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# ESSAY II.

ON THE

# NATURE and PRINCIPLES

OF

# PUBLIC CREDIT.

CONTAINING

An Inveſtigation of the Natural Laws and Principles of CIRCULATION, reſtorative of the PUBLIC CREDIT of any State, in caſe it ſhall have become decayed,

TOGETHER WITH

A POSTSCRIPT, pointing out the Method of applying thoſe Laws and Principles, practically, to the Preſent State of the Public Debts and Finances of GREAT-BRITAIN.

Gale.

LONDON:

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M, DCC, LXXXIV.

0533



EAST-FLORIDA,
in NORTH-AMERICA.

*To all to whom these presents shall come, or may in any wise concern, I* JOHN KERR, *Public Notary, by Royal Au-*
L. S. *thority duly admitted and sworn, re-siding in* St. Augustine, *in the province aforesaid, DO make known and manifest,*

THAT on this 31st day of March, in the year of our Lord one thousand seven hundred and eighty-four, personally came and appeared before me, the said Notary, SAMUEL GALE, formerly of the county of Cumberland in the province of New-York, Esquire, late Acting *Itinerant* Deputy Paymaster General of his Majesty's Forces in the Southern Colonies, and now residing temporarily at St. Augustine, in the province of East-Florida aforesaid, who did then and there represent to me, the said Notary, that he then had in the press, nearly finished, a certain work, entitled, "Essay II. on the Nature and Principles of "Public Credit. Containing an Investiga-"tion of the Natural Laws and Principles "of Circulation, restorative of the Public "Credit of any State, in case it shall have

" become decayed. Together with a Poſt-
" ſcript, pointing out the Method of apply-
" ing thoſe Laws and Principles, practically,
" to the preſent State of the Public Debts
" and Finances of Great-Britain;" of which, he was getting ſtruck off a number of copies, from one hundred at the leaſt, to one hundred and twenty, at the moſt. And becauſe his having recourſe to the preſs in the ſaid province, might perhaps be conſidered as a dereliction of his legal right in ſuch his labour, unleſs the contrary ſhould appear; he the ſaid Samuel Gale, being then and there duly ſworn on the Holy Evangeliſts of Almighty God, did declare, depoſe, and ſay, " that it was not his intention that
" the copies ſo to be here ſtruck off, ſhould
" be conſidered in the light of an edition
" or publication: for, that none of the
" ſaid copies ſhould at any time be ſold by
" his authority, direction, or conſent; but
" on the contrary, that his reaſons for hav-
" ing this recourſe to the preſs, were the
" following, and no other, to wit; that
" for ſome weeks after he had finiſhed the
" manuſcript, he intended to have delayed
" the printing thereof, until he ſhould be
" in London, and to have laid the ſaid
" manuſcript before his Majeſty's Servants,
" and others, the ſtudious in that branch
" of ſcience, previous to the publication
" thereof; but, finding it inconvenient to
" go



" go to London, ſo ſoon as he intended at
" that time, and being deſirous of tranſ-
" mitting a greater number of copies for
" the conſideration of his Majeſty's Ser-
" vants, and others, the ſtudious in that
" brance of ſcience, than could be conve-
" niently prepared in manuſcript, he there-
" fore had this recourſe to the preſs, for
" aſſiſtance, and not for a general publica-
" tion."

Wherefore, at the requeſt of the ſaid Samuel Gale, I the ſaid Notary, do hereby make known the premiſes, to the intent that the copies ſo to be here ſtruck off (to each and every of which a printed copy of this notification will be affixed) be not conſidered, deemed, or taken in the light of an edition or publication; but, be taken and conſidered as if the ſame were in manuſcript, the private property of him the ſaid Samuel Gale, not to be publiſhed by any perſon or perſons whomſoever, without directions for ſo doing, from him, or his legal repreſentative.

*In Teſtimony whereof, I the ſaid Notary, have hereunto ſet my Hand, and affixed my Seal of Office; and the ſaid* Samuel Gale *hath hereunto ſubſcribed his name, the day and year in theſe preſents before written.*

JOHN KERR, *Pub. Not.*

S. GALE.

# PREFACE.

IN my former Eſſay on the ſubject of Public Credit, I endeavoured to inveſtigate the natural principles thereof, ſo far forth, as to aſcertain the ſyſtem of practice, by which a public debt would be preſerved from thoſe maladies, to which it muſt naturally be ſubjected, by different ſyſtems of practice: as alſo, the different degrees of malady, to which, different ſyſtems of practice muſt naturally ſubject it.

In the following ſheets, I endeavour to inveſtigate and aſcertain the ſyſtem of practice, whereby thoſe maladies will naturally be removed, in caſe they ſhall have actually taken place; and whereby the Public Credit will naturally become reſtored to its priſtine ſtate, in caſe it ſhall ſo have fallen into a decay.

This ſecond Eſſay being, as it were, a continuation of the firſt, I ſhall take it for granted,

granted, that the reader has ſo far a knowledge of the former, as to be able to recollect the ſeveral principles therein contained, that ſhall appertain to the preſent part of the ſubject, on their being briefly mentioned, as occaſion ſhall require.

The ſame indulgence, with reſpect to ſtyle and language, that I requeſted in my former Eſſay, I muſt requeſt again: and if, in the peruſal of the former, the reader ſhall have found a degree of ſatisfaction adequate to the labour, with which ſuch peruſal was attended; I would willingly flatter myſelf with hopes, that, by a like labour in the peruſal, the following ſheets may afford an equal, perhaps a greater, degree of ſatisfaction.

S. GALE.

*St. Auguſtine, Eaſt-Florida,*
*December*, 1783.

POSTU-

# POSTULATUM.

HAVING in my former Eſſay, uſed the terms *appreciation* and *depreciation*, to ſignify, technically, the oppoſites of each other, as riſing and falling, without previouſly poſtulating for ſo doing; it is neceſſary that I ſhould now poſtulate, that the terms *appreciation* and *depreciation*, be ſo taken, until other terms, more proper, ſhall occur.

This Poſtulatum ſhould have been made at the beginning of the ſixth ſection of the former Eſſay.

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*POST-*

*POSTSCRIPT.*

SECTION I.



SECT. II.



ESSAY

# ESSAY II.

SECTION I.

*Of the Nature and Progreſſional Power of the Sinking Fund, that ſhall be appropriated to the redemption of the Public Debt, whereby alone any maladies, under which the Public Credit ſhall labour, can be removed; which Progreſſional Power always increaſes naturally, as the Public Credit declines; but as naturally decreaſes again, on the revival of the Public Credit; and thereby becomes ineffectual, with reſpect to removing the malady, unleſs the Progreſſional Power ſo acquired be ſecured: The ſecurity whereof naturally renders the annuity appertaining to the creditor liable to reduction, unleſs that alſo be equally ſecured.*

IF the effects naturally flowing from the practical adoption of every particular meaſure were previouſly contemplated, it would, generally ſpeaking, be a much eaſier taſk to prevent evils from taking place, than to remove them afterwards. But, as we often ſee remedies effected, even when a ray of hope has ſcarce remained,

mained, we ought never to deſpair of being able, by diligent labour and application, to aſcertain the fountain of the malady, and to heal the ſores that may have flowed from it.

The reader will recollect from my former Eſſay (of which this may be conſidered as a continuation) that the maladies of public credit naturally proceed from the want of appropriating a ſufficient proportion of money, periodically, to the public debt; in conſequence whereof, the value of the capital or ſtock naturally depreciates; with which depreciation the rate of intereſt naturally riſes, and a greater periodical revenue, or burthen on the members of the ſtate, thereby becomes neceſſary, in order to put any given capital in motion.

Now, ſeeing that the inſufficiency of the proportion of money appropriated to the debt, is the cauſe, from whence the malady flows, it muſt neceſſarily follow, that an addition to the money ſo appropriated, muſt be the only natural remedy or counteractor of that malady. This, the reader will recollect, coincides with what was mentioned in the concluſion of the ninth ſection of my former Eſſay, viz. " that the only remedy in nature for " the maladies of public credit, is a ſinking fund, " or, in other words, a revenue wherewith to " redeem the debt."

It is alſo perfectly evident, that the rate of intereſt is the ratio of the progreſſion, in which the redemption of the capital or principal, and the releaſe of the revenue appropriated to the payment of the intereſt thereof, will be effected, by the appropriation of any ſurplus revenue or ſinking fund; wherefore, the higher the rate of intereſt ſhall be, the greater will be the redemption that





will be effected by any given ſurplus revenue or ſinking fund, in the ſame given time.

For example. The capital or principal that will be paid off, and the annual revenue that will be releaſed, by the appropriation of a ſurplus revenue or ſinking fund of one million per annum (or rather 500,000*l.* per half year, ſuppoſing the payments to be made half-yearly) during twenty years, will be as follows, according as the rate of intereſt ſhall be; viz.

If the rate of intereſt be 3 per cent. per annum,
£. 27,133,660 cap. and £. 814,010 rev.
If 4 per cent. per annum,
£. 30,201,250 cap. and £. 1,208,050 rev.
If 5 per cent. per annum,
£. 33,701,400 cap. and £. 1,685,070 rev.
If 6 per cent. per annum,
£. 37,700,500 cap. and £. 2,262,030 rev.

The ſame ſurplus revenue, or ſinking fund, will, in thirty years, redeem as follows; viz.

If the rate of intereſt be 3 per cent. per annum,
£. 48,106,660 cap. and £. 1,443,200 rev.
If 4 per cent. per annum,
£. 57,026,000 cap. and £. 2,281,040 rev.
If 5 per cent. per annum,
£. 67,996,200 cap. and £. 3,399,810 rev.
If 6 per cent. per annum,
£. 81,526,400 cap. and £. 4,891,584 rev.

The redemptions that will be effected by the ſame ſurplus revenue, or ſinking fund, of one million per annum (or rather 500,000*l.* per half year) in forty years, will be as follows; viz.

If the rate of intereſt be 3 per cent. per annum,
£. 76,102,400 cap. and £. 2,283,072 rev.

If 4 per cent. per annum,
£.96,886,500 cap. and £.3,875,460 rev.
If 5 per cent. per annum,
£.124,182,000 cap. and £.6,209,100 rev.
If 6 per cent. per annum,
£.160,680,730 cap. and £.9,640,844 rev.

The ſame ſurplus revenue, or ſinking fund, will, in fifty years, redeem as follows; viz.

If the rate of intereſt be 3 per cent. per annum,
£.114,400,000 cap. and £.3,432,000 rev.
If 4 per cent. per annum,
£.156,117,500 cap. and £.6,244,700 rev.
If 5 per cent. per annum,
£.216,276,000 cap. and £.10,813,800 rev.
If 6 per cent. per annum,
£.303,642,000 cap. and £.18,218,520 rev.

And ſo in proportion for any other ſurplus revenue, or ſinking fund, whether greater or leſſer.

Here then it muſt be obſerved, that as the rate of intereſt naturally increaſes, in conſequence of an inſufficiency in the proportion of money periodically appropriated to the debt, and thereby cauſes the burthens of the members of the ſtate, for putting any given capital in motion, to become greater and greater; ſo alſo, from that increaſe in the rate of intereſt, there naturally flows a proportionate addition to the power or efficacy of the ſurplus revenue, or ſinking fund, that ſhall be appropriated to the removal of thoſe burthens; ſo that out of the malady itſelf there naturally ſprings a remedy proportionate to it, in caſe the ſinking fund ſhall be ſo adminiſtered, as to preſerve the additional power or efficacy ſo produced.

But it muſt be remembered, that the appropriation of a ſurplus revenue, or ſinking fund, to the



the redemption of the debt, naturally produces a decreaſe in the rate of intereſt: and ſeeing, that the lower the rate of intereſt ſhall be, the leſs will be the power or efficacy of the ſinking fund; it muſt neceſſarily follow, that the above-mentioned additional power or efficacy, which the ſinking fund naturally derives from the increaſe of the rate of intereſt, will naturally become loſt, as the rate of intereſt decreaſes, unleſs its ſecurity be previouſly provided for.

It muſt alſo be obſerved, that the decreaſe in the rate of intereſt is one of the principal objects, in which the removal of the malady conſiſts; becauſe, the lower the rate of intereſt ſhall be, the leſs will be the revenue (or burthen to the members of the ſtate) that will be required to put any given capital in motion, for the public ſervice or defence, or for the improvement of commerce and induſtry. A decreaſe in the rate of intereſt, is therefore a natural (and perhaps the only poſſible) incentive to a general improvement of commerce, induſtry, and the uſeful arts*; and is therefore

* Regulations of commerce by poſitive laws, viz. prohibitions, monopolies, bounties, drawbacks, exemptions, &c. may indeed encourage particular branches of induſtry at the expence of other branches, by drawing the capitals ſo employed, out of one branch into another: but, if we admit (which I think we may admit with the greateſt ſafety) that commerce and induſtry can be ſupported no otherwiſe than by the capitals ſo employed; it muſt neceſſarily follow, that nothing but a decreaſe in the rate of intereſt (whereby larger capitals ſhall become obtainable at a ſmaller expence or intereſt) can afford a general encouragement to commerce and induſtry.

therefore one of the greateſt bleſſings that a nation is capable of enjoying. And, ſeeing that the ſinking fund, to be applied to the redemption of the public debt, is the inſtrument wherewith to produce this neceſſary decreaſe in the rate of intereſt; the greater its effective power ſhall be, the faſter the rate of intereſt will be thereby decreaſed; the ſooner alſo the malady of the public credit will be thereby removed; and the more the commerce

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On this admiſſion alſo, the encouragements that ſhall be given to particular branches of commerce and induſtry, in preference to other branches, muſt be exceedingly dangerous; not only becauſe they have a natural tendency to diſtreſs other branches, by a diverſion of the capitals that ſhould naturally be employed in them; but alſo, becauſe they have a natural tendency to cauſe the productions of the labour, ſo maintained by the diverted capitals, to exceed their natural proportions; whereby thoſe productions may become unable to find a market; and in that caſe, the branch ſo favoured muſt neceſſarily ſuffer, as well as the others; and the whole muſt conſequently fall into a greater degree of decay, than could poſſibly flow from the ſame cauſe, whatever it might be, if every thing was left to the free competition of the market.

If any particular branch of commerce, or induſtry, be in itſelf more profitable than the other branches, any additional preference muſt certainly be unneceſſary; and ſo far as it ſhall be leſs profitable than the other branches, it muſt certainly be unworthy of a preference. The incentive to the improvement of commerce and induſtry, ought therefore to be general and free, not partial or confined; and ought to be directed towards a decreaſe in the rate of intereſt, by the free and open competition of the market; becauſe thereby, and thereby alone, larger capitals can be put in motion, with the ſame given reſources; whereby alone, that general incentive can be produced.



commerce and induſtry of the ſtate will be promoted.

