



# *Plough and Winnower*

GENERAL EDWARD HAND, EXPERIMENTAL FARMER

Research undertaken by the Rock Ford Foundation relative to the life and activities of that Revolutionary War personality and his Lancaster mansion reveals General Hand to have been quite interested in agricultural improvements. In 1773 a group of Philadelphia gentleman farmers — mostly physicians, lawyers, jurists, merchants and political leaders — banded together for conducting experiments and observing results in agricultural improvements; they worked through and in conjunction with the Society for the Promotion of Agriculture and the American Philosophical Society. One such amateur scientist was the Hon. Richard Peters, Jr., an eminent Philadelphia lawyer, jurist and legislator; as Secretary to the Continental Board of War he was acquainted with General Edward Hand.

Experiments on improving soils by the application of “plaster of Paris,” or gypsum (calcium sulphate, or hydrous sulphate of lime) seemed to fascinate Judge Peters, and he began an extensive correspondence with his compatriots to learn of their results in the application of gypsum. General Hand was one to whom the set of queries was sent. Judge Peters then compiled the information into a pamphlet and had it published. We print herewith General Hand’s replies:

**Agricultural enquiries on plaister of Paris also facts, observations and conjectures on that substance when applied as manure collected chiefly from the practice of farmers in Pennsylvania, and published as much with a view to invite, as to give information by Richard Peters, Philadelphia: Printed by Charles Cist, No. 104, North Second Street and John Markland, No. 91, South Front Street, 1797.**

ANSWERS to Queries on Plaister of Paris, by General Edward Hand, near Lancaster.

Rock Ford, July 30th, 1796.

Dear Sir,

I sit down to answer your queries on the subject of Plaister of Paris so far as my own experience enables me; that indeed is confined, owing to the circumstance of my farm being generally managed by persons whose indolence or prejudices proved great bars to experiment. That difficulty is now removed, and I hope hereafter to be able to conduct it on a plan more beneficial to myself, and by communicating my little experiments, to be of some use to the community.

Query 1st. How long have you used the plaister?

Answer. Ten or eleven years.

Query 2nd. In what condition was your land when you began the use of it?

Answer. That on which I first tried the plaister was apparently exhausted by injudicious management, and produced the most scanty crops of any on my farm.

Query 3rd. What quantity per acre have you generally used?

Answer. Generally not less than three, or more than four bushels.

Query 4th. What soils are the most proper for this manure?

Answer. My land is a sandy loam, on a lime stone of different qualities; the rock in some places so near the surface as scarcely to admit the plough.

Query 5th. Have you repeated the application of it with or without ploughing? — in what manner? — at what intervals? — and with what effect?

Answer. I have repeated it the seventh year after three crops of clover, one of wheat, one of corn, and one of oats, with which clover was sown. The effect nearly the same as at first. I have this spring repeated two bushels per acre on the same ground, without ploughing, on clover which had been moved two successive years, but my expectation was not answered.

N.B. This ground has been twice manured with barn yard dung; once with corn, and once on the grass, since the plaister was first applied.

Query 6th. Do you find that it renders the earth sterile after its useful effects are gone?

Answer. On the contrary, the lands on which I have first used the plaister, though then in the state mentioned in answer to the 2nd query, have since regularly yielded excellent crops of grass, grain, potatoes, corn, &c. part of which never has had any other manure, at least for twelve years.

Query 7th. To what products can it be best applied? — grain, and what kinds? — grasses, and what kinds?

Answer: I have found considerable advantage from the plaister sown with oats in very small quantity, i.e. as much as would adhere to the wet seed. Applied to corn in the same way, it has an admirable effect; indeed, with me, equal to three or four times the quantity sown on the corn after it comes up. I have sown it with barley and clover, at the rate

of three bushels per acre at different times. The clover was always very fine, but I cannot say that the barley was at any time benefited, and I have reason to believe, that it would have been as good a crop without the plaister. I have never tried it on any other small grain. I have generally used it on red clover. I have also sown it on mixed grasses, as white clover, blue grass and timothy, always to good effect.

Query 8th. What is the best time to scatter it?

Answer. I generally sow it in April, but have also applied it in June after mowing the first crop; the effect nearly the same.

Query 9th. What is the greatest product per acre you have known by the means of plaister?

Answer. I once mowed eighteen tons from five acres: the clover was sown with oats on old ground; the oats was no more than a middling crop. Fifteen bushels of plaister were sown after raking the stubble in April, and the grass cut the June following.

