

brance of the formula, which for the square root is $\frac{N}{2r} + \frac{r}{2}$,

and for the cube root $\frac{N}{\sqrt[3]{r^2}} + \sqrt[3]{r}$.

This method is equally applicable to fractional numbers.

Required $\sqrt{5.456789}$. Let $r = \frac{1}{2}$. Then $R = \frac{5.456789}{2(\frac{1}{2})} + \frac{1}{2}$
 $= 2.885977$, true to the last figure inclusive.

G. SHAW, Kemble, Ont.

SUBSCRIBER, Meaford, and J. A. D.—Please forward names and address.

J. A. D. has sent in a correct solution of Prop. 5, March No., but has failed to get Prob. 4.

Practical Department.

THE TEACHER.

MANNER.—"Manners make the man." This is the motto of one of our oldest and most celebrated schools. It has a lesson for the teacher. He is what his manner is. If he is listless, aimless, and indifferent himself, then his children will be listless, aimless, and indifferent also; but if he is earnest, devoted, and determined, they will be so too.

REALITY.—Manner is the carriage, personal bearing, or mode of action characteristic of a person. It is the outward rendering of the man. Sometimes there is an assumed manner, but it never deceives, as it is impossible entirely to cloak that which is real. "No one can be a good teacher," says one of the Ancients, "who is not himself good." He means that it is impossible to assume and sustain the external accessories of good teaching when those things of which they should be the outgrowth do not exist.

EARNESTNESS.—A good manner is marked by earnestness. There is a real desire to benefit our pupils, to do our work well, and to influence for good those who are addressed. Earnestness is marked by geniality and pleasantness. These throw sunshine over the face, which is reflected on the class, or rather, they may be said to be rays of light issuing from the spirit within, and refreshing all on whom they fall. The face of such a one is known by its smile. Its muscles have a tendency to relax rather than to become rigid. A good manner is marked by the use of the eye. This is comprehensive. No one is overlooked. Each pupil feels it. It is as readily attracted by the dull as by the bright. Every one feels that it cannot be deceived, that there can be no concealment, no tricks undiscovered, no underhand communication, or sleight of hand unobserved. Such an eye has power. It speaks praise or blame, approval or censure. It is quick to express feeling and thought, and to recognize them in the pupil. A good manner is marked by decision, firmness and confidence. It is rather positive than suppliant. It has all such qualities as exclude feebleness, timidity, nervousness, and petulance. It is a manner that inspires confidence as well as exhibits it.

SELF-CONTROL.—As manner is the external index of mind, we should note that a good manner is impossible without self-control. The little things that tend to ruffle the spirit and to try the temper do not disturb it. If it is necessary to retrace the steps in order to make clear to some what others have thoroughly understood, its owner does so without betraying annoyance. He does not act as though these things were not foreseen. He has also that degree of confidence in himself, which enables him to do his work with ease. At the same time, he is not self-conscious. Self-consciousness is destructive of a good manner. For it implies that our mind

is on ourselves, our modes of action, or on the impression we are making on others; whereas a good manner implies that the mind is absorbed in its work. Any one thinking of himself and of his mode of doing a thing, will inevitably be affected; just as one who lays down for himself certain rules is sure to become artificial if he thinks of these rules rather than of what he is doing; or as a lady who was thinking of her manner of walking would be sure to walk ungracefully. Not that certain concomitants of a good manner are not to be cultivated, when they are not natural to the individual. These are to be sought, but at the right time and in the right way. But we contend for two points. First, manner must be *natural*—that is, it must be spontaneous. It is only as it reflects the spirit within that it can be effective. Hence the prime thing is to foster those qualities of mind which shine through a good manner. Second, have a manner in which there is nothing artificial; there must be no thinking of rules, or of the mode of doing, or conscious imitation of the tones, bearing, or gestures of another; but the mind must be absorbed in the work in hand.

GESTURE.—A good manner will be marked by appropriate action. In a natural manner there is gesticulation. It is impossible to be under the influence of feeling without emotional manifestation. Yet such gesticulation may be unbecoming. It is a part of our education to bring emotional expression under control. If, then, gestures are uncouth or awkward, boisterous or vehement, they would indicate that this part of education had not received attention. Yet it were better that there should be extravagant gesture than that there should be none; for the former may be toned down, while for the latter there is no compensation. It is better to be a living being than an automaton. Rules cannot be given for action, but two things may be noted. If gesture is natural, it will precede speech rather than follow it. For when an emotion is struggling for expression, it will show itself in the gesture before it appears in speech. The other thing is, that the final cause of a good manner in teaching is, that the teaching shall have its full effect upon the class. Hence there should be no gestures that would draw attention to the teacher rather than aid his efforts.

MANNERISM.—For the same reason he should avoid mannerisms. He must not be stiff, as though his muscles were as rigid as bone, or as though he was afraid of his dignity. He should not stand on one foot with the other crossing it and resting on the toes. He ought not to place his arms a-kimbo, à-la-Napoleon, nor have his hands clasped behind. He has to avoid all that would divert attention to himself, or that would awaken the sense of the ludicrous in his children.

SPEECH.—VOICE.—The teacher must cultivate his voice. He should have it under control so as to be able to set it at the right pitch, and to confine it within the area of his class. The following things are essential:—He must be distinct. He must be heard. He must be followed. He must not annoy or disturb others.

DISTINCTNESS.—He must be *distinct*. That he may be so, his speech must be clear and forcible. This is necessary, otherwise he will not be impressive, for much that he says will be lost, and the children will exhaust their attention and patience in trying to catch what he says. There is nothing so opposed to efficiency, where the matter itself is clear, as imposing the task of gathering up what is being indistinctly uttered. The teacher's distinctness too will be reflected in his class. Children are unconsciously imitators of their teacher, and when he is distinct they become so too. This fact is often noticed in primary schools, the children being found to vary in their speech according to their teacher.

LOUDNESS.—The teacher must be *heard*. His voice must be loud enough to reach the farthest pupil. In order to do this, he must pitch his voice in its natural key, and he must not eat his words, mumble, or speak in his throat. He must not shout, bawl,