From theſe obſervations it is perfectly evident, that the firſt ſtep to be taken, in order to remove the malady under which the public credit ſhall labour, muſt be, to ſecure the power or efficacy of the ſinking fund from decreaſing as the market-rate of intereſt ſhall decreaſe.

Now, a decreaſe in the rate of intereſt, and an increaſe in the value of annuities (of which it muſt be remembered the public debt is compoſed) naturally go hand in hand with each other; wherefore, in order to preſerve the power of the ſinking fund from *decreaſing* as the rate of intereſt decreaſes, the price to be demanded for the redemption of the annuities, muſt be prevented from *increaſing* as the rate of intereſt decreaſes.

The reader will recollect, from the ſecond ſection of my former Eſſay, that in a public debt, the annuity only, and not the capital or principal, is demandable by the creditor. This being the caſe, the annuity is in reality the actual debt; and hence, whatever the nominal capital or ſtock ſhall be, or whether the debt ſhall or ſhall not have any nominal capital or ſtock, the actual capital or real principal of ſuch debt, muſt be the actual value of the annuity.

It muſt alſo be remembered, that if the annuity, or actual debt, ſhall have no nominal capital (which is the caſe with perpetual annuities, and with determinate annuities, as defined in the beginning of the ſecond ſection of my former Eſſay) the price to be demanded by the annuitant, for the redemption thereof, is not reſtricted; and is therefore capable of increaſing, from time to time, in its natural proportion, to whatever degree the

market-rate of intereſt ſhall decreaſe. But the price to be demanded for the redemption of an annuity ſtock, is naturally reſtricted, ſo far forth (and ſo far forth only) that it cannot increaſe beyond the nominal capital thereof.

Hence then, in order to prevent the price that ſhall be demanded for the redemption, from increaſing as the rate of intereſt ſhall decreaſe, (whereby alone the power of the ſurplus revenue, or ſinking fund, ſo to be appropriated, can be preſerved) the debt muſt be converted into a redeemable ſtock, the nominal capital whereof ſhall not exceed the actual value of the annuities, computed according to the market-rate of intereſt for the time being.

To make theſe obſervations plain by an example, let it be ſuppoſed that a public debt ſhall conſiſt of one hundred millions of 3 per cent. ſtock, or, which is the ſame, of three millions of annuity to be redeemed; and let it alſo be ſuppoſed, that the market-rate of intereſt for the time being ſhould be $4\frac{1}{2}$ per cent. per annum. In this caſe, the actual value or real principal of the debt, for the time being, would be $66\frac{2}{3}$ millions; that is $66\frac{2}{3}$ *l.* in money for every 3 *l.* annuity, or for every 100 *l.* of 3 per cent. ſtock. But if the rate of intereſt in the market decreaſes (and decreaſe it unavoidably muſt, by the appropriation of a ſurpluſſage of money to this channel of circulation) to 4 per cent. per annum, the redemption of 100 *l.* of 3 per cent. ſtock, or of 3 *l.* annuity thereunto annexed, muſt require 75 *l.* Should the rate of intereſt in the market decreaſe to $3\frac{1}{2}$ per cent. per annum, the redemption of 100 *l.* of 3 per cent. ſtock, or of 3 *l.* annuity thereunto annexed, muſt require $85\frac{5}{7}$ *l.* Should the rate of intereſt in the market





decreaſe to 3 per cent. per annum, the redemption of 100 *l.* of 3 per cent. ſtock, or of 3 *l.* annuity thereunto annexed, muſt require 100 *l.* inſtead of the aforeſaid $66\frac{2}{3}$ *l.* And ſeeing that this increaſe in the price will naturally be greater or leſſer, according as a greater or leſſer ſurpluſſage of money ſhall be thrown into this channel of circulation; ſo, conſequently, the greater the ſinking fund, thus appropriated, ſhall be, the greater muſt be the loſs to the public in the redemption. In order, therefore, to prevent the price of the redemption from thus increaſing, as the market-rate of intereſt ſhall decreaſe, the debt muſt be converted into a redeemable annuity-ſtock, the nominal capital whereof ſhall not exceed the ſaid $66\frac{2}{3}$ millions; without which, the power of the ſinking fund muſt naturally be ſwallowed up, by the increaſing price, which naturally becomes required for the redemption.

In the like manner, whatever annuities the debt to be redeemed ſhall be compoſed of (whether perpetual, redeemable, determinate, or mixed annuities) the actual value thereof, for the time being, muſt be converted into a redeemable ſtock, the nominal capital of which ſhall not exceed ſuch actual value; or elſe, the power of the ſinking fund, that ſhall be appropriated to the redemption, muſt mathematically and infallibly fail.

But it muſt be obſerved, that although when the rate of intereſt ſhall ſtand at $4\frac{1}{2}$ per cent. an annuity ſtock bearing $4\frac{1}{2}$ per cent. is worth 100 *l.* and an annuity ſtock bearing 3 per cent. is worth only $66\frac{2}{3}$ *l.* yet, no man, conſiſtent with his own intereſt (which may with perfect ſafety be aſſumed to be his *primum mobile* in all caſes) can give up 100 *l.* of 3 per cent. ſtock for $66\frac{2}{3}$ *l.* of $4\frac{1}{2}$ per cent.

ſtock; becauſe the natural principles of commercial ſpeculation will be againſt him, in the following manner; viz.

If the market-rate of intereſt ſhould ſtand at $4\frac{1}{2}$ per cent. or, if it ſhould become higher than $4\frac{1}{2}$ per cent. in either of theſe caſes, 100*l.* of 3 per cent. ſtock will be worth as much as $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock; and if the market rate of intereſt ſhould become lower than $4\frac{1}{2}$ per cent. 100*l.* of 3 per cent. ſtock will be worth more than $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock: ſo that $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock cannot poſſibly become worth more than 100*l.* of 3 per cent. ſtock; but 100*l.* of 3 per cent. ſtock may become worth much more than $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock*.

Hence then, the nominal capital of the ſtock neceſſary to be given for every 100*l.* of 3 per cent. ſtock, or for every $66\frac{2}{3}$*l.* of the actual value of the debt, muſt be ſuch as ſhall (contingently at leaſt) be worth more than $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock: and, ſeeing that the ſaid nominal capital ſo to be given, muſt not exceed $66\frac{2}{3}$*l.* the rate of intereſt, or annuity thereunto to be annexed, muſt neceſſarily exceed $4\frac{1}{2}$ per cent.

But here again it muſt be obſerved, that as the rate of intereſt to be annexed to the annuity ſtock, muſt in this caſe be higher than the rate of intereſt in

* For theſe reaſons, it may likewiſe be obſerved, that when a man can buy a 3 per cent. ſtock at any given price, he cannot, conſiſtent with his own intereſt, give the full comparative value for any ſtock bearing a higher rate than 3 per cent. unleſs the conditions of redemption ſhall be ſo ſtipulated as to afford an equal advantage to each ſtock, taking all fluctuations of the market-rate of intereſt into conſideration together.



in the market; the extra intereſt, ſo to be annexed to the ſtock, naturally becomes liable to an immediate reduction, unleſs its ſecurity be provided for: becauſe it immediately becomes the intereſt of the annuitor, to borrow other money at the market-rate of intereſt, wherewith to redeem the ſtock, which is evidently contrary to the intereſt and intention of the annuitant or creditor, to whom ſuch extra intereſt becomes of right due, in return for the equivalent (i. e. the capacity of the increaſe in value) by him given up.

In order, therefore, to regard uprightly the mutual intereſts of the parties, it is equally neceſſary, that the honeſt demand of the annuitant or creditor ſhould be ſecured from decreaſing, as that the progreſſional power of the ſinking fund, to be appropriated by the annuitor or public, ſhould be ſecured from decreaſing; and, in order that this equal ſecurity ſhall flow naturally from the ſtock, into which the debt ſhall be thus converted, the ſtock muſt neceſſarily be eſtabliſhed on certain fixed principles, or limited conditions of redemption.

The neceſſary principles of the ſtock thus to be eſtabliſhed, require a particular conſideration.

SECT.

## SECT. II.

*An Inveſtigation, aſcertaining the neceſſary principles of an Annuity Stock, that ſhall naturally produce an equal ſecurity to the Progreſſional Power of the Sinking Fund, and to the Annuity appertaining to the creditor.*

IN order to aſcertain the neceſſary principles of a ſtock, that ſhall naturally produce an equal ſecurity to the progreſſional power of the ſinking fund, that ſhall be appropriated by the annuitor or public, and to the intereſt or annuity that ſhall appertain to the annuitant or creditor; it is neceſſary to bring into one view, the advantages intended to be derived, and the diſadvantages intended to be avoided, by each of the contracting parties; and to examine how far their reſpective intereſts coincide with each other, and at what point they begin to ſeparate. I muſt therefore requeſt the reader to pardon the repetitions, which ſuch examination renders neceſſary.

The ſuppoſition on which this ſecond Eſſay commences, is, that the credit of the annuitor or public is in a declined ſtate; which is evinced by a depreciation of the capital-value of the annuities, and an increaſe in the rate of intereſt; which are, in their nature, inſeparable companions, and go always hand in hand with each other. The final effect, from hence naturally flowing, is a public bankruptcy (as was demonſtrated in the ninth ſection of my former Eſſay) by which the credit of the annuitor, and the debt due to the annuitant,



annuitant, muſt be naturally ſwallowed up in one and the ſame grave.

To avoid this direful calamity, is equally the intereſt, and muſt therefore be ſuppoſed to be equally the intention, of both parties: and ſeeing (as was obſerved in the beginning of the foregoing ſection) that the only poſſible remedy or preventative of this direful calamity, is the appropriation of a ſurplus revenue, or ſinking fund, for the redemption of the debt; ſo, conſequently, the reſpective intereſts of the parties muſt neceſſarily form, thus far, a perfect coincidence and conjunction. It muſt likewiſe neceſſarily follow, that this coincidence and conjunction of the intereſts of the parties would remain uninterrupted, if the ſinking fund, ſo to be appropriated, was productive of no other effect but the redemption thus required.

The only disjunction, therefore, that can take place in the intereſts of the parties, appertains to the further effects (which go hand in hand with the decreaſe of the rate of intereſt) naturally flowing from the appropriation of the ſinking fund. Theſe effects are (as was obſerved in the foregoing ſection) either an increaſe in the capital-value of the annuity, or a decreaſe in the annuity itſelf; the one or the other of which muſt, in the natural and unalterable courſe of things, be unavoidably produced.

So far as the capital-value of the annuity ſhall increaſe in conſequence of the decreaſe of the rate of intereſt, an advantage muſt evidently flow to the annuitant or creditor. But unleſs the price to be demanded for the redemption be limited, in the manner mentioned in the foregoing ſection, this increaſe in the capital-value of the annuity, deſtroys

deſtroys the progreſſional power of the ſinking fund, that ſhall be ſo appropriated by the annuitor or public.

On the other hand, ſo far as the annuity ſhall decreaſe in conſequence of the decreaſe of the rate of intereſt, ſo far an advantage muſt evidently flow to the annuitor or public.

But here it muſt be obſerved, that the annuitant has always a demand on the annuitor for his full annuity (whatever may be the difference between the market-rate of intereſt and the rate annexed to the ſtock) until the money for the ſtock or capital ſhall be tendered in diſcharge thereof: ſo that the annuity or intereſt appertaining to the creditor, can never decreaſe in conſequence of the decreaſe of the market-rate of intereſt, in any further degree than as the principal ſhall be thus tendered.

Hence then, if the price to be demanded for the redemption be limited, by converting the debt into a ſtock of annuities, bearing a higher rate of intereſt than that of the market, in the manner mentioned in the foregoing ſection; and the tender to be periodically made for the redemption of ſuch ſtock, be likewiſe limited to a certain proportion, beyond which it ſhall be at the option of the annuitant either to refuſe the tender, or to accept it on ſuch terms only, as he himſelf ſhall, from time to time, think proper: then, the progreſſional power of the ſinking fund, that ſhall be appropriated to the redemption of ſuch ſtock, as alſo the annuity or intereſt appertaining to the remaining part of ſuch ſtock, will each be perfectly ſecured from decreaſing with the market-rate of intereſt. And ſo far as the annuity, or intereſt on the ſtock, ſhall be thus ſecured from decreaſing,



decreaſing, ſo far the capital-value thereof muſt conſequently increaſe, as the rate of intereſt in the market ſhall decreaſe.

The grand point, therefore, remaining to be determined, is the proportion, which the tender, thus to be ſtipulated, ſhall bear to the capital or ſtock.

Now, the larger the tender, thus to be ſtipulated, ſhall be, the more advantageous it muſt evidently be for the annuitor; becauſe, how much ſo ever the ſurplus revenue, or ſinking fund, ſhall fall ſhort of the ſtipulated tender, the annuitor may nevertheleſs ſave the decreaſe of the intereſt thereon, by borrowing the money in the market.

But, although the advantage or profit, flowing to the annuitor or public, will be greater as the ſtipulated tender ſhall be greater, yet it does not hold, *vice verſa*, that the advantage or profit, flowing to the annuitant or creditor, ſhall be greater, as the ſtipulated tender ſhall be leſſer; becauſe, the leſs the tender ſhall be, the leſs muſt be the decreaſe thereby produced in the market-rate of intereſt; and the leſs, of courſe, muſt be the increaſe in the capital-value of the annuity ſtock, in which increaſe the annuitant's advantage or profit conſiſts.

The greater the tender ſhall be, the greater muſt be the decreaſe thereby produced in the market-rate of intereſt; and the greater, of courſe, muſt be the advantage or profit, to one or other of the parties: and, ſeeing that ſuch part of this profit as cannot, by the ſtipulation, be ſaved by the annuitor, muſt neceſſarily accrue to the annuitant in the increaſe of the value of his ſtock or capital; ſo, conſequently, it muſt be the intereſt of the annuitant to ſubject himſelf to as great a tender as ſhall

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ſhall be capable of producing as great a profit to himſelf, as it ſhall produce to the annuitor; whereby, whatever decreaſe ſhall be ſo actually produced in the market-rate of intereſt, the annuitor ſhall naturally ſave the one-half thereof by the tenders ſo by him to be made; and whereby alſo, the capital-value of the annuity ſtock appertaining to the annuitant, ſhall naturally increaſe, in proportion to the other half thereof.

Now, this required diviſion will be preciſely and exactly accompliſhed, by ſtipulating, that the tender, to which the annuitant ſhall be periodically ſubject, in diſcharge of the ſtock or capital, ſhall be equal to the annuity or intereſt that ſhall be by him periodically demandable. For, if any annuity ſtock, bearing any rate of intereſt higher than that of the market, be ſubject to a periodical tender, in diſcharge of the capital, equal to the annuity, or intereſt therefrom periodically flowing, the value thereof will be preciſely the ſame as if ſuch annuity was perpetual, and the rate of intereſt half-way between that of the market and that of the ſtock*.

