARLY EXHAUSTING.

It is quite a common idea that the labor of the brain, the tasking of the mind, the devotion to pursuits demanding mainly mental exercise, is exceeding deleterious to both physical and mental health. The idea conveyed is that the brain (if that is the physical organ through which the mind acts) is a very tender and delicate portion of the human organism, needed to be perpetually dandled on the lap of carefulness and preserved from rude shocks and even from steady hard work.

The exhausting labor of the muscles, such work as handling heavy bodies while exposed to hot sun or chilling winds—that work done by teamsters, stone and brick masons, farmers, hod carriers, etc.—seldom receives notice from writers who harp on the exhaustive nature of brain work. There are other employments, not requiring, perhaps, so great an outlay of physical power, but which are dreadfully monotonous, merely mechanical, and without the stimulus of mental interest, which are never mentioned as peculiarly exhausting; yet probably few brain laborers would be willing to drive a team, pave streets, build houses, or weed an onion bed rather than think, and write, and talk.

The ultimate result of this reasoning about the exhaustive nature of brain work would be to reduce the worker to a mere machine or a mere animal, and instead of our leaders of thought, our contrivers of inventions, our producers of improvements, and our intelligent mechanics, we should have a community of human clods, eliminating no new ideas, applying to new purposes no well known principles, and making no new improvements. If it is said that the excess, rather than the exercise of brain work, is what should be guarded against, it may be replied that what is excessive labor to one is mere play, or, at least, no task to another; each man is the best judge of the limit of his mental as well as of his physical powers.

There are no more persistent brain laborers than our mechanical inventors and scientific discoverers, yet we do not remember any instance where either of these classes, because of their devotion to their specialties, have become insane or died from softening of the brain. We believe the brain is as strong as the muscles, that it will as quickly give the alarm and demand rest as the legs or the arms. We think our inventors and mechanics need not coddle their brains any more than their biceps muscles. We are thinking animals, and thinking is healthier than mental stagnation.

PROGRESS OF THE ART OF DENTISTRY.

Although from remote periods attention has been paid to the means of preserving and beautifying the teeth, it is only within the last century that the art of dentistry has attained the rank of a distinct profession. All that is known of the early practice of the art has been derived from the remains of teeth found in ancient sepulchres, and the meager allusions to the subject found in the works of Greek and Latin authors. Galen wrote upon the subject in the second century, and Fallopius, Eustachius and Paré in the fourteenth, fifteenth, and sixteenth centuries, but no elaborate treatise appeared until the eighteenth century. The most prominent of those upon which the modern school of dentistry may be said to have been founded, was the celebrated treatise of John Hunter.

The authors of these works, were however, not practical dentists, and their works relate principally to the anatomy of the teeth, and the nature of the diseases to which they are liable, rather than to the repair of decayed teeth, and the supply of artificial ones, which now are the prominent features of the art. Since these writers, there have appeared numerous treatises of a more practical character, and the progress of the art has been constant and rapid.

The art of filling teeth with gold is a very old one, and was practiced by the Egyptians, as also the substitution of artificial teeth of wood and ivory fixed to plates of gold. The practice of filling or plugging teeth with metals, as well as the fixing of artificial teeth to plates, was revived upon the invention of porcelain or mineral teeth, which took place in the earlier part of the present century.

Mineral teeth were originally a French invention, but they owe their perfection principally to American improvements. They are now made so as to imitate almost perfectly the natural teeth, as well as the gums, in form and color. The artificial teeth made of ivory, or the teeth of animals modified in form to resemble human teeth were completely superseded by the porcelain, as soon as their merits became generally known; mineral teeth being more cleanly, as well as more natural in appearance. Gold, silver, and platinum were used to mount them. The demand for the services of the dentist was largely increased by the adoption of this improvement.

The introduction of rubber-plate in the mounting of teeth, also, by greatly reducing their cost, greatly increased the demand. Teeth thus mounted gave great comfort to the wearer from the lightness and elasticity of the plate. Some doubt was at first felt as to their effect upon the health, as well as their durability and cleanliness; but while in these respects rubber is, undoubtedly, somewhat inferior to gold plate, it is not so much so as to greatly depreciate the value the improvement, and their popularity is daily increasing.

The dentist has latterly been called upon to enlarge his field of operations. Eminent surgeons have not failed to see that the resources of the art were equal to the accomplishment of more than the repair, and restoration of teeth. It was evident that it might be extended to the connection of malformations as well as to the artificial supply of parts which had fallen a sacrifice to disease, or had been removed by the knife of the surgeon. Thus a new and extensive field is opening, and a more extended knowledge of general anatomy and the principles of surgery is required of the professors of this art than has hitherto been requisite. The professors of general surgery are beginning to recognize a powerful adjunct in the sister art of dentistry. The *Medical Gazette* announces that hereafter, a department devoted to dental science is to be a feature of that publication. We hear of colleges of dentistry in successful operation in different parts of the country, and of others being projected, while among our most valuable exchanges are the journals devoted exclusively to this art. These facts are a sufficient warrant that the art is still a progressive one and there can be little doubt, that the future will see dentistry taking its proper and legitimate rank among the learned professions.