I have frequently got two and a half tons per acre, never less than one and a half tons; the second crop is generally one third less. I have indeed heard of much more abundant crops of grass; but as I believe you do not admit hear say evidence, I shall not trouble you with it.

Query 10th. Have you ever used it in connection with other manures, and what? — does it agree with lime? and what effect has a connexion with other manures produced superior to the plaister alone?

Answer: I have not used plaister in immediate connexion with other manures till this spring. On about an acre manured with barn yard dung, which was planted with potatoes last year without dung, was sown barley and clover, and immediately after three bushels of N.S. plaister. I this spring also sowed barley and clover on three acres, which had been manured with the same kind of dung, and planted with corn last year. Three bushels of N.S. plaister per acre immediately followed the barley. The clover in both looks extremely well, and may be cut this year if I chuse it. If a preference can be given, it must be to the acre in potatoes last year, and manured this spring. They were both ploughed late last fall after taking in the crops. Lime I have not tried. I this spring sowed plaister on two pieces of mixed grass, and a few days after wood ashes at the rate of ten or twelve bushels to the acre, as near as I can guess, was sown on one of them; they have been both cut and fed green; that on which the ashes were sow has been twice cut, the other but once, and at this moment they are both equally fit to cut again. Except in this instance of the ashes, I have never had more grass from lands previously manured for other crops than from those which had not\*, although an equal proportion of plaister and grass seed had been sowed on each.

\*The result of the dung applied on the barley ground cannot be known until next year.

Query 11th. Its duration?

Answer. In one instance I mowed the same ground four years successively after four bushels per acre of plaister had been applied, but I find that blue grass generally begins to appear the third year; therefore I wish to mow or pasture the same ground two years only, and then plough again.

Query 12th. Is there any difference as to useful effects, between the American and European plaister?

Answer. I cannot yet tell. The trials made with the American plaister on barley and clover this spring mentioned in answer to the tenth query, are my first essays; the prevalent report of its bad quality, prevented my making an earlier trial. At present the effect of the American plaister appears equal to any thing that might be expected from the European.

I wish it had been in my power to have given fuller answers to the questions you have been pleased to ask me. In doing it I have confined myself to simple facts, avoiding comments and matters of opinion, supposing them foreign to your design.

With much respect,

I have the honor to be,

Dear Sir,

Your very humble servant,

EDWARD HAND

The Hon. Richard Peters, Esq.

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I am sorry that one so capable, as well from professional knowledge on chemical subjects, as opportunities of acquiring and making agricultural observations, has avoided comments and matters of opinion. Having hazarded these myself, I should the more gratefully have received them from those more capable of forming just opinions and well founded conjectures.

R. P.

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Editor's Note: Hon. Richard Peters, Jr. was born in 1743, the son of Rev. Dr. Richard Peters whom Benjamin Franklin urged to organize and head what was to become the University of Pennsylvania. Richard Peters, Jr. was graduated from the University in 1761 and became an outstanding lawyer. He served in the Revolution and was Secretary of the Continental Board of War. A delegate in the Continental Congress in 1782-3, Mr. Peters later served as speaker of the Penna. House and Senate, and from 1792 to 1828 he was judge of the District Court of Pennsylvania. He died in 1828 at his home at Belmont near Philadelphia.

Judge Peters' wistful note indicates the Lord of Rock Ford elected to make his observations as a properly discreet military person — the organization man mentality — rather than as a man of science, the physician he was by training and practice. Remarkable is the absence of any controls by which contrasts and comparisons could be made, so necessary to modern experimentation, but this was not the age of scientific method. Today's farmers recognize that Hydrous Calcium Sulphate (Gypsum) tends to promote acidity in the soil, certainly an undesirable factor in manuring soil so recently (in the late 18th century) cleared of woodland growth with its acid humus. Of course, hydrolysis was not understood until late in the 19th century after which neutralizing agents could be employed.

From the **Pennsylvania Farm Journal**, S. S. Haldeman, Ed., Lancaster, Pa., 1851, vol. 1, pp. 22-23, we quote the following information about the General Hand Plum:

As my object in this communication is to endeavor or to establish beyond a doubt, that the plum called the **Gen. Hand Plum**, first received that name in the county of Lancaster, and not in Maryland: I called on Mrs. Brien of our city, a daughter of the late Gen. Edward Hand, from whom I learned that he took great pains in collecting and cultivating choice fruit trees. She remembers his planting a number of small plum trees, but she cannot tell where he got them. Plums were very rare in this vicinity at that time. She also suggested that I might learn something further relative to the matter, by calling on Mr. Benedict, an aged and respectable citizen of our place, who informed me yesterday, that in the autumn of 1791, he assisted in plastering the mansion house of the late Gen. Hand on the Conestoga, about one mile S. E. of Lancaster; and he remembers that the plum trees were planted before that time; but that they were still quite small, and had not borne any fruit. He said that George Wein, procured some grafts from the tree on Gen. Hand's place, and gave Mr. George Miller, the present clerk of the Lancaster market, some of them.