For

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* DEMONSTRATION.

I. If any annuity, $a = C \times \overline{r-1}$, ſhall flow from any perpetual annuity ſtock or capital $C$, bearing a rate $r$, equal to the ordinary rate of increaſe by intereſt in the market; then it is evident that the value or preſent worth of ſuch annuity $a$, or of ſuch ſtock $C$, will be - - - - - - - - - - - - - - $C = \frac{a}{\overline{r-1}}$

II. But the value or preſent worth of ſuch annuity ſtock, and the preſent worth of all the periodical annuities,



For example: If the rate of intereſt in the market be $4\frac{1}{2}$ per cent. per annum, an annuity ſtock bearing 5 per cent. per annum, ſubject to a tender of 5 per cent. per annum, in diſcharge of the capital, will be worth juſt $105\frac{5}{19}$ *l.* which is exactly the ſame as a perpetual annuity of 5 *l.* would be worth, if the market-rate of intereſt was $4\frac{3}{4}$ per cent. per annum.

An annuity ſtock bearing 5 per cent. per annum, ſubject to a tender of 5 per cent. per annum, in diſcharge of the capital, will, when the rate of intereſt in the market is 4 per cent. per annum, be worth juſt $111\frac{1}{9}$ *l.* which is exactly the ſame as a perpetual annuity of 5 *l.* would be worth, if the market-rate of intereſt was $4\frac{1}{2}$ per cent. per annum.

When

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ties, ſo flowing therefrom, *ad infinitum*, are preciſely one and the ſame thing; wherefore we have

$$\frac{a}{r} + \frac{a}{r^2} + \frac{a}{r^3} + \frac{a}{r^4} + \frac{a}{r^5} + \&c.\ ad\ infinitum, = \frac{a}{\overline{r-1}}$$

III. Again, if any annuity $A = C \times \overline{R-1}$, ſhall flow from any redeemable annuity ſtock or capital $C$, equal in nominal capital to the former, but bearing a rate of increaſe by production $R$, higher than the ordinary rate $r$, of increaſe by intereſt in the market; then it is evident, that the value or preſent worth of ſuch annuity $A$, or of ſuch ſtock $C$, muſt be greater than the former, according to the terms or conditions, on which the ſaid ſtock or capital ſhall be redeemable; whereby the extra part $A - a$ of the annuity (or the extra intereſt $C \times \overline{R-r}$) ſhall, ſo far forth, expire.

IV. And, if ſuch ſtock or capital $C$, bearing the ſaid rate $R$, be ſubject to any given periodical ratio R of redemption, by *par* payment; then it is evident, that the ſaid extra part $A - a$ of the annuity, muſt periodically

 decreaſe

When the rate of intereſt in the market is $3\frac{1}{2}$ per cent. per annum, an annuity ſtock bearing 5 per cent. per annum, ſubject to a tender of 5 per cent. per annum, in diſcharge of the capital, will be worth juſt $117\frac{1}{17}$ *l.* which is exactly the ſame as a perpetual annuity of 5 *l.* would be worth, if the market-rate of intereſt was $4\frac{1}{4}$ per cent. per annum.

If the rate of intereſt in the market ſhould be 3 per cent. per annum, the value of a five per cent.

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decreaſe in that given ratio, and muſt therefore become periodically as follows, viz.

$\frac{A-a}{1}, \frac{A-a}{R}, \frac{A-a}{R^2}, \frac{A-a}{R^3}, \frac{A-a}{R^4}$, &c. *ad infinitum*;

the value or preſent worth of which is

$\frac{A-a}{r} + \frac{A-a}{r^2R} + \frac{A-a}{r^3R^2} + \frac{A-a}{r^4R^3} + \frac{A-a}{r^5R^4} +$ &c. *ad infinitum*; which (per II.) is equal to $- \frac{\overline{A-a} \times R}{rR-1}$

V. Wherefore (I. & IV.) the value or preſent worth of the ſaid annuity $A$, or ſtock $C$, bearing the rate $R$, is $- - - - - - - - - - \frac{a}{r-1} + \frac{\overline{A-a} \times R}{rR-1}$

VI. Now, if the periodical tender, to which the ſaid ſtock or capital $C$, bearing the ſaid rate $R$, be ſubjected, ſhall be equal to the annuity $A$, therefrom flowing; then it is evident, that $- - - - \frac{C}{R} = C - A$

VII. Which (III.) is $- - \frac{C}{R} = C - \overline{C \times R-1} = 2C - CR.$

VIII. Wherefore, $- - R = \frac{C}{2C-CR} = \frac{1}{2-R}$

IX. In this caſe, therefore, the above-mentioned value



cent. annuity ſtock, ſubject to the above-mentioned principle of redemption, would be 125 *l.* which is exactly the ſame as a perpetual annuity of 5 *l.* would be worth, if the market-rate of intereſt was 4 per cent. per annum.

In like manner, the value of an annuity ſtock, bearing 6 per cent. per annum, ſubject to a tender of 6 per cent. per annum, in diſcharge of the capital, will be as follows; viz.

If the rate of intereſt in the market be 5 per cent. per annum, ſuch 6 per cent. ſtock will be worth

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value or preſent worth (V.) of the annuity $A$, or of the ſtock $C$, bearing the rate $R$, will be

$$\frac{a}{r-1} + \frac{\overline{A-a} \times \frac{1}{2-R}}{\frac{r}{2-R} - 1}$$

X. Which (by reduction) is $= \frac{a}{r-1} + \frac{A-a}{r+R-2}$

XI. But (I.) $a = C \times \overline{r-1}$, wherefore the above value or preſent worth (X.) is $= C + \frac{A-C \times \overline{r-1}}{r+R-2}$

XII. Which (by reduction) is $- = \frac{CR-C+A}{r+R-2}$

XIII. Again (III.) $A = C \times \overline{R-1} = CR-C$; wherefore the above value or preſent worth (XII.) is $- - - - - - - - - - - - = \frac{2A}{r+R-2}$

XIV. Which (by reduction) is $- = \frac{A}{\frac{r+R}{2} - 1}$

WHICH WAS TO BE DEMONSTRATED.

worth $109\frac{1}{11}$ *l.* which is exactly the ſame as a perpetual annuity of 6*l.* would be worth, if the market-rate of intereſt was $5\frac{1}{2}$ per cent. per annum.

If the rate of intereſt in the market be 4 per cent. per annum, ſuch 6 per cent. ſtock will be worth 120*l.* the ſame as a perpetual annuity of 6*l.* would be worth, if the market-rate of intereſt was 5 per cent. per annum.

If the rate of intereſt in the market ſhould be 3 per cent. per annum, ſuch 6 per cent. ſtock would be worth $133\frac{1}{3}$*l.* the ſame as a perpetual annuity of 6*l.* would be worth, if the market-rate of intereſt was $4\frac{1}{2}$ per cent. per annum. And the like univerſally, how much ſo ever or how little ſo ever the rate of intereſt in the market ſhall be lower than the rate annexed to the ſtock.

## SECT. III.

*Of the ſuperior advantages attendant on an Annuity Stock of the aforegoing principles, in preference to any other kind of Annuities; and the mutual benefit flowing therefrom, as well to the Creditors as to the Public: whereby the Public Credit naturally becomes reſtored to its priſtine ſtate.*

THE effects naturally flowing from a redeemable annuity ſtock, bearing a higher rate of intereſt than that of the market, and ſubject to the before-mentioned limited tender for the redemption, are ſo infinitely ſuperior to the effects flowing from a debt conſiſting of any other kind of annuities, that it would be almoſt endleſs to undertake





dertake a full enumeration of them: it is neceſſary, however, to take notice of a few of the moſt material.

It is perfectly evident, on the ſlighteſt reflection, that when a public debt ſhall have become more than ſufficiently large for the employment and circulation of ſuch ſurplus monies as would otherwiſe lay from time to time idle and unproductive, a ſinking fund muſt be applied to the redemption of it (whatever annuities it ſhall conſiſt of) or elſe, the capital-value thereof muſt unavoidably depreciate in the market.

And (ſeeing the application of ſuch ſinking fund muſt naturally and unavoidably produce a decreaſe in the market-rate of intereſt) if the annuities, of which the debt ſhall be compoſed, are not limited with reſpect to the price of the redemption (which is the caſe with perpetual annuities, and with determinate annuities, as alſo with annuities appertinent to ſtocks, ſo far forth as ſuch annuity ſtocks ſhall bear a lower intereſt than that of the market) the power of the ſinking fund muſt naturally and unavoidably decreaſe with the rate of intereſt; as has been already explained. On the other hand, if the price of the redemption be limited (which is the caſe with annuity ſtocks, bearing either the market-rate of intereſt, or any higher rate) and the tender to be made for the redemption of the capital, be not limited likewiſe; the annuity appertaining to the creditor, muſt decreaſe with the rate of intereſt, as has alſo been already explained. In every one of theſe caſes, therefore, although the application of a ſinking fund is indiſpenſably and equally neceſſary, for the preſervation of the intereſts of each of the parties; yet the actual application

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thereof naturally and unavoidably produces an immediate disjunction, contrariety, and oppoſition, in their reſpective intereſts.

But in a ſtock bearing a higher intereſt than that of the market, and ſubject to a limited tender periodically, in diſcharge of the capital, equal to the annuity therefrom periodically flowing, the intereſts of the parties are each equally ſecured; and the advantages that flow from the decreaſe of the rate of intereſt (with which the application of the ſinking fund is neceſſarily attended) become naturally divided, in equal proportions, between the annuitor and the annuitant; whereby their reſpective intereſts go naturally hand in hand with each other, and form, continually, a perfect and exact concordance, coincidence, and conjunction.

Were no other reaſons to be urged, the above alone would perfectly evince, that ſuch ſtock muſt be infinitely ſuperior to any other poſſible kind of annuities, for a public debt.

But, although the above-mentioned ſtock is univerſally preferable to any other kind of annuities, it is ſtill more peculiarly ſo as a ſecurity againſt the loſſes attendant on a decline of the public credit, or an increaſe in the rate of intereſt; becauſe, in like manner as the capital-value of the annuity flowing from this ſtock increaſes, in proportion only to one-half of the decreaſe in the rate of intereſt; ſo alſo, in caſe of an increaſe in the ordinary rate of intereſt, the depreciation of the capital-value will be in proportion only to one-half of ſuch increaſe.

This poſition, it muſt be obſerved, holds ſo long, and ſo long only, as the rate of intereſt appertinent to the ſtock, ſhall be higher than the rate of intereſt in the market; and, conſequently,





the more the rate of intereſt on the ſtock ſhall exceed the rate of intereſt in the market, the greater this ſecurity muſt be.

For example: Let it be ſuppoſed, that the rate of intereſt in the market ſhould be $4\frac{1}{2}$ per cent. per annum. In this caſe (ſuppoſing the market-rate of intereſt to be ſtationary) 100*l.* of annuity ſtock, bearing 3 per cent. per annum, would be worth $66\frac{2}{3}$*l.* in money; which would be of equal value with either of the following quantities of ſtock, bearing different rates of intereſt, and ſubject to the before-mentioned periodical tender of redemption; viz.

| *£.* | |
|---|---|
| $66\frac{2}{3}$ of annuity ſtock, bearing | $4\frac{1}{2}$ per cent. per ann. |
| $63\frac{1}{3}$ - - - - | 5 per cent. per ann. |
| $60\frac{20}{33}$ - - - - | $5\frac{1}{2}$ per cent. per ann. |
| $58\frac{1}{3}$ - - - - | 6 per cent. per ann. |

But, if the market-rate of intereſt ſhould increaſe to 5 per cent. per annum, the 100*l.* of 3 per cent. ſtock, and the $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock, would each be worth only 60*l.* whereas the $63\frac{1}{3}$*l.* of 5 per cent. ſtock, would be then worth $63\frac{1}{3}$*l.*; the $60\frac{20}{33}$*l.* of $5\frac{1}{2}$ per cent. ſtock, $63\frac{3}{6}\frac{1}{3}$*l.*; and the $58\frac{1}{3}$*l.* of 6 per cent. ſtock, $63\frac{7}{11}$*l.*

If the market-rate of intereſt ſhould increaſe to $5\frac{1}{2}$ per cent. per annum, the 100*l.* of 3 per cent. ſtock, and the $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock, would each of them be worth only $54\frac{6}{11}$*l.*; whereas the $63\frac{1}{3}$*l.* of 5 per cent. ſtock, would be then worth $57\frac{19}{33}$*l.*; the $60\frac{20}{33}$*l.* of $5\frac{1}{2}$ per cent. ſtock, $60\frac{20}{33}$*l.*; and the $58\frac{1}{3}$*l.* of 6 per cent. ſtock, $60\frac{20}{23}$*l.*

If the market-rate of intereſt ſhould increaſe to 6 per cent. per annum, the 100*l.* of 3 per cent. ſtock, and the $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock, would

each of them be worth only 50*l.*; whereas the $63\frac{1}{3}$*l.* of 5 per cent. ſtock, would be then worth $52\frac{7}{9}$*l.*; the $60\frac{2}{3}\frac{0}{3}$*l.* of $5\frac{1}{2}$ per cent. ſtock, $55\frac{5}{9}$*l.*; and the $58\frac{1}{3}$*l.* of 6 per cent. ſtock, $58\frac{1}{3}$*l.*

This ſuperior ſecurity of the value of the ſtock bearing the higher rate of intereſt, flows (it muſt be obſerved) from the additional annuity that is demandable by the annuitant, in proportion to the value of his capital.

For example: Although each of the above-mentioned different quantities of annuity ſtock, are worth $66\frac{2}{3}$*l.* in money, when the rate of intereſt in the market is $4\frac{1}{2}$ per cent. per annum; yet the annuities demandable on each by the annuitant, are different, as follows; viz.

| The annual demand of the annuitant or creditor, on the 100*l.* of 3 per cent. ſtock, or on the $66\frac{2}{3}$*l.* of $4\frac{1}{2}$ per cent. ſtock, is - - - | *£.* | *s.* | *d.* |
|---|---|---|---|
| On the $63\frac{1}{3}$*l.* of 5 per cent. ſtock, | 3 : | 3 : | 4 |
| On the $60\frac{2}{3}\frac{0}{3}$*l.* of $5\frac{1}{2}$ per cent. ſtock, | 3 : | 6 : | 8 |
| On the $58\frac{1}{3}$*l.* of 6 per cent. ſtock, | 3 : | 10 : | 0 |

And the greater the demand, thus veſted in the annuitant or creditor, ſhall be, the greater, of courſe, muſt be the ſecurity of his capital.