POWER LOOMS IN THIS COUNTRY.

Although the art of weaving is of such antiquity that no records exist as to the date of its discovery, it is only about eighty years since the first power loom was invented, and not so long since it was so far perfected as to possess a decided superiority over the hand loom. To Rev. Edmund Cartwright, in 1787, belongs the credit of constructing the first successful power loom.

In this country power looms were first built and set at

work in Waltham, Mass. Mr. Francis Cabot Lowell, for whom the city of Lowell, Mass., is named, returning from England in 1812, after a two years' visit, which he employed largely in examining the improvements introduced in manufactures, attempted the construction of a power loom. He employed Mr. Paul Moody, of Amesbury, Mass., an ingenious mechanic, to build the machine, and it was finished, patented, and in successful operation in 1815. Probably the efforts of Mr. William Gilmour, who, in 1814, came to this country from Glasgow, bringing patterns of the power loom, and who was employed by Judge Daniel Lyman, of Providence, R I., the associate of Mr. Lowell in the enterprise, contributed to the success of the Waltham loom. About the same time Gilmour built looms for several of the Rhode Island manufacturers. His loom cost only $70, while the Waltham loom cost $300.

From this time forth power looms became the rule, and hand looms the exception. New patents were being issued frequently, and new styles of the loom were being constructed. The mills which had been employed mainly in spinning yarn to be woven at home in the family, began to be used for the weaving of cloths, and the immense cotton manufacture of the country may be considered to have been fairly inaugurated.

ON THE CAUSES OF EXPLOSIONS WHICH OCCUR IN THE POURING OF LIQUID METALS INTO WATER.

Dangerous explosions have repeatedly occurred in pouring liquid metals into water. Mr. Kayser refers to a case in Upper Silesia, where in pouring several casting-ladles of melted pig iron into a pan filled with water, a frightful explosion took place, killing one man and wounding several others. Similar cases have been observed at the Altenau Iron Works in the Upper Harz, when for the preparations of a bath liquid iron was poured into a Pattinson pan, and another occurred at the preparation of granulated iron in lead works of the same district. To this end the pig iron was conveyed from the furnace through a groove to a perforated and clay-covered iron ladle, when it was left to drop in a small stream into a basin with water, which had the advantage of a stream of cold water continually passing through it. Explosions had never occurred. One day, however, when experimenting with the thickish product, the holes of the ladle were choked. The iron naturally escaped in a strong body over the rim in the basin. In the beginning it did not show any suspicious effect but after some time, the contents of the basin, water, mud, and glowing iron, exploded among the numerous visitors, who rushed speedily out of the foundery. Happily they escaped with a fright and some slight burns. Kayser refers the causes of these explosions to the following: If liquid metals are poured into water which is nearly boiling, a great quantity of steam is suddenly generated with a detonating effect, equal to that of gunpowder. The shock produced by the high expansive force of the steam is communicated by the medium of the water toward all sides, as it is, for instance, the case in the blasting of ice with petards. When the sides of the vessel do not possess enough resistance in such a case, they are of course shivered to atoms.

If the water bears an insignificant relation to the mass of the metal it is suddenly converted into steam of a much greater volume, a violent explosion ensuing, as metallurgists can attest sufficiently.

If the water is cool, it absorbs the heat contained in the liquid metal, and no explosion can possibly occur. In granulating metals, they are left to flow in a small stream in a vessel of water, which is constantly kept cool.

In the refining of copper, the plates are immersed vertically in the water, in order that the generated steam may escape in safety; if they should be placed horizontally, explosions would most certainly occur. The pouring of the cooling water upon the surface of the copper in the finery must also be done with particular care.

Perhaps it is well known that all throughout Germany at Andreas Eve (30th November), or at the last day of the year, lead is poured into water, and from the forms which it assumes, future events are foretold. When the water is cool, the lead will disappear with slight hisses, and it will be found afterward in different forms in the bottom of the vessel, but if warm, it may occur that the vessel is shattered with violence.

A Practical Guide for the Perfumer.

The above is the title of a new treatise on perfumery by Professor H. Dussauce, chemist, author of several other practical works of high repute. The book contains a description of the substances used in perfumery, and the formulas of over one thousand preparations, many of which have not hitherto been described. It will prove valuable not only to the manufacturing perfumer but to druggists and dealers. Beside the information contained in the technical portions of the work, we find the following remarks upon the nature of perfumes, and their extreme tenuity which will be of interest to the general reader:

"An odor, in general, is an invisible, imponderable emanation from fragrant substances. Odors cannot be propagated in the same manner as caloric and light; their movements are not submitted to the laws of reflection and refraction. They spread incessantly in the air, which is their vehicle, and follow the currents of the atmosphere.

