

**Left-Handedness.**

Dr. Daniel Wilson, president of the Royal Society of Canada, has lately contributed a paper to the *Proceedings* of that society on the subject of left-handedness, to which he has managed to give an unexpected and very practical interest, affecting all who have children or who are concerned in their education. The author had written previously on this subject, but not with such full and effective treatment. He reviews the various causes to which the general preference of the right hand has been ascribed, and also those to which the occasional cases of left-handedness are attributed, and finds them mostly unsatisfactory. He shows clearly that the preferential use of the right hand is not to be ascribed entirely to early training. On the contrary, in many instances where parents have tied up the left hand of a child to overcome the persistent preference for its use, the attempt has proved futile. He concludes that the general practice is probably due to the superior development of the left lobe of the brain, which, as is well known, is connected with the right side of the body. This view, as he shows, was originally suggested by the eminent anatomist, Professor Gratiolet. The author adopts and maintains it with much force, and adds the correlative view that "left-handedness is due to an exceptional development of the right hemisphere of the brain."

A careful review of the evidence gives strong reason for believing that what is now the cause of the preference for the right hand was originally an effect. Neither the apes nor any others of the lower animals show a similar inclination for the special use of the right limbs. It is a purely human attribute, and probably arose gradually from the use, by the earliest races of men, of the right arm in fighting, while the left arm was reserved to cover the left side of the body, where wounds, as their experience showed, were most dangerous. Those who neglected this precaution would be mostly likely to be killed; and hence, in the lapse of time, the natural survival would make the human race, in general, "right-handed," with occasional reversions, of course, by "atavism," to the left-handed or, more properly, the ambidexterous condition. The more frequent and energetic use of the right limbs would, of course, react upon the brain, and bring about the excessive development of the left lobe, such as now generally obtains.

The conclusions from this course of reasoning are very important. Through the effect of the irregular and abnormal development, which has descended to us from our bellicose ancestors, one lobe of our brains and one side of our bodies are left in a neglected and weakened condition. The evidence which Dr. Wilson produces of the injury resulting from this cause is very striking. In the majority of cases the defect, though it cannot be wholly overcome, may be in great part cured by early training, which will strengthen at once both the body and the mind. "Whenever," he writes, "the early and persistent cultivation of the full use of both hands has been accomplished, the result is greater efficiency, without any corresponding awkwardness or defect. In certain arts and professions, both hands are necessarily called into play. The skillful surgeon finds an enormous advantage in being able to transfer his instrument from one hand to the other. The dentist has to multiply instruments to make up for the lack of such acquired power. The fencer who can transfer his weapon to the left hand places his adversary at a disadvantage. The lumberer finds it indispensable, in the operations of his woodcraft, to learn to chop timber right and left handed; and the carpenter may be frequently seen using the saw and hammer in either hand, and thereby not only resting his arm, but greatly facilitating his work. In all the fine arts the mastery of both hands is advantageous. The sculptor, the carver, the draughtsman, the engraver, and cameo cutter each has recourse at times to the left hand for special manipulative dexterity; the pianist depends little less on the left hand than on the right; and as for the organist, with the numerous pedals and stops of the modern grand organ, a quadrumanous musician would still find reason to envy the ampler scope which a Briareus could command."

That all this is true is abundantly shown by the numerous examples cited by the author, from the greatest of artists, the left-handed Lionardo da Vinci, to the distinguished ex-president of the American scientific association, Prof. Edward F. Morse, and (we may add) to Dr. Wilson himself, both of whom are known to be accomplished draughtsmen with this too-neglected hand. In view of these facts, it is evident that few more important subjects can be offered for the consideration of educators than that which is presented in this impressive essay.—*Science*.