The attentive reader will obſerve, that although in a public debt, the annuitant or creditor cannot, conſiſtent with the ſafety and well-being of the ſtate, be permitted to have a demand on the annuitor, or publick, for his capital; yet it is indiſpenſably neceſſary for the ſecurity thereof, that the annuity, by him demandable, ſhould exceed the rate of intereſt in the market, ſo far forth as ſhall make it the continual intereſt and advantage



tage of the annuitor, to attend to a periodical redemption of the debt.

The ſlighteſt reflection will perfectly evince, that in caſe a debt (whether private or public) be incurred whenever occaſion and conveniency ſhall require, and no attention be paid to the diſcharge thereof; it muſt, in the natural courſe of things, increaſe more and more, until the credit (however great and extenſive it ſhall be, admitting it only to be finite) ſhall finally become exhauſted, and burſt in pieces. Nothing, therefore, but a ſtrict attention to the diſcharge of the debt (whether it be a public or a private one) can poſſibly prevent a bankruptcy.

And, ſeeing that in a public debt, the creditor cannot have a demand for the principal; it is perfectly evident, that there can be nothing to rouſe the neceſſary attention of the annuitor or public to the redemption of it, unleſs the creditor's demand, with reſpect to the annuity, ſhall be ſuch as to make it more profitable for the annuitor to apply a ſurplus revenue to the redemption of the debt, than to apply it to any other ſervice.

The natural incentive or main-ſpring of human action, is ſelf-advantage and benefit*; and whoever ſhall expect any man or body of men to be rouſed into action by any other principle, muſt, I am perſuaded, from the very nature of men and things,

* So far as ſelf-advantage or benefit is connected and interwoven with the advantage and benefit of ſociety, it is the moſt laudable of all poſſible purſuits. When the contrary is the caſe, the purſuit is criminal. What is much to be lamented, the perſons who pretend to the greateſt patriotiſm, and to diſregard ſelf, are generally thoſe who carry this criminality to the greateſt extreme, and ought therefore always to be ſuſpected.

things, be fatally disappointed*. It is in the very nature of things, equally imaginary and vain to expect attention in man, where the natural incentive to such attention shall be wanting, as it would be to expect a motion in mechanics, without a moving power.

It is perfectly evident, that there can be no immediate incentive to the discharge of any debt, (whether public or private) that is not immediately demandable by the creditor, unless the redemption of it shall actually be attended with an immediate profit; which cannot be the case with a public debt that shall consist of any other possible annuities but redeemable annuity stocks, bearing a higher rate of interest than that of the market: because, such stocks only can enable the sinking fund to release a greater revenue than the ordinary interest thereof, which would be saved by applying it to any other service.

It will likewise be observed by the attentive reader, that the extra annuity, which is thus demandable by the annuitant or creditor (and which alone can secure the value of his capital from depreciation) is not prevented from operating as a sinking fund in favour of the annuitor or public, in consequence of its being so demandable by the annuitant: because, seeing, by the properties of the stock, that the tender, to which the annuitant is periodically liable, is always equal to the annuity so by him periodically demandable; and seeing also, that whether the annuitor shall have the

* I would not be understood to mean, that exceptions are morally impossible; they are, however, too improbable, to be pre-admitted as a basis, in any case whatever.



the tender, so to be made, on hand, or whether he shall borrow it in the market, the extraordinary interest appertaining thereto, periodically ceases with such tender; so consequently, the proportion thereof so periodically ceasing, will always be greater or lesser, according as the annuity so demandable by the creditor, shall be greater or lesser.

For example: If the annuitant should make choice of the 5 per cent. stock, he will be annually subject to a tender of 5 hundredth parts of the capital; and if the rate of interest in the market be $4\frac{1}{2}$ per cent. the additional $\frac{1}{2}$ per cent. on such 5 hundredth parts becomes naturally released; although there should be no further revenue applied, than that which is actually demandable by the annuitant.

If for the greater security of the value of his capital, he should make choice of the $5\frac{1}{2}$ per cent. stock, he will be annually subject to a tender of $5\frac{1}{2}$ hundredth parts of the capital; and if the rate of interest in the market be $4\frac{1}{2}$ per cent. the extra 1 per cent. on such $5\frac{1}{2}$ hundredth parts, becomes naturally released, in return for the additional annuity which is so demandable by the annuitant.

If for his still greater security, the annuitant should make choice of the 6 per cent. stock, he will annually be subject to a tender of 6 hundredth parts of the capital; and the rate of interest in the market being $4\frac{1}{2}$ per cent. the extra $1\frac{1}{2}$ per cent. on such 6 hundredth parts, becomes naturally released, in return for the additional annuity which is so by him demandable.

The circumstance, therefore, of the additional annuity being thus demandable by the annuitant, is so far from preventing the operation thereof as a sink-

a ſinking fund, in favour of the annuitor, that its effective power as a ſinking fund is in reality increaſed, in conſequence of its being ſo demandable, in the ſelf-ſame degree as the ſecurity of the value of the capital appertaining to the annuitant, is thereby increaſed.

There is ſtill another property peculiar to annuity ſtocks bearing a higher rate of intereſt than that of the market, and ſubject to the aforegoing limited tender for the redemption, which I muſt not here omit to take notice of.

It is perfectly evident, from the very nature of things, that if an extra proportion of money be at any time thrown into any particular market, in which the competition of the buyers and ſellers ſhall be free and uncontrouled, the comparative value or price of the property, to be bought and ſold in that market, will be thereby naturally increaſed accordingly.

Now, ſeeing that the above-mentioned annuity ſtock is left perfectly free, and open, to the natural competition of the market, with an uncontroulable capacity of riſing in value, according to ſuch competition; the value thereof muſt neceſſarily increaſe, in the ſame manner and degree, as the value of any other kind of annuity would be increaſed, by throwing the ſame extra proportion of money into that channel of circulation. And, ſeeing that the increaſe in the value of this kind of ſtock, is proportionate only to one-half of the decreaſe in the market-rate of intereſt; it muſt neceſſarily follow, that if the public debt ſhall conſiſt ſolely of this kind of ſtock, the decreaſe that will be produced in the market-rate of intereſt, by the appropriation of any ſurplus revenue, as a ſinking fund for the redemption of the debt (not exceeding



exceeding the intereſt or annuity which is demandable by the annuitant) will be double as great as the decreaſe, which would be produced in the market-rate of intereſt, by the appropriation of the ſame ſurplus revenue or ſinking fund, in caſe the debt ſhould conſiſt of annuity ſtocks bearing a lower rate of intereſt than that of the market*.

It has been repeatedly obſerved, that a ſinking fund or ſurplus revenue, for the redemption of the debt, is the only thing whereby the public credit of any nation can be preſerved from depreciating; or whereby it can be reſtored, after it ſhall have become depreciated. This being the caſe, it muſt conſequently follow, that the ſyſtem of finance ought to be founded and conducted on ſuch principles, as ſhall ſecure the ſinking fund in its proper line of ſervice, and prevent it from being diverted to other ſervices.

This

* The ſelf-ſame concluſion will likewiſe flow from the following conſideration, viz.—In the redemption of ſtocks bearing a lower rate of intereſt than that of the market, it is perfectly evident, that the price required for the redemption, muſt naturally increaſe in the ſame ratio, as the market-rate of intereſt ſhall decreaſe: wherefore, the one half of the effective power of the ſinking fund is conſequently ſwallowed up, by the increaſing price ſo required for the redemption; and the other half thereof, only, operates on the rate of intereſt. But in ſtocks bearing a rate of intereſt as high as, or higher than, that of the market, the price to be required for the redemption, is incapable of increaſing: wherefore, the effective power of the ſinking fund muſt in this caſe be double as great, with reſpect to producing a decreaſe in the market-rate of intereſt, as it would be in the former caſe.

This remark is by no means a new one; it has been generally made by all thoſe who have taken notice of the progreſſional power of the ſinking fund. Several writers on the ſubject of public credit, have ſufficiently demonſtrated, that in caſe a debt of any given amount, however great, be periodically incurred; and a ſurplus revenue or ſinking fund, however ſmall, be ſacredly applied to the periodical redemption of ſuch debt; the ſinking fund muſt infallibly effect the redemption: becauſe, in ſuch caſe, the increaſe of the debt will proceed in an arithmetical progreſſion; whereas the redemption thereof, will proceed in a geometrical progreſſion *.

But,

* The truth of this poſition will appear evident, from the following conſideration, viz.—Suppoſe the rate of intereſt to be 5 per cent. per annum. In this caſe, a ſinking fund of one million per annum (or rather 500,000*l.* per half-year) will, in 20 years, redeem 33,701,400*l.*; and will therefore pay off a debt of 1,685,070*l.* to be incurred annually during that time.

In 30 years, the ſame ſinking fund would redeem 67,996,200*l.*; and would therefore pay off a debt of 2,266,540*l.* to be annually incurred during that time.

In 40 years, the ſame ſinking fund would redeem 124,182,000*l.*; and would therefore pay off a debt of 3,104,550*l.* to be annually incurred during that time.

In 50 years, the ſame ſinking fund would redeem 216,276,000*l.*; and would therefore pay off a debt of 4,325,520*l.* to be annually incurred during that time.

In 60 years, the ſame ſinking fund would redeem 367,166,800*l.*; and would therefore pay off a debt of 6,119,446*l.* to be annually incurred during that time.

In 70 years, the ſame ſinking fund would redeem 614,420,000*l.*; and would therefore pay off a debt of 8,777,428*l.* to be annually incurred during that time.

In



But, although this poſition is a mathematical truth, yet thoſe who do not conſider it in its mathematical ſtrictneſs, may be led to draw erroneous concluſions from it; which has indeed been the caſe with ſome writers, who have made much noiſe on this ſubject.

The concluſion drawn by them from the foregoing poſition, has been this; that "if a ſinking "fund be legally appropriated, and invariably "applied, to the redemption of the debt, as well "in war as in peace, it muſt neceſſarily be effec-"tual." But this concluſion does not follow from the poſition. The poſition is expreſsly confined by poſitive and expreſs limits. It extends no further, than while the increaſe of the debt ſhall proceed, by a given amount, or arithmetical progreſſion; as by the addition of the money, that ſhall be actually borrowed. If, therefore, the debt ſhall increaſe in a geometrical progreſſion, (as by a greater and greater capital, over and above the money actually borrowed, or by a greater and greater addition of annuity) the above concluſion does not follow from the poſition. And

I have

In 80 years, the ſame ſinking fund would redeem 1,019,570,000*l.*; and would therefore pay off a debt of 12,744,625*l.* to be annually incurred during that time.

In 90 years, the ſame ſinking fund would redeem 1,683,460,000*l.*; and would therefore pay off a debt of 18,705,111*l.* to be annually incurred during that time.

In 100 years, the ſame ſinking fund of one million per annum (or rather 500,000*l.* per half-year) would redeem 2,771,320,000*l.*; and would therefore pay off a debt of 27,713,200*l.* to be annually incurred during ſuch 100 years.

It is unneceſſary to ſay more, to prove the truth of the poſition.

I have demonſtrated in my former Eſſay*, that if the ſtocks ſhall depreciate below *par* (whereby the rate of intereſt in the market ſhall increaſe above the rate annexed to the ſtocks) the increaſe of the debt muſt neceſſarily and unavoidably proceed in ſuch geometrical progreſſion†. The foregoing poſition, therefore, extends ſo far forth as it ſhall reſpect ſtocks bearing any rate of intereſt as high as, or higher than, the rate of intereſt in the market; but it extends no further.

I thought it neceſſary thus to ſhew the point, where the above-mentioned concluſion ceaſes to have a mathematical connection with the poſition, from whence it is ſuppoſed to be drawn; becauſe that concluſion appears to have been conſidered by ſome, as an unexceptionable maxim, fairly and mathematically ſupported by the poſition.

The following ſhort and eaſy reflection would, however (without any regard to conſiderations of a mathematical nature) be perfectly ſufficient to convince the reader, that a legal appropriation of a periodical ſinking fund, to the redemption of annuity ſtocks bearing a lower rate of intereſt than that of the market, muſt be, in its effects, unnatural; conſequently, un-mathematical and abſurd.

If

* See the fifth, ſeventh, and ninth ſections of my former Eſſay.

† It is demonſtrated, in the fifth, ſeventh, and ninth ſections of my former Eſſay, that this muſt infallibly be the caſe, unleſs the ſurplus revenue thrown into this channel of circulation, during the time of the advancement of new loans, be equal to the premiums neceſſarily required for the advancement of thoſe loans.



If a man has a ſum of money on hand, and has occaſion to make uſe thereof for any immediate ſervice, will he apply ſuch ſum to the diſcharge of a debt that is not immediately demandable, unleſs he can borrow an equal ſum in the market, for a leſs intereſt than that which would be releaſed by the payment of ſuch debt? If he could not borrow an equal ſum in the market, without giving a greater intereſt for it, than that which would be releaſed by the payment of ſuch debt, he muſt evidently be a loſer by making ſuch payment. It is therefore unnatural and abſurd to ſuppoſe that he ſhould do it. This is preciſely the caſe with the appropriation of a ſinking fund to the redemption of annuity ſtocks, bearing a lower intereſt than that of the market; and it is, therefore, equally unnatural and abſurd to ſuppoſe, that a ſinking fund ſhould be applied to the redemption of a public debt ſo compoſed, while money ſhould be wanted in any other line of ſervice.

But a ſtock bearing a higher rate of intereſt than that of the market, naturally and effectually ſecures the appropriation of the ſinking fund to its proper line of ſervice, without the aſſiſtance of a poſitive law; becauſe, if money ſhould be wanted for any other ſervice, ſuch money would be obtainable in the market, for a leſs revenue than that which would be releaſed, by applying the ſame ſum to the redemption of the ſtocks. And, the tender to be made for the redemption being limited, ſo as not to exceed the annuity, the redemption is equally advantageous to the annuitant; becauſe, although it naturally produces a decreaſe in the market-rate of intereſt, and thereby cauſes him to ſuſtain loſs on the part ſo

 paid;

paid; it likewiſe produces him a *gain*, juſt double as great as the amount of ſuch *loſs* (whatever it ſhall be) by that increaſe in the market-value of his remaining capital, which is naturally and inſeparably attendant on ſuch decreaſe in the market-rate of intereſt.

The attentive reader will likewiſe obſerve, that when the ſinking fund is equal to the annuity or intereſt on the debt, the ſyſtem of finance will be in its beſt poſſible ſtate: becauſe (as was demonſtrated in the foregoing ſecond ſection) ſo far forth, and no further, the advantages flowing from the decreaſe in the market-rate of intereſt, (which is neceſſarily produced by the application of the ſinking fund) naturally flow, in equal proportions, to the borrowers and to the lenders; whether conſidered in their conjunct capacity as members of the ſtate, or in their diſtinct capacities as individuals.