"The works of distinguished chemists and natural philosophers prove that an odor is produced by very small molecules which are disengaged from odoriferous bodies; these molecules float in the atmosphere, hanging on the different surfaces they meet, communicating to them their properties. When the odoriferous molecules are in contact with the olfactory membrane, the sense of smell is brought into action, and the brain perceives the odor. The olfactory apparatus is then indispensable to the impression of odors. For beings naturally or accidentally deprived of this organ there is no odor, just as no sounds exist for him deprived of the sense of hearing.

"The odoriferous molecules or particles are of such infinitesimal tenuity that the bodies which disengage them all the time seem not to lose anything of their weight, or at least to make insensible losses; and however numerous these particles may be, an exact calculation has shown that one grain of musk had in a radius of ninety feet disengaged, in one day, 56,839,616 particles, without any diminution in its weight This same grain of musk, abandoned to itself for six months in a large garret, communicated its odor to all the objects in the room, and being weighed in an accurate scale, it had experienced no loss.

"A rose, in a few hours, can perfume 10,000 cubic feet of air, without losing in weight.

"A piece of sugar on which a single drop of oil of thyme is poured, and being ground with a little alcohol, communicates the odor of the thyme to 25 gallons of water.

"Haller kept for forty years papers perfumed with one grain of ambergris; after this time the odor was as strong as ever. Bordenave has evaluated a molecule of camphor sensible to the smell to 2,263 584,000th of a grain. Boyle has observed that one drachm of assafœtida exposed to the open air had lost in six days the eighth part of one grain, from which Keill concludes that in one minute it had lost 1-69,120th of a grain, and, by another calculation, he demonstrates that each particle is 2-1,000,000,000,000,000th of one cubic inch. In that calculation, he supposes the particles equally distant in a sphere the radius of which is 5 feet; but as they might be more compressed toward the centre, Keill began again his calculation, and found that in that case it was necessary to multiply by 21 the number of particles, 57,839,616, given above, which produce 1,214,631,936; and he found that the volume of each particle is 38-1,000,000,000,000,0 0,000th.

"The prodigious tenuity of odoriferous molecules made Prof. Walker think that the sensation of odors was not due to the contact of these molecules with the olfactory membrane, but to a dynamic action of the odoriferous body on the smelling sense.

"Dr. Starch, of Edinburgh, has published a paper in which we find some very curious experiments on the emission and absorption of odors. According to his theory, the tissues of animal substances have more affinity for odors than vegetable tissues. The absorption of odors by outward tissues is subject to the same law that governs absorption of caloric, that is, black tissues absorb the most odor; and this absorbing power diminishes, as the color becomes lighter, in such a manner that white tissues are those which absorb odor the least.

"Odors impregnate all bodies in different degrees, and combine with nearly all the liquids. Gloves retain for a long time the perfume of ambergris; paper and cotton, that of musk. Oils and greases retain very well balsamic and volatile principles. Water, and especially alcohol, dissolve perfectly the aromatic principles of flowers. It is on this knowledge that is founded the fabrication of waters, oils, essences, pastes, pomades. Thus the perfume of flowers, so light, so fugacious, is rendered stable by art and industry. At the moment the perfume escapes from the flower, man seizes it, masters it, and uses it to increase the sum of his enjoyment.

"Odoriferous bodies may be so all the time or only at certain periods. Thus some exhale their perfume in the morning, others in the middle of the day, some in the evening, and many during the night. Different circumstances may also cause the intensity of the odors to vary, such as dampness, light, heat, etc; the addition of another substance, also, develops the strength of an odor which, alone, was nearly insensible."

The work is published by Henry Carey Baird, 406 Walnut street Philadelphia, and will be sent to any address free of postage upon the receipt of three dollars.

Woods Used in Cabinet Making.

Mr. Thomas Paterson was one of the working men who visited the Paris Exhibition last year, and ably reported on what he saw there. His report is one of the twelve which compose the little work under the title of "Modern Industries," issued under the auspices of the Paris Excursion Committee. In looking through the magnificent collections of woods from Brazil, Canada, and New South Wales, and the smaller but not less interesting exhibits of Algiers, Natal, Guinea, etc., it is impossible not to be struck, says Mr. Paterson, with the small number of these woods which are in actual use in the manufacture of furniture. Some of the woods are shown to be of large size, and are exceedingly beautiful in color and figure, and many of them would contrast admirably with some of those at present in use.

