

PUBLISHED BY PARTICULAR REQUEST.

LETTERS,

BY THE

EARL OF DUNDONALD,

ON MAKING BREAD FROM POTATOES.

LETTER I.

THE discovery of a method to make good bread of the Potatoe, or its farina, has long been a desideratum, and the only thing wanting to render it the most useful of plants.—The intention of the following letters, is to communicate to the public the result of my experiments on the above subject:—And which, I am happy to have it in my power to say, have been attended with the wished-for success.

The process of making a flour, or farina, from potatoes, is similar to what has long been practised in the West Indies, by the negroes, in the preparation of the Cassado flour; viz. by grating down the root, and by subsequent and repeated washings with water, to free it from the juice, which is a strong poison.—It is likewise nearly the same as has been practised by families in the making starch from potatoes; for the meal or flour got from potatoes is a starch powder.

It has for some years been known, that grain, particularly wheat, consists of two distinct, and, in some circumstances, opposite substances: viz. a powder insoluble in cold water, called starch; and another substance, which may be rendered soluble in cold water, resembling completely in its analysis to animal matter, hence called by the French chemists, *vegeto-animal*.

Potatoes contain likewise those different substances, with the addition of certain salts, not contained in grain, at least in that abundance.—Potatoes contain a large proportion of liquid, which grain does not.—It is from this liquid that the *vegeto-animal* matter, as well as the saline matter, are to be got.—The proportion of the *vegeto-animal* matter in the potatoes, to the starch-powder, is much less than in grain: and, from the quantity of liquid contained in potatoes, in which the *vegeto animal* is soluble, the two substances do not join together, and form a solid substance, as is the case in grain.

The powdery part of the potatoe is found in the state of a powder extremely fine, and of a fibrous part, which connects the particles of the powder: which fibrous part is capable, likewise, of being reduced to a powder by drying and grinding. This last bears a proportion to the former (according to the average of the trials made) of about one to two.

The very fine and white powder got from potatoes, and which is stated to be in the proportion to the fibrous part as two to one, precipitates in cold water like sand. The particles have no union the one with the other, as in wheat-flour.—The reason is: It contains no *vegeto animal matter*. It is a pure starch, free from the acidulous smell of starch, separated from wheat by maceration in water.

The fibrous matter of the potatoe, when dried, and ground, has a greater degree of tendency, than the fine white powder, to form a paste with water; but not sufficient to allow it, by itself, to make a proper paste or dough for baking: Although it thickens little inferior to wheat flour, when made with milk and eggs into a dumpling, or boiled putting.

From what has been stated, it is obvious, that the farina, or rather powder, got from potatoes, does not contain that substance, which is the cause of wheat flour forming a paste with water; and that the *desideratum*, is to add to potatoe-powder something which should give it that quality.

Nothing appears more simply, and more likely to answer the purpose, than the mixing it with different proportions of the flour of different sorts of grain, according to the kind of bread to be made of it, whether *leavened* or *unleavened*.

Two parts of wheat-flour to one of potatoe-powder, make a leavened bread, in no ways to be distinguished from wheat-bread alone.

Equal quantities of wheat-flour, and potatoe-powder, make a bread which leavens, and rises exceedingly well: but which has a taste, although very pleasant, a little different from wheat-bread.

Equal quantities of wheat-flour and potatoe-powder make a sea biscuit, which cannot, by the nicest taste, be distinguished from biscuit baked wholly of wheat flour.

Equal quantities of oat-meal and potatoe-powder unleavened, or with a small portion of yeast, make a cake or flat bread more pleasant, to the taste, than when made only of oat-meal.

With pease and barley-meal the potatoe-powder has not yet been tried: But it is more than probable that equal quantities of pease meal, and potatoe-powder will make a good wholesome bread, similar to a mixture of barley and pease-meal.

There is reason *a priori*, however, to believe, that a mixture of barley-meal and potatoe-powder will not answer equally well. To this account of the component parts or analyses of potatoes, and the uses to which the powder may be

applied, I shall subjoin the result of my last experiment made with 24lb. avoirdupoise of potatoes. From these were got 6lb. 2 one half oz. of flour, and 2 oz. of bran, or skin of the potatoes, making in all 6lb. 4 one half oz. The flour was prepared into the different kinds of bread stated below; wherein the weights of wheat-flour and potatoe-powder, as well as of the bread weighed when it came out of the oven, are accurately stated.

LEAVENED, OR LOAF-BREAD.			
Potatoe-powder	1 1/2 lb.	} Weight of Bread — 3 lb. 13 1/2 oz.	
Wheat-flour	1 1/2 lb.		
Potatoe-powder	1 lb.	} Weight of Bread — 3 lb. 14 oz.	
Wheat-flour	2 lb.		
	6 lb.		7 lb. 11 1/2 oz.
BISCUIT.			
Potatoe-powder	1 lb.	} Weight of Bread — 1 lb. 12 oz.	
Wheat-flour	1 lb.		
Potatoe-powder	2 1/2 lb.	} Weight of Bread — 4 lb. 10 1/2 oz.	
Wheat-flour	2 1/2 lb.		
	7 lb.		6 lb. 6 1/2 oz.