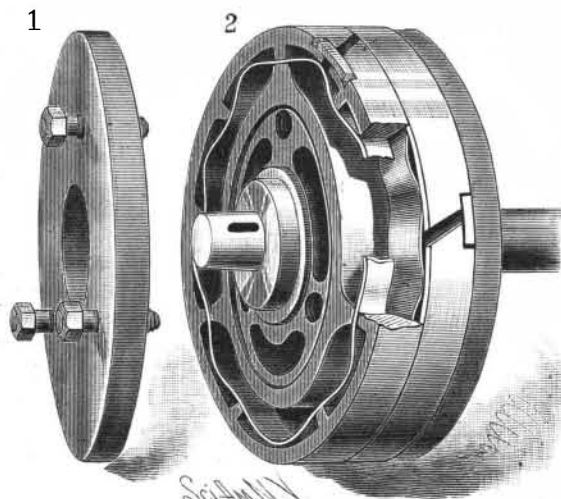
**Thirty-three Years Ago.**

Mr. James P. Slater, of Baxley, Ga., in a letter referring to some patent business recently transacted for him through this office, adds as follows:

"Accept my thanks for the prompt manner you have done my business. You are the same old Munn & Co. you were in 1854, when you obtained a patent for me on circular saws."

**PISTON HEAD FOR STEAM ENGINES.**

Two split metal packing rings are placed upon the body of the piston, which has a flange at one side of less diameter than the cylinder. Upon the other side of the piston an annular disk, Fig. 1, is held by bolts. The disk is of the same diameter as the flange, and the adjacent faces of both are faced off to form flat and true seats for the outer edges of the two packing rings. The body of the piston, between the screw-threaded openings, is recessed to reduce its weight, and opposite each opening a projection or lug is formed to strengthen the body at the points where the bolts enter it, while between these lugs the metal is removed to still further lessen the weight. The packing rings are duplicates of each other, each being split diagonally, and are constructed to form a recess in their outer edges, opposite the openings, to receive small blocks, shown in the perspective view, Fig. 2, which serve as steam checks, to prevent steam from entering the piston head at the openings. Each steam check is held in place by a small lip, which enters a corresponding depression formed in the side recess of each ring. Upon the inner surfaces of the rings are formed lugs, and a circular spring, fitted within each ring, acts to expand it. The springs are endless, and are corrugated in such a way as to bear upon both the lugs and inner surface of the rings between the lugs, so that they may be readily introduced, and so that their outward pressure will be equal at all parts of the rings. Between the two rings is placed a

**MCCARTY'S PISTON HEAD FOR STEAM ENGINES.**

corrugated spring, the waves of which form opposite small curved springs, which are compressed when the bolts of the disk are screwed down, so that they act constantly to spread the rings apart, and thus force their outer flat surfaces against the flat seats of the flange and disk to form steam-tight joints that prevent the steam from entering the piston head between the rings and their confining surfaces. The adjacent surfaces of the rings are slightly cut away, to form a space for the interposed spring, and to form outer surrounding lips to confine the spring.

This invention has been patented by Mr. John McCarty, of 204 East 21st Street, New York city.

**An Improved System of Gas Lighting.**

There was recently shown at the Marlborough Picture Gallery, Pall Mall, London, an interesting system of gas lighting, the invention of Dr. Carl Auer von Welsbach, of Vienna. This system produces a pure, steady, and brilliant light, which is perfectly smokeless, and has comparatively little heating effect on the atmosphere. The system might be described, in fact, as partaking of the character of a new form of gas burner, called the Welsbach lamp, which can be screwed on to all ordinary gas fittings. There is placed within the gas flame—of special form of atmospheric or Bunsen burner—a mantle or hood of cotton net or webbing that has been previously steeped in a solution containing oxides of the elements zirconium, lanthanum, and some other bodies. The moment that a prepared mantle is ignited it burns away with the smoky flame characteristic of burning cotton, but it leaves behind it a residual skeleton composed of the incombustible oxides contained in the impregnating solution; and this skeleton, while preserving its woven or reticulated character, becomes, under the influence of the Bunsen flame, powerfully incandescent, emitting a white and brilliant light, resembling somewhat that of an incandescent electric lamp.