There was a contribution to the Exposition of specimens of timber, collected by the late Captain Fowke, in which several hundreds of different kinds of wood are arranged in a kind of revolving screen. Each specimen is labeled with its specific gravity, and the amount of weight necessary to break it. Each piece was of the same size—viz., two inches square, and has been actually broken by the weight marked on it, thus giving any one accustomed to work in wood a very good idea of the use it may be put to. Collections of this kind would be of the greatest use. They might be accompanied with a book composed of leaves of the woods, prepared and polished, to show their texture and color, with labels giving the average size of which boards could be cut, the average price, and the market, etc. At present neither artist nor workman is aware of the resources which are at their disposal, and much meretricious ornament would be avoided if this mine of decorative riches were fully explored. In the French colonies department there were some articles of furniture which have been made from the woods of Cayenne, cut by the convicts sent to that settlement.

That a wide and systematic acquaintance with the resources of any country is the first requisite to the development of its trade may be considered an obvious truism; yet in this country, eminently trading and manufacturing, and depending for its greatness upon the growth of its trade and manufactures, no means are taken to make the traders and workers acquainted with the materials which are being wasted in our vast colonies, but which, if known, would be sources of wealth which we can scarcely over-estimate. The staghorn sumac may be mentioned as an example of a very finely veined wood, which seems to be plentiful, and which, though it does not grow to any great size, would be useful in manufacture. The butternut, a kind of walnut wood, grows to a large size, and seems to be very cheap. The kauru (or New Zealand pine), also, a wood to veneer upon, would, I think, be of the greatest value; as well as the heron pine (which is sufficiently handsome to be used without any veneers), the red beech, and many others.

As a new application, or, rather, the extension of an old process in the treatment of wood, the chairs and settees in the Austrian department, made by bending long slips, may be instanced. Some of these chairs were exhibited in 1862. The manufacture has, however, greatly improved since that time. One chair in the Exposition (purchased by the Prince of Wales) was all that could be wished, both as regards strength and beauty. Though no one would wish to see this system of bending wood applied to all articles of furniture so exclusively as it is applied in the manufacture of these chairs, yet the capabilities of the process are well shown, and much might be learned from them. I noticed a method of producing a very good kind of decoration on polished wood by stamping with what is called by chasers a mutt tool, which produces a slighly roughened but regular surface, the pattern being left polished. I observed, also, in passing round the Historical Gallery, a mode of decoration which had an extremely good effect. This was an application of tortoiseshell The under surface or side applied to the piece of furniture had been polished and gilded, the outside surface of the shell being then carefully smoothed and polished, the gold showing through the semi-transparent shell, and giving all its markings, while the shell protected the gilding, so that, though it had been made for more than twenty years, it was still beautiful and effective. It seems to me much to be regretted that some method cannot be devised which would place all such methods of decoration so completely before all our workmen and designers that they might have them, so to speak, at their finger-ends.—*London Building News.*

Kennedy Electric Clock.

An exhibition of this clock, to gentlemen of the press, was made on Wednesday, at the rooms of the company in this city. The clock is impelled by the motion of the pendulum, and is of extremely simple construction. The pendulum ball contains a permanent magnet, which is alternately repelled by oblong helices placed on either side of it at a proper distance. The helices connect with a zinc and carbon earth battery, and the circuit is alternately broken by a commutator attached to the pendulum rod, which is of rosewood, baked, and saturated with paraffine. The clock will run without winding, or any other attention, after the primary adjustments are made. It is said that its regularity and accuracy are superior to clocks of any other construction. We may, at some future time, give a more extended description of this invention.

Editorial Summary.

Work to Line.—We were once acquainted with a cabinet-maker, a true mechanic of the old school, who was noted for his great skill, and his success in business. It was his pride to feel that, when occasion demanded, he could astonish his workmen by the performance of work which would put their best efforts to the blush. We once asked this man, who was a thinker and a philosopher in his way, what he considered the secret of good workmanship in his special craft. His reply was—it is the secret of success in life—"First, carefully lay out your work, then *work to the line.*"

The bones of a gigantic race of Indians have been discovered near Marlboro Point, on the Potomac river. The discovery of a large number of beads, moccasins, etc., leave no doubt of the character of the remains. Further investigations are to be made. The condition of the remains indicate that they must be centuries old.

Two more beautiful frescoes have been found at Pompeii, supposed to be portraits of the master and mistress of the house in which they were discovered. The woman is represented as seated, and preparing to write. The frescoes have been sent to the museum at Naples.

Hippophagy has not met with success in Paris. The government was willing, the *savans* urged the people to eat and set the example, the storekeepers added horseflesh to their stock, but customers were lacking, and there are indications that the movement will be abandoned.

Mistakes will Happen.—An error crept into our Mining and Manufacturing Items, last week, in regard to the amount of lumber shipped from the Saginaw Valley. Instead of four hundred, it should have been four hundred millions of feet.