Enough has been stated in this letter to call the attention of the public to the farther uses of a plant, or root, which, in its simple and unprepared state, has been deemed, by one of the ablest men in Europe, (Abbe Raynal) to have been the only substantial blessing which the inhabitants of Europe derived from the discovery of the continent of America.

Another letter will soon follow this, stating other experiments on potatoes, as well as uses to which they, or the powder made from them, are applicable; together with the *beneficial consequences* that will ensue to Britain and Ireland, by the *increased cultivation* of a plant which, contrary to graniferous plants, produces its farina, or flour, under the surface of the earth, protected from the injury of the weather; and which yields that farina, on the same extent of ground, in the proportion of near three to one, to what is got from the best crop of wheat.

Culrofs Abbey, Feb. 1791.

[LETTER 2, IN OUR NEXT.]

Philadelphia, November 30.

Extract of a letter from James Maury, Consul of the United States at Liverpool, to the Secretary of State, dated September 14, 1791.

"The Ports of Britain are shut against Foreign Wheat.—Many of our vessels within my district have been under difficulties this year; and although, as yet, they have been released (except in three cases not finally decided on) without any great expence, yet the delay has been extremely injurious to, and been very hard on the owners. The causes have been informality in manifests, irregularity in crews, trading to Guernsey, as before-mentioned, but principally excess of spirits.

"The brig Betty, Capt. Salter, of Portsmouth, New-Hampshire, was refused entry in the Clyde six weeks, for the tonnage and where built being omitted in the manifest, and the affidavit thereto being made before a Justice of the Peace instead of the British Deputy Consul, although it was afterwards certified by said Deputy Consul.

"I submit to you the propriety of making public these particulars that similar inconveniences may be guarded against in future.

A notice from the Board of Customs, to the Collector and Comptroller of Liverpool.

"Whereas it has been stated to have been the practice for American ships and vessels to land at Guernsey cargoes of tobacco, the produce of the United States of America, contrary to the 12th Charles 2d. Chap. 18th.

"We direct you to make it known to all owners and masters of American vessels which may trade to and from your part, that two American vessels have been on that account lately seized there, and that the said act which not only prohibits the before-mentioned article, but all other species of goods, the produce of America, from being imported into the aforesaid Island, or the Island of Jersey, in foreign ships, will be strictly enforced in future."

The produce of the Rice Plantations the present season, are much larger than were ever before known in Carolina—and this is owing principally to the use of machines, the introduction of the plough instead of hoes, and to the humane treatment of the slaves, who are found to encrease thereby, instead of diminishing, as is the case in the Islands.

The English papers say, that the elections for the new Legislature of France go on with great rapidity, and every where with the most profound tranquility.

The harvest in England the present year, has turned out very favorably.

It is asserted in a late French paper, that the Abbe Raynal was not the real author of the work entitled, "The History of the European Establishments in the East and West-Indies."

From the general tenor of the late European papers, the new French Government is now universally looked upon as ESTABLISHED.

Amongst the objects which will claim the attention of the present Congress, will be a provision for the residuary surplus of the unfubscribed debts of the States. This subject, which was suggested in the President's speech, has been specially referred to the Secretary of the Treasury by the House of Representatives, and the liberal policy of that officer leaves little room to doubt that he will be an advocate for the measure, without which the Finances of the Union can never assume an orderly shape. Confusion must be the result of clashing revenue systems among the several States, and between the general Government and the States;—one general system should embrace the whole debt. N. Y. paper.

The glory of old England was the burthen of the song, from the Tar who swabbed the deck, to the immortal Pitt who guided the helm—the enthusiasm excited by this *ignis fatuus*, carried their triumphs round the globe;—but, happy for mankind, the principles of reason and philosophy are inspiring juster sentiments—a rivalry in the arts of peace, and universal philanthropy, will crown the labors of that country which shall make the most distinguished exertions to level the jealousies and prejudices in the family of man, with more real dignity than is comprized in all the victories from Alexander to Cæsar, and from Cæsar to Catharine.

APPOINTMENT.

The President of the United States has been pleased to appoint, by and with the advice and consent of the Senate, RICHARD HARRISON, of Virginia, to be Auditor of the Treasury.

It is an old adage, *Honesty is the best policy*—this applies to individuals and societies—to rulers and people—it extends to opinions and actions—to giving and receiving, and in all implies that golden rule of *doing as we would be done unto*—it carries its own reward with it—and in all ages and countries has rewarded the fathers and benefactors of mankind with the love of the people, promoted their happiness and celebrity while living, and embalmed their memories in the precious repositories of a grateful recollection in succeeding ages. Why then will human folly and a false greatness stimulate the ambitious pigmies of a day to such conduct as renders the tenure of their present enjoyments insecure, and transmits their name to posterity with execration!—It is because the demon of avarice hath extracted from their bosoms every drop of the "milk of human kindness."