I called on Mr. Miller this afternoon, and he told me that in 1810 or 1811, Mr. George Wein procured about a dozen grafts from Gen. Hand, (who was always very liberal to his neighbors in such matters,) and gave him two of them at his request — one a young shoot, the other a year old piece, with one lateral bud on it, and that one grew, but threw out no lateral [sic] branches that season. Mr. Wein was not so fortunate. None of his grew; and the following spring he applied to Mr. Miller for grafts, but declined; giving as a reason the fact that he could not cut off any grafts without spoiling his tree. During the second summer there had been some lateral [sic] branches thrown out, and Mr. Miller furnished Mr. Wein with a few of them; but he was equally unfortunate in his second attempt to propagate them. That summer the parent tree died to the ground, so that in 1812 or 1813, we find all that beautiful variety of fruit concentrated in one little stalk, grown from the lateral bud on one of the grafts given to Mr. Geo. Miller by Mr. Wein. From that circumstance, they were for a time, called the "**Miller Plum**," until Mr. Miller objected to that name, and said that it was "**Gen. Hand's Plum**." From that time to the present they have been so called.

Some years afterward, Mr. Emanuel W. Carpenter procured some cuttings from Mr. Miller, and succeeded in propagating them, and as he told me, sent them to his brother in Ohio, Mr. Sinclair, in Baltimore and others. Thus it appears to me, that some pomologists have improperly given Baltimore the credit of the nativity of this superb plum, which properly belongs to Lancaster county, Pa. In 1834 or 1835, I procured one "**Gen. Hand plum tree**" and a **White Prune tree** from Mr. Carpenter, and planted them in my yard, and which I afterwards paved. They both grew well and bore fruits plentifully, and I have distributed many cuttings from both varieties, as I consider them very valuable fruit. The **White Pruen** [sic] tree died a few years since, and as yet I have been unable to supply its place with one of the same variety. The "**Gen. Hand plum**" tree is still quite thrifty, and has always yielded a full crop of fruit. When fully ripe.. [sic] the fruit is very mellow and juicy, from which circumstance, they do not bear the sting of insects well. I have seen large plums decay rapidly after being wounded. So rapid indeed, was the progress of decay that by the end of the second day, after I discovered the wound, the plum would be half decayed. I think that fewer rotted last summer than usual; and more fruit ripened perfectly; which, may, perhaps, be owing to our having gathered the specked fruit every day and destroying them, thereby

From *The Country Gentleman*, Albany, New York: Vol. III, No. 7  
(February 16, 1854), p. 107 the following information was found:

### THE GENERAL HAND PLUM AND ITS ORIGIN

This plum has been noticed repeatedly in the *Horticulturist* and other prints, and a correct description of the fruit as well as its **origin** has been fully given, and yet there seems to be a lack of knowledge in regard to the same, or else a disposition to throw into obscurity its true history and to accord to others the credit not due them in originating this plum. My attention has been drawn to this plum lately, by looking over the number of the *Country Gentleman* dated Sept. 22, 1853, which contains a notice of the Gen. Hand plum, "ascribing its origin somewhere in the state of Maryland, and which has received the above name." In 1848, a few specimens of the fruit were sent to Mr. A. J. Downing by Mr. Eli Parry of Lancaster, Pa., and Mr. Downing noticed them very briefly, in the then current number of the *Horticulturist*. During the same year a description of this plum was written by myself, based upon the observation of its fruiting for 8 years, upon the grounds of Mr. Samuel Carpenter of Lancaster, Ohio, at which place I resided at the time (See *Hort.* vol. 3, page 332) In *Hort.* vol. 6, page 21, under the heading of "**Descriptions of new and rare fruits,**" Mr Downing has described this plum, by saying, "it is the largest yellow plum known, certainly, the largest native variety;" then states its history to be obscure, and says "it was sent out by Messrs. Sinclair of Baltimore," and adds, "the only accurate account published of this fruit, by any reliable practical cultivator, is contained in a note from Mr. Fahnestock, of Lancaster, Ohio, in *Hort.* vol 3, page 332." In 1851 after publication above alluded to, ascribing the **origin in Maryland**, the *Fruit Garden*, edited by P. Barry, Rochester, N.Y., made its appearance, and the error here alluded to was endorsed by Mr. Barry, who says it is "one of the largest American varieties, introduced by Messrs. Sinclair and Corse, of Ba(1)timore, Md." This I regretted very much from the fact that now it had gone forth to the world with authority, as it were, because Mr. Barry being a practical Pomologist of many years study and experience would necessarily add weight and give tone to anything he might say, and much more so, when he gives a mature and studied declaration in a work which he was then sending forth to the people of the United States, and which by many has been and is still looked upon as a text book. Mr. C. G. Siewers, of Cincinnati, having seen the articles ascribing the origin to Messrs. Sinclair of Baltimore, gave a true and reliable history of this plum and its origin in the *Hort.* vol. 6, page 187. He says "that the original tree grew on the farm of Gen. Hand," (from whom it took its name), "about one mile from Lancaster, Pa. That in 1831, Mr. M. W. Carpenter, nurseryman of Lancaster, Pa., procured specimens of the fruit, budded a number of trees, and sent grafts to his brother, S. Carpenter, of Lancaster, Ohio, and Robt. Sinclair of Baltimore, Maryland, and thus introduced it into notice."

