

for honey, feathers and butter; other peddlers came every winter with haddock, fresh cod and oysters, and exchanged them for pork, butter and venison for a return load. Money exchanges from one place to another were not made by draft, as now, but a one hundred dollar bill was cut in two pieces and one-half sent in a letter, and, on notice of its safe arrival, the other half was forwarded. If the parties lived five hundred miles apart, the transaction would require four weeks' time and four letters with twenty-five cents postage for each letter to complete the exchange.

Mixed manufacture and trade was formerly as common as mixed farming. A wagon shop was a place where you could get a two horse lumber wagon, an ox cart, a one horse dray, a two horse pleasure carriage, a one horse shay, or a wheelbarrow made by the same workman. The farmers' trade with a wagon shop, a shoemaker or a blacksmith shop, was by the law of custom payable in farm products.

Large factories now run only on lumber wagons, another on carriages, and still others on wheelbarrows. Sharp competition has long since driven mixed manufactories out of the market; men work to much better advantage by working at one branch of business. It takes seven men or boys to make one clothes pin to advantage. Every one works to the best possible advantage, so that no one man can afford to make a clothes pin. What is true of this business is true of all manufacture. Thus, we see large woolen mills where nothing but shawls are made, another for carpets, another for cloth. Precisely the same principle prevails in regard to trade. We have wholesale and retail merchants engaged exclusively in dry goods, others in groceries, still others in hardware, clothing, boots and shoes, and so on through the whole list of staple articles. The same causes that have of necessity driven mixed manufactures and trade into special lines will as surely drive mixed farming into special productions; not alone for the reason that it takes so long to acquire correct knowledge so as to produce profitably many different kinds of products, as for the more potent reason that they cannot be produced so cheaply. Five farmers in a neighborhood engaged in mixed farming necessitate the purchase of much more expensive labor-saving machinery than if these five farmers were engaged, each one, in some special line of farming. A dairyman does not require a self-binder and grain drill; a grain farmer does not require a hay loader and tedder; a pork and corn producer does not require either of the above machines, but instead, horse cultivators and planters. Thus you will perceive that the five farmers must have in the aggregate (for mixed farming) a larger amount invested than would be necessary if each one was engaged in some special branch of agriculture, and the aggregate receipts would be no more, and in all probability would be less. It is a well settled principle of finance that the profits of all enterprises must ultimately be determined by the amount of capital invested and labor expended, compared with the aggregate net receipts obtained. Thus, the conclusion is inevitable that five farmers engaged in mixed farming, with largely increased invested capital, and the disadvantages to labor by the necessity of beginning and finishing many small jobs of work required in mixed farming, with no possible chance of increasing aggregate receipts above the amount that can and are produced by five farmers engaged in special lines of production. Therefore, it is a delusion to suppose that large investments, increased labor and lessened receipts, can by any legerdemain, be made more profitable.

I would be glad, in this connection, to give accurate statistics showing a comparison between mixed farming and those engaged in special branches; but, after much inquiry, I was unable to find a single farmer that had kept a book or could give any intelligent understanding of his farm operations. None were able to say whether their net receipts were five or five hundred dollars above their expenses, but nearly all would assert that no farmer could make three per cent. on his investment. I have interviewed farmers engaged in pork, raising corn to feed them, and clover pastures for summer use, with but small investments for barns and machinery, whose profits were satisfactory; also stock breeders, where the man was adapted to the business; their profits were ample. It might be supposed that it would be difficult to procure accurate statistics of exclusive dairy farming, but I have been unable to find anyone so engaged. All men are liable to have fits of the shallows, and it affects dairymen in this way: They think they can raise better cows than they can

buy. Last November, I bought a three year old heifer for twenty-five dollars. No particular breed; no extra care in raising, and she has given by actual weight an average of 36½ pounds per day for the past six weeks. Five years ago, I had a fit of the shallows, and raised four half-blood Ayrshire heifers. They are beauties and praised by all, but not one of them ever gave 36 pounds of milk per day, in the best of the season, and yet they are profitable cows, but no better than I can buy.

Being unable to find anyone engaged in exclusive dairy farming, except myself, I shall therefore be obliged to give statistics from my own farming, which I should prefer not to do, hoping thereby to draw out volunteer statements from some one engaged in mixed farming, that by a comparison of occupations we may arrive at best results. It may be proper to state that about one hundred tons of hay, five hundred bushels of corn, six hundred bushels of oats and six acres of fodder corn were raised and fed out to the stock.

Statement of farm account for 1880: 21½ acres of land, 20 acres woods. Stock, 52 cows, 6 horses, 13 hogs.

Receipts for butter.....	\$2,930 85
Receipts for sour curd.....	303 48
Receipts for calves sold.....	119 00
Receipts for hogs.....	164 00

Total receipts from dairy.....	\$3,517 33
Average per cow for 52 cows.....	67 63
Other receipts from farm.....	203 00

Total receipts from farm.....	\$3,720 33
Paid for hired help.....	\$925 87
Paid cost for board.....	400 00
Paid cost 23 tons of bran.....	208 85
Paid difference between 8 cows sold and 8 cows bought.....	77 00
Paid for plaster and dairy supplies.....	67 00
Paid for blacksmith work and repairs.....	97 00
Paid for grass seed, thrashing and husking corn.....	76 00
Paid for taxes and insurance.....	110 00
Allowed for superintending.....	500 00
Net receipts.....	\$1,252 71

It will be perceived that the net receipts of \$1,252.71 is a sum sufficient to pay six per cent. interest over \$20,000, and there is less than that sum invested in the business. Special farming, in addition to being more profitable (as I believe), it is much more agreeable, as all work can be done in season, fewer kinds of crops are required, and one crop will not be running to waste by being over ripe before it can be attended to. There will be no thrashing until dark and the cows still to milk. There will be no dead sheep to skin on Sunday; no unruly colts to chase out of mischief in the rain, and no bunting calves to smear your Sunday breeches; lessening the drudgery and increasing the profits, will elevate the business of farming, and elevate the men and women engaged in it.

