

The Farmer's Advocate AND HOME MAGAZINE.

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DOMINION.

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advantage of this special two-year offer, at once. After January 1, 1921, the subscription price will be \$2.00 per year, payable in advance, or \$3.00 for two years. We are certain that all those who are acquainted with the quality and standing of "The Farmer's Advocate" will readily understand why such an advance is necessary.

If we were willing to use a poor quality of paper, omit the expensive engravings which appear in every issue, publish cheap agricultural clap-trap (which comes through every mail in great volume) and call it editorial matter, the Farmer's Advocate and Home Magazine might be continued at the old subscription rate. However, that is contrary to our policy. We take the stand that farmers want and are entitled to the very best, latest, and most reliable information that can be obtained. We do not go on hearsay; we go and see for ourselves. No distance is too great to travel if there is a truth to be learned; no expense is too great if an investigation made by our editors will reveal a substantial fact. The reliability of every statement made in this paper is vouched for by the fact that it appeared in "The Farmer's Advocate," and it is this service which we are asking our subscribers to help us maintain.

How to Enjoy the Winter Evenings.

By SANDY FRASER.

It just seems like it was day-before-yesterday that the snow was takin' its departure, and the grass was startin' tae grow on the south side o' the rail fences, and we were thinkin' o' buyin' a new point for the auld plow, and a few bolts an' ither repairs for the seeder. Spring had come and we were lookin' ahead to a lang spell o' hard work and worryin' about how we were ever gaein' to get through wi' the seedin' an' hoein' an' haying an' harvestin' an' threshin' an' silo-filling an' fall-plowin'.

Weel, its all been done, some way or ither and we have been sae interested in the job that we never noticed the time passin', like we would if we were laid up wi' the rheumatism or serving a six-months jail sentence.

And noo the question is, what's the program for the next half-year? Have we got oor work all laid out an' planned frae noo till next spring, or are we juist counting on takin' things hit-and-miss as they come and wearin' through the dull months o' the year as best we can?

Some people find Sunday an unco' lang an' tiresome day, and it's these same people that ye will hear talkin' about how they hate the winter. I never felt that way about it. Sunday is my busy day and the winter is the one time o' the year that I get a chance to catch up on the important part o' the work that I find waitin' for

me when that auld chap they call Fate sent me intae this part o' the country.

I'm no' sic a whirl-wind at wark as the above might lead ye to believe. In fact I'll have tae admit that there was always mair or less o' a lazy streak in me. I dinna think I'll ever find gettin' oot o' bed in the mornin' onything less than genuine hardship. As a wee laddie I used to pit one foot oot and tramp on the floor, when my mither wad call me, tae mak' her believe that I was up and would be doon-stairs in a meenute.

But I found oot later that there was little use in tryin' tae slip oot o' a fair share o' wark in this warld, and about the only way o' gettin' along was to get right at the job, whatever it was, an' get it oot o' the way. It was off my mind then and I could rest wi' some degree o' comfort.

It's vera easy to gae to an extreme in this direction, however. Some chaps seem tae get ower conscientious about finishin' up the job they're at and ye'll find them working oot in the field till ten o'clock at night, sometimes. I vera nearly got the habit at one time, but I found oot that I was gaein' to put myself on the junk-pile in a year or twa, sae I quit it.

Ye can depend on it, if yer conscience won't let ye knock off wark at six or seven o'clock, ony day in the year, the trouble is with yer conscience. There's a screw loose in it, or somethin' like that.

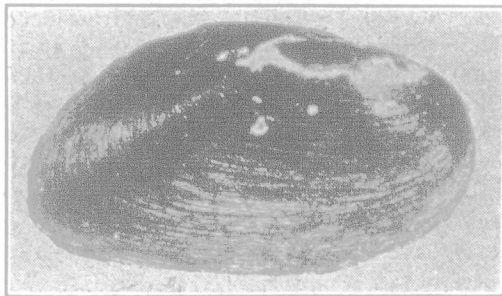


Fig. 1. Common Fresh-Water Clam.

But the man that has the habit o' work generally feels the necessity o' doing something or ither every hour he is awake. He canna sit doon an' fold his hands and go intae a lang meditation, like a Hindoo priest. He thinks that life is too short to not be making every meenute he is awake count for something. And the consequence is, wi' some people, that they keep on warkin' their hands and let their heads tak' a holiday o' indefinite length.

If a wee bit o' advice was ever o' any account it ought tae be in a case o' this kind, where a guid man is gaein' tae the bad wi' hard labor. Noo is the time tae stretch oot a hand to save him from gaein' tae the everlastin' dogs, gin ye like tae pit it sae strong as that.

And all he needs is juist to have his energy turned intae another channel for part o' the time. Call it a change o' work, but it will have the effect o' a rest, juist the same. And the result will be that, in place o' a man wi' a big muscle and an empty mind, we may have an individual wi' body and mind developing and growing strong together, the one helping to tak' care o' the ither.

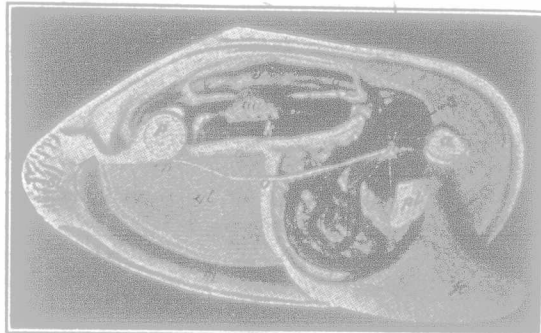


Fig. 2. Internal Organs of the Fresh-Water Clam. See Article.