It is stated that the mantle so employed last from 800 to 2,000 hours, and they, of course, can be renewed. Further, it is claimed on behalf of this system that it effects a saving in the gas consumed. It is represented that while a standard Argand gas burner, consuming five feet of gas an hour, gives an illumination equal to 16 standard candles, or 3.2 candles per cubic foot of gas an hour, the Welsbach burner produces a purer light of 20 candles with 2½ feet of gas per hour, showing an efficiency of 8 candles for each cubic foot of gas consumed. As the gas consumed is employed solely to heat the light-giving mantle, it need possess no illumina-

inating property in itself, and therefore gas of poor illuminating quality may be employed under the Welsbach system, with a corresponding saving of cost. The Marlborough Picture Gallery was lighted by 56 Welsbach lamps attached to brackets arranged along a central pipe running from end to end of the gallery.

**Hints on Building.**

Put up the frame and get a roof over it as soon as may be, say in May or earlier. Then let it stand until the first of September or season. This is the old fashioned way, and it has advantages which those who have had experience with shrinking timber will not be slow to appreciate. In this part of the country the timber for a frame is always green when it is put up. Indeed, hemlock could not be worked very well dry. It is much better to have the shrinkage done before the inside finish is on than after.

All floors should be double. A layer of sheathing paper between them would not be a bad idea, and would pay for itself. The upper floor ought to go down after the mason work is done. A smooth, nice floor is a great preserver of carpets.

Back of the wash boards the space should be filled in with bricks. The ends of the floor timbers ought to be filled in such a way as to prevent rats and mice from having a free passage. Such a filling greatly diminishes the danger from fire.

Do not let the tinman or the contractor persuade you that the gutters should be left until red with rust before they are painted. It is a plan which is designed to benefit them exclusively. The paint goes on more easily after the red rust begins. The tin, however, has begun its own destruction, and will go on rusting under the paint just as steadily as though it had no protection, though perhaps not quite so fast. Tin roofs should not be allowed to get red. They can be cleaned and painted on one side in the shop. The objection to this is that the resin or acid (none of the latter should be used) needs to be cleaned off by the rains, so that the paint will stick. The best plan is to have the cleaning done at once, without waiting for the rain.

All piping should be put into the house while it is in the frame. This saves expense and much cutting of woodwork. Alongside each chimney it is a good plan to have a space extending from floor to floor in which pipes can be run if desired. The chimney breasts and the spaces which they cover ought to be plastered on wire lath, for safety, and thus avoid shrinkage.

Have a spare flue in each chimney, to be used for ventilation. The open fireplace, as a ventilator, however, is a delusion. Make openings into the flue at the base board, and by proper management of doors and windows, perfectly pure air can be secured in every room.

Heat by a big hot air furnace several sizes larger than the furnace makers recommend. This furnishes the means for perfect ventilation, by providing an ample supply of warm, pure air. Keep the pipes and registers perfectly clean, or the smell of cooked dust will be mistaken for that bugaboo "burnt air."

In plastering do not use a "brown coat" of mortar. Put the finish directly on the "scratch coat." Time, labor, and patience will be saved, and the work will be better, harder, and more durable. Build the foundations for the piers, in the cellar, with as much care and deeper than those of the external walls. These piers support the center of the house, and they are frequently neglected. The result is a great crop of cracks in the plaster.

Have the walls of the upper floor 9 feet high in the clear, even if you have to cut off six inches from the floor below. This is of course for a moderate size of house. High ceilings for sleeping rooms tend toward giving the sleepers purer air by furnishing greater space. When one is drawing plans, it is best to consult with a carpenter and see whether the framing will come out even multiples of commercial lengths. It is sometimes cheaper to use the full lengths of the timber than to cut off six inches from the ends. Increasing the size of a house six or eight inches may frequently be done without any appreciable addition to the cost.

In designing, get the inside arrangement right. Have places for every piece of furniture. Arrange the bedrooms so that they will contain beds without putting them against doors or windows. Put them against inside walls if possible. Have some connecting rooms and some which do not. After all this is done, put the outside on. Let doors and windows come where they will, and do not spoil your own comfort for the sake of an external appearance which is for the benefit of your neighbors.

Lastly, have a garret by building a sharp roof. Cover the roof with dark colored slate from Maine or Vermont. Lay it in cement, and be happy.

Moral: Alterations on paper cost much less than those in wood and stone. Therefore it is better to spend a long time over the plans than to make changes on which the builder charges his own price.—*The Mechanical News*.