Rural Drainage and Disease.

Many farmers, otherwise well informed, do not seem to realize the fact that gases arising from stables, pig-pens, and out houses, may poison the pure country air as effectually as the atmosphere in the cities may be spoiled for breathing from the same effluvia spreading from neglected alleys or cesspools. And the thrifty wives of farmers, who, forgetful of cleanliness, saturate the door yard with wash water and kitchen sewage through all the winter months, should be taught that when that ground sours and festers under the summer sun, the heat will ripen the germs of disease as surely as it will ripen the grain in the harvest field.

Maladies mysteriously affecting families residing in what are regarded as healthy localities are often explainable on opening the cellar door, whence an intolerable odor of decaying vegetables proceeds; or, on lifting a board of the kitchen floor, beneath which is a shallow pool of standing water; or on observing that the well is so situated as to drain into itself some of the substances that are thrown away as utterly unfit to be retained in proximity to human beings.

The latter point is one very frequently overlooked. For example, a certain city, finely located and attractive, gained the reputation of being an exceedingly unhealthy spot, and was of course much retarded in its prosperity by the fact.

Finally it was noticed that underlying the city, at the depth of about twelve feet, was a stratum of impervious blue clay, above which lies an extensive quicksand, affording an abundant water supply by means of numerous wells, and into that same quicksand all the vaults and cesspools of the place were also dug, thus mixing their foul contents with the drinking water that everyone used. The amount of sickness was materially diminished by proper attention being given to this one point. Every careful farmer will see that the compost heap, and other refuse stored as food for the roots of grasses or vegetables, shall be at such a distance from the house and well as not to contaminate the air and the water essential to the preservation of life and health.

In closing, I may mention a curious illustration, given in a paper by Prof. E. T. Cox, on the "Influence of Geology on Local Diseases," showing what has actually been done by rural drainage to eradicate a dreaded malady that used to prevail extensively in Kentucky and Indiana, known as "milk sickness," because first attacking cattle; it was communicated to human beings through the milk, butter, and beef of the infected animals. Many a brave pioneer lost his life by this malady, which almost always proved fatal; and recovery was usually lingering and imperfect. At first it was supposed that the cattle had eaten some poisonous plant; but every suspected grass and weed proved harmless on scientific examination. Then it was held that mineral poisons must lurk in the springs and brooks; but hundreds of samples were analyzed without detecting the presence of the enemy. At last an investigation of the clay shales, soft rocks formed from ancient mud beds, and which are microscopic in an eminent degree, revealed the secret. These formations abound in every affected locality, and it now seems clear that they exhale some sort of miasma, when saturated with water, that originated or aggravated the disease, just as other kinds of malaria bring on chills and fever. Proceeding on this discovery, thorough drainage of the wet lands adjacent to the shale beds dried them sufficiently to terminate the conditions favorable to the spread of milk sickness, so that it has now almost entirely disappeared from regions that once were cursed by that plague.

The opinion is now established that a large proportion of diseases are of germ origin; and the obvious mode of prevention is the destruction of the germs or their timely removal.

Professor J. L. Budd thinks that the *Eucalyptus Globulus* which has done such wonders in arresting malarial disease on the fatal Roman Campagna and in other places, acts not only by the immense transpiration from its leaves which soon distill the juices of the soil, but from actual antiseptic emanations, and by the absorption of deleterious gases. Wounds are healed and foul sores purified by an application of the leaves. He advises their growth as a house plant, and says that a plant of his in an eight-inch pot, three years from the seed, remains at about five feet without losing its large handsome leaves. Any of our readers could grow this as a house-plant. It can be procured of nurserymen.

It is a popular fallacy that the moisture distilled from the leaves of the black walnut (*Juglans nigra*) after dew or rain is poisonous, the reason given for the assertion being that little or nothing else will grow near these trees. The real reason lies in the fact that the tree is a gross feeder, every root being covered with fine fibrous rootlets, which are so many open mouths to extract nutriment from the soil and sustain the tree. There is an old saying current that five or six walnut trees in an orchard will destroy it, and though somewhat exaggerated, there is no doubt that the walnut trees exhaust the soil to the great detriment of the fruit trees.

Peter Henderson, in his essay at Dayton, Ohio, teaches a use of moss in growing window seedlings, etc., which is a possible benefit for every gardener or flowergrower in the land. The writer has for two years grown soft cuttings for home adornment in a window-box containing an inch of mould, and two or three inches of a mixture of washed sand and roasted moss rubbed fine, then an inch of sand and about three inches of space for the tops of the cuttings, so as to allow of a pane of glass on top to preserve moist air about the leaves in the dry living room. Cuttings never rooted better nor transplanted so easily—the light moss remaining between the tender rootlets when lifted with a table fork for planting pots. Previously dust from coconut fibre had been used, and that failing, dried cow droppings and charred sawdust or braize, had answered fairly well.—[Shelah.