A man's education should never be finished while the Lord lets him stay on the earth. And it's his ain fault if it is. This is an age o' Books, if ever there was such an age in history. And we would all have them if we were convinced o' the fact that food for the mind was of juist as much importance as food for the body. The latter is a necessity, I ken. So is the former. We're flightin' awa' oor time gin we're not gettin' some kind o' an education oot o' life. And one o' the important means tae this end is the right kind o' books. I ken there are ither things, of coorse, but we can talk about them later. The lang evenings are comin', and the stormy days, when all the time ye have keeps rinnin' away into yesterday, as usual. When spring comes we can talk about ploos and harrows and seed-corn again.

Gin ye won't tak it frae me, listen tae what Lord Morley says about the right use o' the right books. He says, "they help us to be, as well as to know. They awaken within us the diviner mind. They rouse in us a thirst for the best of all God's gifts, which is a desire to know the best that has been thought and said, in the world."

When Gladstone was in his eighty-eighth year he said: "My power to read for a considerable number of hours, every day, continues. This is a great privilege." "To fall in love with a great author, and to remain in love with him, is one of life's chief blessings," is the way another man puts it.

William Thackeray says, "I own to have said my grace

at the table and to have thanked heaven for this, my English birthright, freely to partake of the bountiful books, and to speak the truth I found there."

John Newton, the great English preacher, said that two things kept him out of hell. One was, as he puts it, "my early and lifelong love for the woman who became my wife, and the other was my early and lifelong love for good books."

If all the young people on oor farms had a love for books that would keep them occupied in their otherwise idle hours there would be na danger o' too many o' them rinnin' awa' tae the city for amusement and a mair cheerful life.

Good books are man's best friend in whatever situation in life he may be placed, but if it has fallen to his lot to be a farmer he juist can't be what he might be wi'oot them. For they'll help tae bring him almost everything that's really worth having, I'll gie ye my word on that.

Nature's Diary.

By A. BROOKER KLUGH, M. A.

Fresh-water clams are abundant in many of our lakes and streams, and we have a good many species, ranging from the large, heavy-shelled forms of the Lake Erie drainage system to the small, thinner-shelled species which are very generally distributed. A very common and widely-distributed species is *Unio complanatus* shown in Fig. 1.

If we open the shell of a fresh-water clam we find a mass of soft tissue which at first sight appears to have but little structure, but careful dissection shows that the anatomy of this animal is really quite complex. In order to understand the mode of life of any animal it is necessary to know something of its anatomy, and it may be of interest to look at Fig. 2 and notice some of the main internal organs of the fresh-water clam. In this figure *p* and *a* are the adductor muscles which hold the valves of the shell together when the clam is "closed." There are also three other muscles, not shown in the figure, which control the foot. The shell of a clam is normally slightly open, being thus kept "ajar" by the elasticity of a ligament at the hinge, and is only closed when the action of the adductor muscles compresses this ligament. *fl* is the foot, the muscular organ by which the clam creeps along. In locomotion the foot is extended forwards and forced into the sand or fine gravel of the bottom, the tip is expanded to give anchorage, then the body and shell are pulled up to the foot. In *Unio complanatus* this series of movements is repeated at intervals of about 20 seconds, and this species travels at the rate of about an inch in 15 minutes. When clams are "walking" their shells are in a more oblique position than when they are at rest (when they are more vertical) and they leave behind them the characteristic V-shaped furrow, by which the extent of their recent peregrinations can be traced. *m* is the mantle which lines the shell and encloses all the other internal organs; *gl* are the gills of which there are two pairs, *pl* are the palps which lie on either side of the mouth and which are covered with vibratile hairs (cilia) which create a current to carry the minute organisms, upon which the clam feeds, into the mouth. *si* is the siphon, which really consists of two short tubes, the lower of which, by the action of cilia, takes in water to pass over the gills while the upper passes the water out again. *v* is the ventricle of the heart, and *au* is one of the two auricles. The mouth is situated just between *a* and *pl*. *s* is the stomach, which is surrounded by a large digestive gland, and *i* is the intestine which is coiled in the region above the foot and empties just above *p*. *k* is known as the kidney and functions as an excretory organ.

The eggs and sperms of the fresh-water clams are produced in the visceral mass, that is in the portion through which the intestine coils. The eggs are extruded and come to rest in the gills of the female, where they are fertilized, by the sperms which are ejected through the siphon of the male into the water. In some species both gills, in some the outer gill, and in others only the posterior portion of the outer gill, are used for holding the eggs. The eggs develop into a larval form known as a glochidium, which consists of two minute valves, an adductor muscle, a mantle, a long, coiled thread (the byssus) and bears tufts of sensory hairs. In *Unio* the glochidia are carried in the gills during the summer and are extruded in September, while in some other species they are carried through the winter and extruded in the spring.

The glochidia, after extrusion, float in the water and when a suitable object, such as the fin or tail, or the gill-filament of a fish, comes in contact with the sensory hairs the valves of the shell close upon it with a snap. If it happens to be the proper host fish, which is thus clasped the glochidium remains attached, and the skin of the fish grows over it, forming a cyst, and in this cyst the glochidium remains for some weeks, getting its nourishment from the tissues of the host. During this period it develops gills, a digestive system and a foot, then the cyst breaks and the young clam drops out. Each species of fresh-water clam has a particular host or hosts, some species becoming encysted only on a single species of fish, others on fish of certain families. If a glochidium snaps on to the wrong kind of fish it soon falls off again. A fish can carry from 1,000 to 2,000 glochidia without being affected injuriously. This peculiar parasitic stage of the young of the fresh-water clams, which is not found among marine species, is undoubtedly an adaptation to their environment, for if the young of clams inhabiting streams simply floated in the water they would float down stream, with the result that the beds of clams would be formed further and further down stream until they were all at the mouth of the stream.