It is unneceſſary to proceed further in the enumeration of the properties and effects, peculiar to an annuity ſtock bearing a higher rate of intereſt than that of the market, and ſubject to a limited tender for the periodical redemption of the capital, equal to the annuity therefrom periodically flowing. What has been already ſaid thereon, ſufficiently evinces,

I. That ſuch ſtock is infinitely ſuperior to every other kind of annuities for a public debt: in ſhort, that no other kind of annuities can yield an equal advantage and ſecurity to the annuitant, and preſerve the ſtate from bankruptcy.

II. That ſuch ſtock ſecures the progreſſional power of the ſinking fund from that decreaſe, to which it muſt unavoidably be ſubject, in the redemption of ſtocks bearing a lower rate of intereſt





than that of the market; and thereby cauſes it to produce double the effect, on the decreaſe of the market-rate of intereſt, that it would otherwiſe produce.

III. That the annuitant, conſequently, derives from ſuch ſtock, the ſame advantages by the increaſe of the value of his capital, in conſequence of the decreaſe in the market-rate of intereſt, as could be derived from ſtocks bearing a lower rate of intereſt than that of the market; and (as was demonſtrated in the beginning of this ſection) he is ſubject to only one half of the diſadvantages which he muſt unavoidably be ſubject to, from ſtocks bearing a lower rate of intereſt than that of the market, by the depreciation of the capital-value thereof, in conſequence of an increaſe in the market-rate of intereſt. And, to ſum up the whole,

IV. That ſuch ſtock confines the increaſe of the debt to an arithmetical progreſſion; ſecures the ſinking fund to its proper line of ſervice, and thereby cauſes the redemption of the debt to proceed in a geometrical progreſſion, until the ſinking fund ſhall become equal to the annuity or intereſt of the debt; at which time, the ſyſtem of finance arrives at its *maximum*, or beſt poſſible ſtate.

# POSTSCRIPT.

## SECTION I.

*Observations on the preſent ſtate of the Public Debts, and Finances of Great-Britain; and the practical means of reducing them to the aforegoing principles.*

IMMEDIATELY after I had written the preceding ſections, I had occaſion to go to New-York, where I met with ſome late publications, which enable me to make the following remarks, reſpecting the preſent ſtate of our public debts and finances.

The publications to which I refer, are, "The State of the Public Debts and Finances, at ſigning the Preliminary Articles of Peace in January, 1783, by Dr. Price;" and ſome Extracts, containing Obſervations on the ſame ſubject, by the Earl of Stair, and by Mr. Sinclair, member of parliament for Caithneſs.

Theſe ſtatements do not perfectly agree, as to the quantity of our annual income and expenditure; but as I am ſpeaking of principles, rather than minute particulars, that circumſtance is not material.

On the whole it appears, that the nett annual income from our preſent taxes, is only about





twelve or thirteen millions; and that our annual expenditure, in time of peace (including the charges on the national debt, which exceed nine millions) muſt amount from thirteen to ſixteen millions; as the ſtatements differ. The concluſion that ſeems generally to be drawn from this ſituation of our finances, is, that a public bankruptcy is become unavoidable. Mr. Sinclair does not admit this concluſion. He ſays, in ſubſtance, "Taxes and debts are not ſufficient, of themſelves, to make a nation miſerable; and there "is ſtill reaſon to believe, that the opinions now "entertained, of our reſources being exhauſted, "and a public bankruptcy being unavoidable, "are equally erroneous and ill founded, as the "opinion formerly entertained by our anceſtors, "that ſuch bankruptcy would be produced by "fifty or an hundred millions of debt." It is this poſition, that I ſhall endeavour to ſupport.

A very eaſy and ſimple reflection will at once ſufficiently evince, that it is not the quantity of taxes, but the application of them, that produces injury or burthen to a nation *.

For

* The term "application of taxes" may, in its comprehenſive ſenſe, be conſidered as including the collection, as well as the diſburſement. In the firſt ſection of the Poſtſcript to my former Eſſay, I endeavoured to point out the primary baſis, on which the art of levying taxes muſt depend; and, to ſhew that the burthen or difficulty, attendant on the collection of the ſame quantity, would be greater or leſſer, according to the method of levying it. But an inveſtigation of the principles of levying taxes, would exceed the limits of the preſent Eſſay. The term "application of taxes," muſt, therefore, here be underſtood, as appertaining to the diſburſement, pre-ſuppoſing them to be properly collected.

For example: If taxes or contributions be raiſed in any diſtrict, and applied to the making of a public road, canal, or bridge, whereby the expence of the neceſſary conveyance of property, from one part of the diſtrict to another, ſhall be leſſened; and whereby the value of the eſtates of the inhabitants, ſhall, in conſequence thereof, be advanced in a greater amount, than the taxes or contributions ſo raiſed and applied, ſhall amount to; it is perfectly evident, that thoſe taxes or contributions (inſtead of being a burthen) are attended with an actual profit.

It is alſo perfectly evident, that the ſame argument holds equally true, if taxes or contributions be applied to the making of any public machine, whereby the neceſſary circulation, or conveyance of property from one perſon or place to another, ſhall be attended with a leſs expence, than it would be, if ſuch machine was not made uſe of. It is therefore perfectly evident, that it cannot be the quantity of the taxes, that conſtitutes their burthen; it muſt be the application of them.

Whoever will reflect a ſingle moment (without flying from the ſubject) muſt be convinced, that public credit is neither more nor leſs, than a public machine for bringing capitals into action. The actual capitals that ſhall be thereby brought into action, may indeed be applied to one uſe or to another; to a good one, or to a bad one. But this has nothing to do with the machine; becauſe, they might be applied in exactly the ſame manner, if they were brought into action, without the help of ſuch machine. The uſe, therefore, to which the capitals may be afterwards applied, has no more to do with the machine, by which they were brought into action, than the uſe to which a china



a china vaſe may be applied, has to do with the roads, canals, or bridges, over which it paſſed; or with the ſhip, that brought it ſafely round the Cape of Good Hope.

The debt* or machine, in itſelf conſidered, is therefore attended with advantage or diſadvantage, according as it ſhall cauſe the expence of bringing capitals into action, to be leſſer or greater, than that particular expence would be, if ſuch machine was not made uſe of. This advantage, or diſadvantage, depends entirely (like the advantage or diſadvantage of every other machine) on the manner, in which it ſhall be conſtructed and conducted.

That threatening cloud which now hangs over our financial hemiſphere, pregnant with deſtruction, proceeds entirely from an error in the formation and management of this machine: an error truly ſimple, and eaſy to be rectified.

The principles of public credit (conſidered as a machine for bringing capitals into action) were not inveſtigated: it cannot, therefore, be ſurpriſing, that ſuch an error ſhould have taken place.

Numbers of people have indeed demonſtrated, that a ſurplus of revenue, appropriated to the debt, muſt continually operate in a geometrical progreſſion, in the diſcharge thereof: but they omitted to demonſtrate likewiſe, that a deficiency of

* I uſe the terms Debt and Credit promiſcuouſly; becauſe, there can be no poſſible exiſtence of the one, without the other. It is morally and abſolutely impoſſible that there can be a Debt without a Credit, or a Credit without a Debt.

of revenue, ſo appropriated, muſt continually operate in a geometrical progreſſion, in the increaſe of the debt. In the ſeventh and ninth ſections of my former Eſſay, it is demonſtrated, that the debt muſt thus increaſe in a geometrical progreſſion, unleſs there be a *ſurplus* of revenue, (in addition to the intereſt) thrown into this channel of circulation during the time of the advancement of new loans, equal to the *premiums* neceſſarily required for thoſe loans.

This poſition is indeed ſufficiently plain and ſimple, without much trouble of demonſtration, after things are once hunted up into fair daylight. It is perfectly evident, for inſtance, that if a premium be required for a new loan, and a payment equal to that premium, be not made; the quantity, by which the payment ſhall be deficient, muſt neceſſarily be an increaſe of debt, beyond the quantity of the actual loan. And, ſeeing that by the unalterable laws of Nature, a ſurplus muſt mathematically accumulate, in a geometrical progreſſion; ſo likewiſe, by the very ſame unalterable laws of Nature, a deficiency muſt mathematically accumulate, in a geometrical progreſſion: for, a deficiency is, mathematically, a negative ſurplus. And further, ſeeing that the principal is not demandable, and has therefore only a nominal, or ideal exiſtence; the ESSENTIAL accumulation muſt neceſſarily be in the intereſt, in which the ESSENTIAL debt, or actual demand, conſiſts: for, the laws of Nature care not for empty names: the laws of Nature govern the ESSENCE of things.

A public debt, thus conducted, becomes a very bad machine; becauſe, it occaſions the rate of intereſt (which is, properly ſpeaking, the expence



pence of bringing capitals into action, and of keeping them in motion) to increaſe; and thereby, not only checks the ſpirit of induſtry and improvement, but likewiſe cauſes the capital-value of fixed property to depreciate.

Our public debt has been conducted after this manner; and this is the ſole cauſe of the preſent diſcordant ſtate of our finances, the increaſe of our rate of intereſt, and the conſequent depreciation of our ſtocks and lands.

But, if our debt be put into a new arrangement, whereby the increaſe ſhall, in future, proceed in an arithmetical progreſſion, and the redemption in a geometrical progreſſion; it will, from that moment, become a moſt advantageous machine. It will, from that moment, produce a regular, a ſteady, and a rapid decreaſe in the rate of intereſt; and thereby, convey the moſt happy effects to every rank and order of the ſtate.

An increaſe of taxes will indeed be required: but theſe additional taxes will be ſo far from being any addition of burthen to the members of the ſtate, that they will, regularly and periodically, flow back to the public at large, with a much greater accumulation of profit, than could be made by applying the ſame amount to any other poſſible uſe whatever.

It may perhaps be conſidered as a new doctrine, that taxes ſhould produce a profit to thoſe who pay them. No man, however, can heſitate a moment at acknowledging its truth, in the inſtances I have mentioned, of making public roads, canals, and bridges; or any public machine, whereby the neceſſary circulation or conveyance of the productions or commerce of a country, from

from one perſon or place to another, ſhall be performed at a leſs expence.

It is perfectly evident, that the periodical intereſt on a capital, is the periodical expence of keeping that capital in motion; whether it be applied to the ſupport and improvement of commerce and induſtry, or to any thing elſe. The intereſt, therefore, of any capital, is perfectly and exactly ſimilar to the expence of the carriage or freight of merchandize. It is immaterial how far the capital may be a man's own, or how far it may be a borrowed one; in the ſame manner as it is immaterial, whether the ſhip or the waggon, whereby merchandize may be conveyed, ſhall belong to the owner of that merchandize, or to another perſon. The appropriation, therefore, of any tax to the purpoſe of rendering the intereſt on money cheaper, is of the ſame nature, as the appropriation of a tax to the purpoſe of making roads, canals, or bridges. It is, I ſay, of the ſame nature; but it is infinitely more extenſive in its effects: becauſe, a decreaſe in the rate of intereſt, appertains to every part of the capital-property of a ſtate, as well immoveable as moveable. Where it does not make the periodical expence leſs to the induſtrious occupant (which, for inſtance, is the caſe with reſpect to the rents of land) it neceſſarily makes the capital-value appertaining to the proprietor, greater.

When we reflect, that the rate of intereſt has this inſeparable connection with every part of the capital-property of a ſtate, we cannot but ſee, that even a ſmall alteration in the rate of intereſt, muſt be attended with an immenſe effect.

I have not any thing to refer to, whereby to form an eſtimate of the capital-property of Great-Britain;



Britain; but if we take it, at random, to be a thouſand millions, I ſhould ſuppoſe that we muſt be far within the bounds of its reality. In this caſe, a decreaſe of 1 per cent. in the rate of intereſt, naturally produces an advantage of ten millions a year, to the members of the ſtate: a decreaſe of 2 per cent. in the rate of intereſt, produces an advantage of twenty millions a year, to the members of the ſtate: a decreaſe of 3 per cent. in the rate of intereſt, produces an advantage of thirty millions a year, to the members of the ſtate*.

It

* Although our public debt was never conducted on any regular principle, yet, until it became grown out of all reaſonable ſhape, it was productive of an immenſe advantage. During the firſt half of the preſent century, it produced a decreaſe of more than 4 per cent. in the rate of intereſt. It was ſolely from this cauſe, that (in ſpite of the increaſe of taxes) the wealth and proſperity of the nation increaſed to a degree, that it had never known before. This increaſe of wealth and proſperity, was attributed to the increaſe of our commerce and induſtry, during that period; which was certainly juſt. But, the increaſe of our commerce and induſtry, was (as I obſerved in the ſecond ſection of the Poſtſcript to my former Eſſay) a natural conſequent of the decreaſe in the rate of intereſt; whereby, the induſtrious were enabled (with the ſame periodical reſources that they had before) to employ larger and larger capitals, for carrying their reſpective undertakings and improvements into effect. The ſame effect, will for ever flow from the ſame cauſe. When the rate of intereſt decreaſes, larger capitals will be put in motion at a ſmaller expence; and the induſtry, commerce, and proſperity of the ſtate, will naturally increaſe, as the capitals ſo employed ſhall become increaſed. The capitals ſo employed, are the only poſſible foundations, on which commerce and induſtry can be ſupported.

It has been ſufficiently ſhewn already (it is, indeed, a maxim univerſally received and acknowledged) that a regular appropriation of a ſinking fund to the redemption of the debt, muſt mathematically produce this happy decreaſe in the rate of intereſt. The raiſing of additional taxes, therefore, and applying them effectually to this ſervice, muſt conſequently be attended with a profit, not with a burthen, to the members of the ſtate.

But, it muſt nevertheleſs be conſidered, that the circulation of property in a ſtate, can no more be forced out of its natural pace without injury, than can the circulation of the juices of the animal body. The increaſe of the taxes ought, therefore, to proceed no faſter, than the advantages flowing from the application of them, ſhall naturally return. It ought, in ſhort, to proceed progreſſively, like the advances of the human frame, from infancy to manhood.