Many people read newspapers who read little else—They live in retired situations, and feel a strong curiosity to know the news, and to join in the opinions of the day. To a retired man, a newspaper is always company—sometimes instruction. Bad newspapers, therefore, should be discouraged—because it is furnishing bad company to those whose solitary way of living makes them willing to accept of almost any. The mind profits as much, or more, by discipline, than the body. No exercise, therefore, should be encouraged, which tends to make it worse. When Gazettes are filled with tales to set credulity gaping, with slander of private characters, to supply malice with more poison; or with foul aspersions on government, to make patriotism sick at the heart—what is it but to nurse the bad passions with the food supplied for wisdom and virtue?

Liberty is not only secured against many former dangers, but it has fewer enemies to contend with. As knowledge spreads through Europe, it gains authority over the hearts of its adversaries; Kings begin to talk like good republicans—they give a tone to the fashion of being free. But let those who love liberty be careful how they mistake the love of liberty for the practice of its discipline. No man loves to be under the power of a master. Therefore, to become free men have only to let their passions loose; to secure freedom, they must contrive to put them under prudent restraints. This is the work of the understanding—it is never easy though often necessary to persuade men to surrender present power for future safety.

Our Allies, in forming their Government, have, according to the English paraphrasts, deviated from the opinions of the great Democrat, Mr. Paine, in several points;—they have established a monarchical form of government, and made the monarchy hereditary—and their constitution they have made perpetual, by declaring that it is susceptible of no alteration. This is, in effect, binding those that are to exist, at a future period; or which is the same thing, it is saying that those who will in a few years be no more, shall bind those who may then be on the stage of life.

Perhaps there is a point of perfection in government, if not in other things, beyond which mankind cannot progress—and if men can agree and determine precisely, when that point is attained, in which the two great objects of forming the social compact, liberty and security, may be most completely realized, why is it not a dictate of wisdom to resolve, that a Constitution thus organized, shall never be changed?

Monday the election of Directors to the institution for promoting American Manufactures, was made at Trenton—seven from New-York, and six of New-Jersey. We are not in possession of the names at present.

To JOSIAH HARMAR, ESQUIRE, Brigadier-General in the service of the United States, and Lieutenant Colonel Commandant of the first United States Regiment.

S I R, THE officers of the first regiment beg leave to express the warmth of their attachment to your person, and that perfect satisfaction which they have severally experienced under your command.

United as they have always been in sentiments of affection and friendship towards you, it is with extreme regret they are informed of your intention to quit the army.—If, Sir, upon this interesting occasion your officers might presume their advice—or would you attend to the respectful solicitations of men anxious for your welfare—they might yet hope for your continuance in the service. But—whatever may be your final determination, that honor and happiness may attend you, is amongst their first and most ardent wishes.

We have the honor to be, with perfect esteem and respect, Sir, your very humble servants,

[Signed by twenty-six commissioned Officers.]

TO THE OFFICERS OF THE FIRST UNITED STATES REGIMENT.

GENTLEMEN, YOUR very affectionate address of this morning, claims my warmest acknowledgments.

If I have been so fortunate, during my command, as to give satisfaction to my officers, believe me it has been reciprocal.

I sincerely thank you, gentlemen, for your expressions of affection and friendship towards me, and of the obliging part you appear to take in my future welfare. When I tell you that I shall continue to remember you, my companions, with emotions of friendship and affection, and that my best wishes for your happiness through life, can only cease to exist with myself, I beg you to receive it as the genuine effusion of my heart.

I have the honor to be, with the most affectionate regard, Gentlemen, your most obedient servant,

J. HARMAR, B. G. Fort-Washington, August 11, 1791.

From PELOSI's MARINE LIST.

ARRIVALS at the PORT of PHILADELPHIA.

Brig James,	Roe,	Cape-Francois
Minerva,	Raden,	Jamaica
Charleston,	German,	Charleston
Brothers,	Carpenter,	Cadiz
Snow Noltra Seignora,	Bernardo,	Oporto
Schooner Ann & Mary,	Sweetman,	Virginia
Sloop Peggy,	Whitby,	Ditto
Sally,	—,	St. Kitts
Merrimack,	Edwards,	Newbury-Port

PRICE CURRENT.—PUBLIC SECURITIES.

FUNDED DEBT.		
6 pr. Cents	21/9 pr. £.	108 1/2 pr. cent.
3 pr. Cents	12/6	61 do.
Deferred 6 pr. Cents	13/	65 do.
UNFUNDED DEBT.		
5 1/2 Sett. and other Certificates	10/6	20/ pr.
Indents	11/6	57 1/2 do.
Bank Subscriptions,	140 to 142	Dollars.