I will here remark that my notice of this fruit was penned from the knowledge I obtained from Mr. S. Carpenter, of Lancaster, Ohio, as well as from the fruiting year after year, of one of the trees raised from the grafts sent him by his brother in Lancaster, Pa., and which was almost daily under my observation. On page 294, the same vol. you will find the confirmation of the above. Thus it will be seen that the Gen. Hand plum originated on the farm of Gen. Hand near Lancaster, Pa., and that it took its name from him. That Mr. E. W. Carpenter of the same place, a nurseryman, in 1831, budded many trees and forwarded grafts to his brother of Lancaster, Ohio, and Mr. Sinclair of Baltimore, Md. Thus it will be seen that the introduction of the fruit was through Mr. E. W. Carpenter of Lancaster, Pa., and I know that each of these brothers have sent out hundreds of trees of the Gen. Hand plum, and particularly Mr. S. Car-

penyer, who has distributed them pretty thoroughly through central Ohio and elsewhere. We should be particular not only to hand down to posterity a true nomenclature of fruits, but also a true history of origin, &c., and I hope that the correction will be made in new editions of my works now extant, and that the correct origin will also appear in the Fruits of America now about to come forth, revised in part by its author, and completed by those able Pomologists, M. P. Wilder, Esq., of Boston, and Charl(e)s Downing, Esq., of Newburgh.

A. Fahnestock, Sy(r)acuse, Jan. 30th, 1954.

**The Fruits and Fruit-trees of America, or,  
The Culture, Propagation, and Management, in the Garden and  
Orchard, of Fruit-trees Generally.**

with

Descriptions of all the Finest Varieties of Fruit, Native and Foreign,  
Cultivated in this Country.

By A(ndrew) J(ackson) Downing.

Second Revision and Correction, with large Additions, including the Appendices of 1872 to 1881, and containing many New Varieties.

By Charles Downing.

With nearly 400 Outline Illustrations of Fruit.

New York: John Wiley & Sons, 15 Astor Place, 1889).

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**GENL. HAND PLUM**

P. 915

Origin uncertain; supposed to have originated on the farm of Genl. Hand, near Lancaster, Pa. Tree very vigorous. Branches smooth.

Fruit very large, roundish, oval. Suture obscure, running half round. Skin deep golden yellow, slightly marbled with greenish yellow. Stalk long, set in a shallow cavity, the whole of that end being flattened. Flesh coarse, pale yellow, moderately juicy, sweet and good, but not high flavor; separates freely from the stone. Good. September.

(Ratings in this book: No comment; scarcely good; good; good to very good; very good; best.)

p. 889: The finer kinds of plums are beautiful dessert fruits, of rich and luscious flavor. They are not perhaps so entirely wholesome as the peach and the pear, as, from their somewhat cloying and flatulent nature, unless when very perfectly ripe, they are more likely to disagree with weak stomachs.

For the kitchen the plum is also very highly esteemed, being prized for tarts, pies, canning, sweetmeats, etc. In the South of France an excellent spirit is made from this fruit fermented with honey. In the western part of this State, where they are very abundant, they are halved, stoned and dried in the sun or ovens in large quantities, and are then excellent for winter use . . . . One of the most important forms of the plum in commerce is that of prunes, as they are exported from France to every part of the world . . . .