Twenty years, and more, are naturally required, for an infant to proceed progreſſively to his maturity. Should it be attempted, by medicines or ointments, to force him on to that maturity in twenty weeks, or twenty months, the deſired effect would not be produced; but the attempt would be attended with deſtruction. In like manner, I ſhould be inclined to believe, that if our taxes were attempted to be increaſed at once, from twelve to ſixteen millions (which Lord Stair conſiders would be neceſſary, in order to defray our peace expenditures within the year) the whole machine of circulation, would be thereby thrown into a very violent agitation, if it did not even burſt. I am, however, very far from believing, that an increaſe of half a million, or three quarters of a million, a year, if properly applied, would



would oblige the nation to halt at ſixteen, or even at ſix-and-twenty millions, ſhould ſuch increaſe ever become neceſſary; becauſe, by thus increaſing the taxes gradually, the advantages naturally flowing from the decreaſe of the rate of intereſt, would always precede each increaſe of the taxes, except the firſt. It will not, however, be required to carry the gradual increaſe, in our preſent caſe, much further than ſixteen millions, to produce every deſirable effect.

As our preſent revenue falls ſhort of our expenditures, our debt muſt, of courſe, go on increaſing, until the increaſe of the revenue ſhall ſtop it. But this circumſtance will not prevent the decreaſe of the rate of intereſt. If the increaſe of the debt be thrown into an arithmetical progreſſion, and the redemption into a geometrical progreſſion; the decreaſe of the rate of intereſt, with all its happy attendants, will immediately flow therefrom, as a mathematical conſequent. We have, therefore, nothing to do, but to eſtabliſh theſe progreſſions; and every deſirable effect will, from thence, mathematically flow, in the regular courſe and order of Nature; whoſe immutable laws pervade and govern all things, in their progreſſive motions, from the cauſe to the effect*.

In

* If theſe progreſſions be not eſtabliſhed, a public bankruptcy is indeed mathematically inevitable. But our bankruptcy is not ſo very near at hand, in the natural order of its progreſſion, as may perhaps be imagined. It cannot arrive, in the natural order of its progreſſion, till the intereſt of the debt ſhall exceed the revenue. Our preſent revenue (even by the very worſt accounts) exceeds the intereſt of the preſent debt, by more than two

In order to eſtabliſh theſe progreſſions, and, at the ſame time, to ſecure the annuity appertaining to the creditors, from being reduced, as the market-rate of intereſt ſhall decreaſe; it is neceſſary, agreeable to the principles aſcertained in the foregoing ſections, to eſtabliſh a new ſtock of annuities, bearing a higher rate of intereſt than that of the market, ſubject to a limited tender, for the periodical redemption of the capital, equal to the annuity therefrom periodically flowing: and to offer to the preſent creditors, as much capital in ſuch new ſtock, as ſhall be equal in value to the preſent value of their preſent capitals or annuities; together with a ſmall addition (1 per cent. or even leſs, will be ſufficient) by way of turning the ſcale, as one may call it, in favour of the new channel.

To make myſelf thoroughly underſtood, it may not be amiſs to take a brief ſurvey of our public debt, as it now ſtands; and from thence to aſcertain the ratio, or rate of intereſt, that will be neceſſarily required for the new ſtock, in order to eſtabliſh the above progreſſions, with the ſmalleſt revenue,

two millions and an half per year; ſo, that a continuance of our old line of practice, would not produce the bankruptcy naturally, till theſe two millions and an half (together with ſuch other taxes as might be added) ſhould become eaten up by the progreſſive increaſe of the debt. A bankruptcy might indeed be produced by inſurrection, and force of arms, at any time: but ſo, a caſtle might be knocked to pieces. The circumſtance of our peace expenditure being greater than the revenue, can no way contribute to haſten the natural progreſſion of the bankruptcy, otherwiſe than by opening a new avenue, as it were, for the introduction of imaginary reformations.



revenue, that can be conſiſtent with the ſafety and ſecurity of the public, or of the creditors.

Our public debt, at the commencement of the preſent year, 1783, conſiſted, according to Dr. Price's ſtatement, of the following articles; viz.

I. 169,613,254*l.* of annuity ſtock, bearing 3 per cent. per annum.

II. 26,750,000*l.* of annuity ſtock, bearing 4 per cent. per annum.

III. Sundry determinate or temporary annuities of different lengths, worth (reckoning intereſt at 5 per cent.) 19,354,455*l.*

IV. Sundry out-ſtanding debts remaining unfunded, amounting to 36,867,277*l.**

Lord Stair is of opinion, that the unfunded debts (including the neceſſary premiums that will be required for funding them) will amount to near forty millions. It indeed often happens, even in private expenditures, that the previous eſtimates of charges fall conſiderably ſhort of the charges themſelves. I ſhall, therefore, conſider the unfunded debts, as his Lordſhip does.

Theſe articles, it muſt be confeſſed, run up to a much greater amount, than could be wiſhed. We muſt not, however, form our idea of the debt, from the nominal aggregate of theſe articles. The nominal aggregate is indeed (taking the unfunded part at near forty millions) more than two hundred and fifty-five millions; but the real amount, or actual value, is leſs than one hundred and eighty-eight millions.

According

* Twelve millions of this have been ſince funded; but this circumſtance is not very material.

According to the principles demonſtrated in the ſeventh ſection of my former Eſſay, the point at which the value of our 3 per cents. would ſtand recovered, as a natural conſequence of a diſcontinuance of the extraordinary demand for money, after the loan of 1782, would be about 68*l.**; and the point of collateral appreciation, to which they would be naturally carried for a time, by the flowing out of the money, that had been locked up, on the principles of ſpeculation (as explained in the latter part of the ſeventh ſection, and in the ſecond ſection of the Poſtſcript to my former Eſſay) would be about 76*l.*†: but this, it muſt be obſerved,

* That is, the geometrical mean between 86*l.* to which I ſuppoſe they fell when the ſinking fund ceaſed to be applied to their redemption, at the commencement of the war, and 54*l.* to which, they were carried by the geometrical progreſſion of the debt.

† Suppoſing the extraordinary demand for money, to have been ſuch, on an average, during the war, as to produce an increaſe in the comparative value of capitals in the ratio of 6 per cent. (or, which is all the ſame, to require a premium of 6 per cent. for new loans) which I believe was pretty nearly the caſe with our loans; the geometrical progreſſion of the debt, in that ratio, would have carried the 3 per cents. down only to about 60½*l.* But this depreciation in the capital value of the ſtock being greater than the intereſt produced thereon, it naturally became more profitable to lock up money on ſpeculation, while ſuch extraordinary demand continued, than to lay it out in the ſtocks. In conſequence of which, the ratio of the progreſſion was naturally increaſed; and the ſtocks, of courſe, fell lower. And, ſuppoſing this difference between 60½*l.* and 54*l.* (which is about 12 per cent.) to have been produced by this locking up of money on ſpeculation; the flowing out of that money, on the diſcontinuance of the extraordinary demand,



obſerved, is on a ſuppoſition that no material debt ſhould be remaining out-ſtanding; and that our revenue ſhould be equal to the ordinary peace-expenditure. Neither of theſe being in fact the caſe, the extraordinary demand for money does not in fact diſcontinue; and conſequently, the 3 per cents can neither fly up to 76*l.* nor ſettle, either at 68*l.* or at any other point whatever, until the debt ſhall be thrown into a new progreſſion on the one hand, or until the revenue ſhall become equal to the ordinary expenditure, on the other.

The above-mentioned out-ſtanding debt, muſt carry the point of recovery of the 3 per cents down to about 63*l.* in deſpite of any thing that can now be done to prevent it. It is capable of carrying them much lower. The preſent ſtate of our financial ſyſtem, cannot preſerve them higher, than about 63*l.* if ſo high: it may ſend them down to any thing, almoſt at pleaſure.

Our 4 per cent. ſtocks are not worth quite ſo much, in proportion to the annuity, as the 3 per cents; becauſe (each being ſubject to redemption, at the pleaſure of Government) the 4 per cents are ſubject to the ſame depreciation as the 3 per cents; but have not the ſame capacity for appreciation. This difference is not, however, worth regarding, in our preſent caſe; becauſe, in the actual ſtate of our ſyſtem of finance, both of them muſt depreciate; neither of them can appreciate. They may indeed flutter occaſionally, a little higher and a little lower; but they cannot ſtand; and

demand, would naturally carry thoſe ſtocks about 12 per cent higher than 68*l.* (which is about 76*l.*) during the time of the flowing out of ſuch money; but no longer.

and muſt, therefore, flutter on a deſcending center. The ſame obſervation holds equally true, with reſpect to any other ſtock bearing a lower rate of intereſt, than that of the market.

Should the 3 per cents deſcend to 60 *l.* before they can be ſupported*, (which may, in all rational probability, be the caſe) a 5 per cent. ſtock would then be ſubject to the ſame depreciation, as a 4 per cent. or as a 3 per cent. ſtock. Should the 3 per cents be checked in their deſcent at $63\frac{3}{19}$ *l.* (which I can ſcarcely conceive to be poſſible, much leſs probable) even then, the market-rate of intereſt would be $4\frac{3}{4}$ per cent. and a 5 per cent. ſtock, ſubject to a limited tender for its redemption, equal to the annuity, would be worth only $102\frac{2}{3}\frac{2}{9}$ *l.* This $2\frac{2}{3}\frac{2}{9}$ *l.* is much leſs than the premium ordinarily required for new loans; and is, conſequently, inſufficient to preſerve a progreſſional redemption of the debt, while a ſum equal to the revenue, ſhall be required in the other lines of ſervice. A 5 per cent. ſtock would, therefore, be ineffectual in our preſent caſe; unleſs our revenue ſhould be increaſed, beyond the amount of our ordinary expenditure; which, I ſhould think, would be infinitely too much to be done at once; and more eſpecially ſo, as there is no kind of neceſſity for it.

Suppoſing, what I cannot ſeriouſly ſuppoſe, that the 3 per cents ſhould be checked at $63\frac{3}{19}$ *l.* in their central depreciation; a 6 per cent. ſtock, ſubject to a tender, for its periodical redemption, equal

* I ſpeak of the central value. They muſt fall lower temporarily, in deſpite of any thing that can be done to prevent it.





equal to the annuity, would be worth $111\frac{2}{4}\frac{7}{3}$ *l.** Suppoſing the depreciation of the 3 per cents to be checked at 60 *l.* (which I think may be done, with reſpect to their central deſcent, if taken in time) the 6 per cent. ſtock would be worth $109\frac{1}{11}$ *l.* Either of theſe degrees above par, ſufficiently exceeds the premium ordinarily required for new loans; and thereby affords a ſufficient ſecurity for the periodical appropriation of money, to the redemption of the debt, whatever may be wanted for other ſervices.

The eſtabliſhment of a 6 per cent. ſtock, ſubject to a periodical tender for its redemption, equal to the annuity therefrom periodically flowing, will therefore place the debt in a geometrical progreſſion of redemption; and will, at the ſame time, cauſe the future increaſe of the nominal capital, to be leſs than the quantity of money, that will be obtainable for it.

Now, ſeeing that when the 3 per cents are worth $63\frac{3}{19}$ *l.* this 6 per cent. ſtock is worth $111\frac{2}{4}\frac{7}{3}$ *l.*; ſo, conſequently, 100 *l.* of 3 per cent. ſtock, and $56\frac{1}{19}$ *l.* of this 6 per cent. ſtock, are, in

* When the 3 per cents are worth $63\frac{3}{19}$ *l.* the market-rate of intereſt is $4\frac{3}{4}$ per cent. Wherefore, by the canon deduced in the ſecond ſection, To the market-rate of intereſt - - - - - - $4\frac{3}{4}$
add the rate annexed to the ſtock, - 6
Total - $10\frac{3}{4}$
Then ſay, As the half ſum, $5\frac{3}{8}$, is to 100 *l.* ſo is 6, the rate annexed to the ſtock, to $111\frac{2}{4}\frac{7}{3}$ *l.* the value of the ſtock.

in this caſe, equal in value to each other*. And hence, if 57 *l.* of this 6 per cent. ſtock, be offered for 100 *l.* of 3 per cent. ſtock, a turn of the ſcale, as one may call it, will be given in favour of the 6 per cent. ſtock; and the 3 per cents will naturally be thereby converted into 6 per cents.

In like manner, if 76 *l.* of the 6 per cent. ſtock, be offered for 100 *l.* of 4 per cent. ſtock; as alſo, if a proportionate capital in the 6 per cent. ſtock, be offered for the temporary or determinate annuities, according to their reſpective values, the whole† will be converted into 6 per cent. ſtocks, and our public debt will ſtand as follows; viz.

| | £. | |
|---|---|---|
| I. In the room of 169,613,254 *l.* of 3 per cent. ſtock, we ſhall have - - | 96,679,555 | of 6 per cents. |
| II. In the room of 26,750,000 *l.* of 4 per | | |

* Should the 3 per cents ſettle down centrally to 60 *l.* the market-rate of intereſt will be 5 per cent. Wherefore, in that caſe, the value of the 6 per cent. ſtock, will be $109\frac{1}{11}$ *l.*; and 55 *l.* of the 6 per cent. ſtock will, conſequently, be equal in value to 100 *l.* of 3 per cent. ſtock.

† When I ſay the whole, I would not be underſtood to mean that there would not be a ſingle exception. There would doubtleſs be a few exceptions of aged people and orphans, whoſe proviſion may conſiſt of public annuities, and who care little as to the capital-value of them: but theſe would be the only exceptions; and theſe would not, in the nature of things, amount to any thing material in the great ſcale. The objections that may appear, will be conſidered preſently.



| | | |
|---|---|---|
| per cent. ſtock, we ſhall have - - | 20,330,000 | of 6 per cents. |
| III. In the room of the temporary or determinate annuities, we ſhall have as much 6 per cent. ſtock, as is worth a turn of the ſcale more than 19,354,455 *l.* reckoning intereſt at 5 per cent. which, ſuppoſing them all to be tranſcribed, will be about - | 17,750,000 | of ditto. |
| IV. In the room of the unfunded debts, we ſhall have as much 6 per cent. ſtock, as is worth near forty millions; which, for even numbers, let us call - - - | 35,240,445 | of ditto*. |
| TOTAL, £. | 170,000,000 | of 6 per cents. |

It is neceſſary, however, to obſerve, that the converſion of the debt cannot be effected, but by the voluntary act, or tranſcription, of the creditors;

* If we reckon 100 *l.* of 3 per cent. ſtock, to be worth 63 *l.* this quantity of 6 per cent. ſtock, will be worth more than thirty-nine millions and a quarter, which one may call near forty millions.

tors; and on this account, it becomes natural to aſk, Will the creditors accede to the converſion, on the foregoing terms?

To this queſtion it may be anſwered, that, admitting the creditors to be actuated by the principle of ſelf-advantage and benefit (which, as I formerly obſerved, I conſider to be the *primum mobile*, or main ſpring of human action) they will gladly accept of the foregoing terms. Nay, if 56*l.* or 55*l.* or even 54*l.* of ſuch 6 per cent. ſtock was offered for 100*l.* of 3 per cent. ſtock (and ſo in proportion for the 4 per cents, &c.) the creditors would accept of either of thoſe offers, rather than let the debt ſtand unconverted. It would indeed be better for the public, to give 60*l.* of the 6 per cent. ſtock for 100*l.* of 3 per cent. ſtock, and ſo in proportion, than to let the debt ſtand ſeven years unconverted. But it would be better for the creditors, to accept of 54*l.* of the 6 per cent. ſtock for 100*l.* of the 3 per cent. ſtock, and ſo in proportion, than to let it ſtand ſeven months unconverted. There is, therefore, much leſs reaſon, that Government ſhould give 60*l.* than that the creditors ſhould accept of 54*l.** If 57*l.* be given, the advantage will be mutual and equal, as

* Should the 3 per cents fall only to 57$\frac{1}{7}$*l.* (but, if my *data* be any thing near the truth, they muſt in fact fall much lower within leſs than the above-mentioned ſeven months, unleſs the debt ſhall be thrown into a new progreſſion) 53$\frac{4}{7}$*l.* of the 6 per cent. ſtock, would then be equal in value to 100*l.* of 3 per cent. ſtock. It would not, however, be conſiſtent with that real juſtice and integrity which ought always to be obſerved, for Government to take unequal advantages in the converſion of the debt, although the creditors (to avoid greater diſadvantages) would accede to them.



as nearly as may be. It will differ from equality only in this, that it will give a turn of the ſcale in favour of the creditors. This turn of the ſcale is, however, properly ſpeaking, rather a matter of generoſity, than of neceſſity*.

Theſe obſervations will appear perfectly evident, by taking a retroſpective view of the ſtate of our ſtocks, and by ſuppoſing an offer to have been made for converting the debt into this 6 per cent. ſtock, during the laſt peace, or during the peace before laſt.

During the peace, which preceded the war of 1755, our 3 per cents were above par. They had

* The *data* on which I write this Poſtſcript, are too looſe and imperfect, to enable me to determine with preciſe exactneſs, the quantity of 6 per cent. ſtock, that ought in fact to be given, in order to produce the greateſt poſſible juſtice between the public and the creditors; but the *data* now before me, produce the following reſults, viz.

I. That the average of the market values of the 3 per cents, during the three months of January, February, and March, now coming, muſt be ſomewhere between the extremes of 59*l.* and 53*l.*

II. That the center point to which the 3 per cents would ſtand recovered, as a natural conſequent of a diſcontinuance of the demand for loans, muſt be ſomewhere between the extremes of 63*l.* and 60*l.* And,

III. That the quantity of 6 per cent. ſtock, to be given for 100*l.* of 3 per cent. ſtock, in order to produce the greateſt poſſible juſtice to all parties, muſt be ſomewhere between the extremes of 56$\frac{1}{2}$*l.* and 55*l.*

So far as my *data* and reſults ſhall be in reality true or falſe, ſo far the firſt of theſe reſults will ſtand confirmed or contradicted, by the actual prices of the ſtocks in Exchange-Alley.

had not, however, any ſecure capacity above par; becauſe, as the tender that might be made for their redemption, was ſubject to no limit, the intereſt or annuity was conſequently ſubject to reduction, whenever the value of the ſtock was above par.

Now, when a 3 per cent. ſtock is at par, the market-rate of intereſt is 3 per cent.; and a 6 per cent. ſtock, ſubject to a periodical tender for its redemption, equal to the annuity (which is the ſtock here propoſed for the preſent converſion) is then worth $133\frac{1}{3}$ *l.*; ſo that 100 *l.* of our 3 per cent. ſtock was then equal, in value, to 75 *l.* of ſuch 6 per cent. ſtock. But the 75 *l.* of 6 per cent. ſtock would have had the following contingent advantages, which the 100 *l.* of 3 per cent. had not; viz. The 75 *l.* of 6 per cent. ſtock would have had a ſecure and unbounded capacity of riſing in value; whereas, the 100 *l.* of 3 per cent. ſtock had no ſuch capacity. Moreover, the 6 per cent. ſtock would likewiſe have had an immenſe ſecurity againſt a depreciation, which the 3 per cent. ſtock had not; inſomuch, that the ſame cauſes that would carry the value of the 100 *l.* of 3 per cent. ſtock down to 50 *l.* would not carry the value of the 75 *l.* of 6 per cent. ſtock lower than 75 *l.* It is perfectly abſurd, therefore, to ſuppoſe, that the creditors would not gladly have accepted of 75 *l.* or even much leſs, of ſuch 6 per cent. ſtock, for 190 *l.* of 3 per cent. ſtock, at that time*.

During

* If 80 *l.* of 5 per cent. ſtock, or $87\frac{1}{2}$ *l.* of 4 per cent. ſtock, ſubject to the ſame principles of redemption, had at that time been offered for 100 *l.* of 3 per cent. ſtock, the



During the peace of 1763, our 3 per cents were at about 88 *l.** They would have been at about 85 *l.* (as I mentioned in the ſecond ſection of the Poſtſcript to my former Eſſay) had no ſurplus monies been thrown into that channel, for their redemption. I ſhall, therefore, for the ſake of an even rate of intereſt, conſider them worth $85\frac{5}{7}$ *l.* at that time. The market-rate of intereſt was then $3\frac{1}{2}$ per cent. ſo that a 6 per cent. ſtock, ſubject to the above-mentioned tender for its redemption, would then have been worth $126\frac{6}{19}$ *l.*; and, conſequently, 100 *l.* of 3 per cent. ſtock, and $67\frac{6}{7}$ *l.* of ſuch 6 per cent. ſtock, would then have been equal in value to each other.

The

the offer would have been equally acceptable to the creditors (except, that the ſecurity againſt depreciation would not have been ſo extenſive) and a much leſs revenue would have been required by theſe ſtocks, than by a 6 per cent. But the 3 per cents would, indeed, have been then ſupported, without converting them into a higher ſtock, had they been ſubjected to a limited tender equal to the annuity. The creditors would likewiſe have gladly accepted a tender equal to the annuity; becauſe, although they would in effect have ſuſtained thereby, a reduction of intereſt on the part ſo to have been tendered; yet, they would always have gained juſt exactly double as much, by the conſequent appreciation of the value of the remaining capital; which is the *maximum*, or greateſt poſſible gain, that could be produced by any tender, whether greater or leſſer than the annuity.

* They indeed ran up above 90 *l.* (I cannot inform myſelf exactly how high) for a time, in conſequence of the flowing out of the money that had been locked up on the principles of ſpeculation; but they fell down again to 88 *l.* and would have fallen lower (and with much more ſpeed) had they not been checked by the ſinking fund.

The 3 per cents had then a capacity for riſing in value, from $85\frac{5}{7}$*l.* to 100*l.* but no further; and, it muſt be obſerved, the actual appreciation could not be produced, without the appropriation of a ſurplus or ſinking fund; which depended on the pleaſure of Government. It muſt likewiſe be obſerved, that there could be no reaſon ever to expect ſuch appropriation; becauſe, a ſinking fund could not be ſo applied without loſs, when money ſhould be wanted in any other line of ſervice. The mere capacity was, therefore, of little worth.

The 6 per cent. ſtock would have had an unbounded capacity for riſing in value, in conſequence of an appropriation of a ſurplus, or ſinking fund. It would, likewiſe, have been advantageous for Government, to have applied ſuch ſurplus, or ſinking fund, whether money ſhould or ſhould not be wanted for other ſervices; ſo that an actual appreciation in the value of the ſtock, would have been rendered certain. Moreover, the 6 per cent. ſtock would have had a ſecurity againſt depreciation, which the 3 per cent. had not; inſomuch, that the 100*l.* of 3 per cent. ſtock muſt fall to 50*l.* before the $67\frac{6}{7}$*l.* of 6 per cent. ſtock could have fallen below $67\frac{6}{7}$*l.* It is perfectly abſurd, therefore, to ſuppoſe, that the creditors would not gladly have accepted of $67\frac{6}{7}$*l.* of ſuch 6 per cent. ſtock, for 100*l.* of 3 per cent. ſtock at that time*.

The

* If $72\frac{6}{7}$*l.* of 5 per cent. ſtock, or $80\frac{5}{11}$*l.* of 4 per cent. ſtock, ſubject to the ſame principles of redemption, had been offered for 100*l.* of 3 per cent. ſtock; either of theſe offers would, at that time, have been equally acceptable to the creditors; excepting, that the ſecurity againſt depreciation would have been leſs extenſive; and the revenue required by theſe ſtocks, would have been much leſs than the revenue required by the 6 per cent. ſtock.



The creditors have much more reaſon to wiſh a converſion of the value of their capitals and annuities, into 6 per cent. ſtocks at this time, than they then had. During the laſt peace, our revenue yielded a ſurplus, after paying the expenditures. From this ſurplus, and from a continuance of peace put together, there might have been a hope of an appreciation in the value of the ſtocks: but that is not the caſe now. Our revenue now falls ſhort of the ordinary expenditures; and there is, conſequently, nothing to produce an appreciation in the value of the ſtocks, nor even to prevent their continual depreciation, while they ſhall be under par: becauſe, while they are under par, the rate of intereſt in the market muſt be higher than the rate appertinent to the ſtocks; and, conſequently, an appropriation of money to their redemption (while it ſhall be wanted for other ſervices) muſt be attended with loſs: ſo that there can be no progreſſion of redemption, to ſupport them. A hope of an appreciation in the value of our ſtocks in their preſent ſtate, muſt, therefore, be imaginary and vain: and, a ſecurity againſt further depreciation, muſt, conſequently, be the only immediate object, that the creditors can now have to aim at.

I remember to have heard, many years ago, an old and truly wiſe maxim; viz. "That the only "rational method of purſuing profit at any time, "is to proceed armed and guarded againſt loſs." According to this maxim, the only baſis, on which there can be any rational hope of an appreciation in the value of our ſtocks, muſt be a baſis that ſhall furniſh a ſecurity againſt their further depreciation.

By

By accepting of 57 *l.* of 6 per cent. ſtock, ſubject to the aforegoing principles of redemption, in exchange for 100 *l.* of 3 per cent. ſtock, and ſo in proportion for the 4 per cents, &c. the creditors will receive the full value thereof (and rather more than the full value thereof) in exchange, for the time being. They will likewiſe preſerve an unbounded capacity for its appreciation, and obtain, at the ſame time, a ſecurity of 14 per cent. againſt further depreciation*; whereby, that depreciation will be effectually prevented, and the appreciation effectually ſecured†.

In ſhort, by accepting of 57 *l.* of the 6 per cent. ſtock, in exchange for 100 *l.* of the 3 per cent. ſtock, and ſo in proportion for the 4 per cents, &c. the creditors will do neither more nor leſs, than give up an annuity of 3 *l.* the capital-value whereof muſt for ever depreciate, in exchange for an annuity of 3 *l.* 8 *s.* $4\frac{4}{5}$ *d.* the capital-value whereof is at preſent greater than the former, and muſt for ever appreciate.

If, therefore, it be admitted, and I think it may ſafely be admitted, that ſelf-advantage and benefit is the natural *primum mobile*, or main ſpring of human action; it muſt be more than abſurd, to ſuppoſe,

* For, the ſame cauſes that would carry the capital-value of 100 *l.* of 3 per cent. ſtock, down to 50 *l.* would not carry the capital-value of 57 *l.* of this 6 per cent. ſtock, lower than 57 *l.*

† It is neceſſary, however, to obſerve, that if the converſion of the debt ſhould be delayed, till the 3 per cents ſettle down centrally to 53, or 54 *l.*; a 6 per cent. ſtock would then be ineffectual, for the ſame reaſons that a 5 per cent. ſtock would now be ineffectual. In ſuch caſe, therefore, recourſe muſt be had to a higher ſtock.



ſuppoſe, that there ſhould be any heſitation on the part of the creditors.

Our public debt being thus converted into one hundred and ſeventy millions of 6 per cent. ſtock, ſubject to a periodical tender for its redemption, equal to the annuity or intereſt therefrom periodically flowing; the annuity thereunto annexed, will be 10,200,000 *l.*; and the future BUDGETS, as they are called, will ſtand after the following manner, whether in peace or in war; viz.

| | | |
|---|---|---|
| WANTED, for the payment of the intereſt or annuity on the debt, | £. | 10,200,000 |
| For the tender to be made for its redemption, the ſame as the intereſt, whatever it ſhall be, | | 10,200,000 |
| For the civil, the maritime, and the military eſtabliſhments, &c. &c. including likewiſe the tender to be made towards the redemption of the loan that ſhall now be wanted; ſuppoſe, for even numbers, | * | 7,600,000 |
| Total, | £. | 28,000,000 |

The

* I have here, for even numbers, ſuppoſed a larger ſum than is mentioned in Lord Stair's eſtimate, although that exceeds any other I have ſeen. It would be preſumption in me to give an opinion, that his Lordſhip's eſtimate was too high or too low: I ſhall therefore only obſerve as a general maxim, that it is better to fund a pound too much, and to pay the intereſt thereon, than

| | |
|---|---|
| The amount of the revenue, ſuppoſe, according to Lord Stair's ſtatement, - - | £. 12,000,000 |
| LOAN, required to meet the ſum wanted, the intereſt whereof, only, will be required to be raiſed by taxes, - - - | 16,000,000 |
| Total, | £. 28,000,000 |

The ſtudious reader will obſerve, that all the reaſons that have been given, relative to a converſion of the debt into a 6 per cent. ſtock, hold equally ſtrong, both with reſpect to the borrower and the lender, for making the future loans, for a time at leaſt, on a 6 per cent. ſtock*. On this account, it may not be amiſs to ſay a word or two on the principles of funding, in addition to what was mentioned in my former Eſſay.

The principles deduced in my former Eſſay, conſidered literally, extend no further than to ſtocks that do not bear a higher intereſt than that of the market. Thoſe principles, therefore, literally

than to let a ſhilling remain out-ſtanding. Whoever will conſider the diſcount neceſſary for turning an out-ſtanding debt into ready money, will be at once convinced of the truth of this maxim; more particularly, when he conſiders that the primary creditor muſt neceſſarily make his charge accordingly.

* Until the market-rate of intereſt ſhall have become ſo far decreaſed, as that a lower ſtock ſhall afford a ſufficient ſecurity for its redemption; for, without that, there is no natural foundation, whereon the ſtock ſhall ſtand ſecure from depreciation, or the ſtate from bankruptcy.



rally conſidered, do not of neceſſity hold in the preſent caſe. They extend to the preſent caſe ſo far forth only, as they ſhall be taken in an elemental (in contradiſtinction to a literal) ſenſe.

The grand practical principle of funding, conſiſts in preſerving ſuch a balance, or equilibrium, in the circulation of money, through the hands of the lenders, as that the rate of intereſt ſhall not continually riſe higher and higher; and thereby cauſe the value of the ſtocks to depreciate lower and lower, in conſequence of new loans.

In order to prevent this increaſe in the rate of intereſt, or depreciation in the value of the ſtocks, when loans are made on ſtocks that do not bear a higher intereſt than that of the market, it is neceſſary (as was demonſtrated in the ſeventh ſection of my former Eſſay) that the premium required for any new loan, ſhould conſiſt of an additional annuity, of the ſame continuance as the time limited for the advancement of the loan: but this is not literally neceſſary, in funding on ſtocks that do bear a higher intereſt than that of the market.

This poſition is no other, conſidered elementally, than that the *ſurplus* revenue, neceſſarily required in addition to the market-intereſt, in order to prevent the market-rate of intereſt from increaſing, in conſequence of an extraordinary demand for money, muſt be equal to the *premium*, neceſſarily required in conſequence of ſuch extraordinary demand for money.

Now, ſtocks bearing a rate of intereſt higher than that of the market, have naturally a ſurplus revenue (in addition to the market-intereſt) inherent in them; and, conſequently, an additional annuity cannot be neceſſary, unleſs the extraordinary

dinary demand for money ſhould be ſuch, as that the premium ſo required, ſhould be greater than the ſurplus annuity, ſo inherent in the ſtock. If the ſurplus annuity, ſo inherent in the ſtock, ſhall exceed the premium required in conſequence of the demand for money, the market-value of the ſtock muſt neceſſarily riſe higher and higher, in ſpite of ſuch demand for money.

For example: Suppoſe our 3 per cents to get down, centrally, to 60*l.* before the converſion of the debt can be effected. In this caſe, the market-rate of intereſt will be 5 per cent.; and a 6 per cent. ſtock (ſubject to the before-mentioned principles of redemption) will be worth $109\frac{1}{11}l.$; ſo that our debt, being converted into one hundred and ſeventy millions of 6 per cent. ſtock, will be worth in the market, 185,454,545*l.*; the market-intereſt whereon, at 5 per cent. is 9,272,727*l.* But the annuity, or intereſt annexed to the ſtock, will be 10,200,000*l.* which exceeds the ſaid market-intereſt by 927,273*l.*; and, conſequently, any loan requiring a leſs premium than 927,273*l.* cannot prevent the market-value of the 6 per cent. ſtock from riſing higher and higher.

It muſt likewiſe be obſerved, that this ſurplus continually increaſes, as the value of the ſtock riſes. For example: When the ſtock is at $109\frac{1}{11}l.$ the market-rate of intereſt is 5 per cent. and the market-intereſt on the value of the ſtock is $5\frac{5}{11}l.$ out of the 6*l.* ſo annexed to the ſtock; ſo that the 6*l.* thus annexed to the ſtock, furniſhes, then, a ſurplus of only $0\frac{6}{11}l.$ or 1-11th part of the annuity, or intereſt, ſo annexed to the ſtock. But when the ſtock riſes to 120*l.* the market-rate of intereſt is then only 4 per cent.; and the market-intereſt on the value of the ſtock is only $4\frac{4}{5}l.$ out of



of the 6*l.* ſo annexed to it; ſo that the 6*l.* thus annexed to the ſtock, furniſhes then a ſurplus of $1\frac{1}{5}l.$ or 1-5th part of the whole annuity, or intereſt, ſo annexed to the ſtock.

This being the caſe, the only thing neceſſary to be done, with reſpect to giving the premiums for new loans, will be, to eſtabliſh 6 per cent. ſtock, from time to time, for the ſubſcribers, at a rate of 3, 4, or 5, (more or leſs) per cent. cheaper than the market-price for the time being: and the addition, or increaſe, neceſſary to be made in the taxes, from time to time, will be only for the payment of the annuity, or intereſt, on the quantity of ſtock that ſhall be ſo, from time to time, eſtabliſhed.

Theſe premiums, it may be obſerved, will be eagerly accepted of by the ſtock-holders; becauſe, the greater part of the loan (the whole of the loan indeed, and more than the whole of the loan, when the revenue becomes greater than the ordinary expenditure) being to be applied to the redemption, thoſe who have not an immediate occaſion for the redemption-money, will gain the premium thereon, by ſubſcribing their reſpective proportions of it towards the loan. It may likewiſe be obſerved, that theſe premiums will be productive of an actual profit to the ſubſcribers, greater than the apparent premium itſelf; becauſe, the market-value of the ſtock muſt neceſſarily riſe, in ſpite of the loan: whereas, in conſequence of the depreciation, naturally attending the funding on ſtocks that do not bear a higher intereſt than that of the market, the actual profit ſo produced to the ſubſcribers, muſt be leſs than the apparent premium, and may be leſs than nothing at all. I am ſtrongly of opinion, that this

may have been the caſe with our public loan of the preſent year. Exchange-Alley, London, can readily tell, whether it has or has not been ſo *de facto*.

The reader will be perfectly ſatisfied, that the market-value of the new ſtock muſt riſe immediately (I mean within ſix months at furtheſt) after the converſion of the debt; becauſe, the money appropriated to that channel of circulation, is thereby immediately increaſed. For example: 1000*l.* of 3 per cent. ſtock, brings into that channel of circulation, only 15*l.* half-yearly; whereas, by being converted into 570*l.* of 6 per cent. ſtock, it will immediately bring in 17*l.* 2*s.* half-yearly; which, conſequently, produces an immediate appreciation in the value of the new ſtock.

It is unneceſſary to ſay any thing further on the ſtate of our public debts and finances. What has been ſaid, ſufficiently evinces,

I. That the opinion of our being in a ſtate of unavoidable bankruptcy, is altogether erroneous; and, that the bankruptcy is, in fact, equally producible or preventible, at pleaſure.

II. That, in order to produce the bankruptcy in a regular and mathematical progreſſion, nothing further will be neceſſary, but to fund on ſtocks bearing any rate of intereſt, at pleaſure, not higher than that of the market; and to give the premiums neceſſarily required for the loans, in an additional annuity (whether perpetual, determinate, or mixed, is immaterial) of a longer continuance, than the time of the advancement of the loans: becauſe, ſo much of the ſaid premium, as ſhall remain unpaid at the expiration of the term of the advancement of the loan, muſt unavoidably be an increaſe of debt, beyond the





quantity of the loan itſelf; and this deficiency (or part ſo remaining unpaid) muſt cauſe the debt, (either in annuity by itſelf, or in annuity and capital together, it is immaterial which, ſeeing the capital is not demandable) to increaſe in a geometrical progreſſion, in the ſame manner, as a ſurplus or ſinking fund cauſes the debt to decreaſe in a geometrical progreſſion; and this geometrical progreſſion will regularly exhauſt the financial reſources, and thereby produce the bankruptcy; admitting only, that the reſources are finite.

III. That the bankruptcy is preventible, with much more real eaſe than it is producible; becauſe, the taxes wherewith it ſhall be ſo produced, muſt fall on the public with an accumulated weight and burthen, in conſequence of the increaſe in the rate of intereſt, with which ſuch proceſs muſt be attended; and the conſequent depreciation of the capital-value of eſtates, which is inſeparable therefrom: whereas, the taxes wherewith it ſhall be prevented, will periodically revert to the public with profit, in conſequence of the decreaſe that will naturally be thereby produced in the rate of intereſt; and the conſequent increaſe in the capital-value of eſtates, which goes inſeparably hand in hand therewith. And,

IV. That, in order to prevent the bankruptcy, nothing further will be neceſſary (taking our public debts and finances as they now ſtand, 1783) but to eſtabliſh a 6 per cent. ſtock, ſubject to a periodical tender for the redemption of the capital, equal to the annuity or intereſt, therefrom periodically flowing; and to offer to the preſent creditors, 57*l.* of ſuch 6 per cent. ſtock, in exchange for 100*l.* of 3 per cent. ſtock; and ſo in proportion for the other ſtocks and annuities, of which

the debt is at preſent compoſed; or, a leſs and leſs proportion of the new ſtock, periodically, as the value of the preſent ſtocks and annuities ſhall periodically depreciate; until the debt be ſo converted: To raiſe annually, by loan, a ſum equal to the quantity, by which the undermentioned aggregate* ſhall exceed the annual revenue for the time being: To make the new loans on a 6 per cent. ſtock†, by ſelling the ſtock to the ſubſcribers,

* The aggregate of the expences of the civil, the maritime, and the military eſtabliſhments, including all extraordinaries, together with twice the intereſt of the previous debt, and once the intereſt of the new loan ſo to be made: becauſe, the intereſt of the debt, and the tender to be made for the redemption, are always to be equal; and the intereſt of the new loan, is always to be raiſed by revenue.

I would not, however, be underſtood to mean, that the equation of the intereſt and the tender, ſhould be carried to ſuch a ſtrictneſs, as to prevent or obſtruct entailments, for the conveniency of providing for widows, or infants, or the like; to whom a periodical tender for the redemption of the capital, would be inconvenient. The ſtocks might, with all reaſonableneſs, be liable to entailments during the minority of an infant; or even (which would be neceſſary in caſes of ideots or lunaticks) during the life of a widow, and of her child; whether born, or in the womb, at the time of the commencement of ſuch entailment: provided always, that the capitals ſo freed from a tender of redemption during the time of ſuch entailments, ſhould, at the expiration thereof, be ſubject to a tender equal to the ſum total of the annuities that had ſo flowed therefrom, during the time of the entailment; or, to a full tender, in caſe the ſum total of thoſe annuities ſhould be greater than the capital.

† When the 6 per cent. ſtock ſhall have riſen to 120*l.* it will then be unneceſſary to fund on ſo high a ſtock. The principle always to be kept in cloſe view, is this; that



ſcribers, at a rate ſomething lower than the market-price for the time being; and, to increaſe the taxes periodically, ſo far forth as ſhall be required for

that the greateſt poſſible capital be put in motion, with the leaſt poſſible revenue, that ſhall be conſiſtent with the ſecurity of the value of the capital from depreciation. This ſecurity depends on keeping a periodical redemption for ever in view, and in action; by making it more profitable to keep the ſinking fund in that line of ſervice, than to divert it (when money ſhall be wanted) to any other ſervice. In order to this, it is indiſpenſably neceſſary, that the value of the ſtock ſhould be more than as much (ſay about double as much) above par, as ſhall be commonly required, by way of premium, for new loans. This being the principle, when the 6 per cent. ſtock ſhall be at or about 120*l.* it will be beſt to make future loans on a 5 per cent. ſtock (ſubject always to a tender equal to the annuity) which will then be worth $111\frac{1}{9}$*l.*: When the 5 per cent. ſtock ſhall be at or about 120*l.* it will be beſt to make future loans on a 4 per cent. ſtock, ſubject always to the ſame principles of redemption; for, when the 5 per cent. ſtock is worth $121\frac{7}{33}$*l.* a 4 per cent. ſtock will be worth $110\frac{10}{29}$*l.*; and a 6 per cent. ſtock will be worth only $129\frac{27}{37}$*l.*: ſo likewiſe, when the 6 per cent. ſtock ſhall be worth $141\frac{3}{17}$*l.* the 5 per cent. ſtock will be worth $133\frac{1}{3}$*l.*; the 4 per cent. ſtock will then be worth $123\frac{1}{13}$*l.*; and a 3 per cent. ſtock (ſubject likewiſe to a tender equal to the annuity) will be worth $109\frac{1}{14}$*l.* When, therefore, the ſtocks ſhall have thus riſen in value, it will be beſt to make future loans on a 3 per cent. ſtock. An equivalent in low ſtock, may likewiſe be given to the creditors, in exchange for high ſtock, whenever they may chooſe; and by this means a leſs and leſs revenue will be required. But the creditors muſt be careful never to accept of any ſtock, that ſhall be worth leſs than 8 or 10 per cent. above par; becauſe, by ſo doing, they would lay themſelves open to a depreciation of the value of the capital, (as has been hitherto the caſe) in conſequence of a diverſion of the ſinking fund to other ſervices.

for the payment of the intereſt or annuity on the quantity of ſtock, that ſhall be ſo periodically eſtabliſhed.

By this proceſs, the taxes will be increaſed gradually; in the ſame manner as animal bodies proceed in their advances from the womb to their maturity. The benefits and advantages attendant on the decreaſe of the rate of intereſt (which is naturally produced by this application of the taxes) will alſo go hand in hand with the increaſe of the taxes; in like manner, as the powers of gravitation and repulſion, in the planetary world, go always hand in hand: and, the wealth and proſperity of the nation will regularly and ſpeedily recover itſelf, conjunctly with the decreaſe of the rate of intereſt; in like manner as a planet recovers its proper ſituation in the heavens, by the conjunct or compound power of gravitation and repulſion, when it ſhall have been carried (as by the intervention of a comet) from its orbit.

By this proceſs, that threatening cloud, which now hangs over our financial hemiſphere, pregnant with deſtruction, will be inſtantly diſperſed: it will fly and vaniſh like a meteor: AND IN LESS THAN SIXTEEN YEARS (barring the intervention of new calamities) THE NATION WILL BE RECOVERED TO A HIGHER DEGREE OF WEALTH AND PROSPERITY, THAN BRITAIN, IN HER GREATEST GLORY, HATH EVER HITHERTO BEHELD.

So ſpeedy a reſtoration of our national proſperity, may perhaps, on the firſt view, exceed the reader's faith. He will however obſerve, that a decreaſe of the rate of intereſt, is a mathematical conſequent of the foregoing proceſs; and, that a decreaſe



decreaſe of the rate of intereſt, and an increaſe of wealth and proſperity, are natural and inſeparable companions. He will likewiſe obſerve, that the foregoing proceſs is not founded on viſionary imagination. It requires none of thoſe imaginary public virtues, ſo vainly boaſted of by pretending patriots, which, like *ignes fatui*, naturally miſlead: it requires no deluſive ſelf-denials, to produce the public benefit; nor other imaginary degrees of public ſpirit, that would pretendedly prefer the good of others before the good of ſelf. The attentive reader will, I ſay, obſerve, that the foregoing proceſs requires none of thoſe viſionary, deluſive, and vainly boaſted virtues: it, in ſhort, requires neither more nor leſs, than that natural *primum mobile* of human action, which alone can be relied on, the plain and ſimple virtue of unenvious ſelf-love; which, by the conſtruction and nature of the proceſs, becomes inſeparably interwoven with the mutual and equal intereſts of the ſtate at large; whereby, the *ſelf*-love and the *ſocial* are concordantly united, and become the ſame. And, although I mention ſixteen years, from the eſtabliſhment of the foregoing proceſs, for the proſperity of the nation to regain its former glorious height; yet, that happy reſtoration and recovery will not, in fact, require ſo long a time; unleſs its natural progreſſion ſhould be retarded by new calamities, which now may lay concealed in embryo, within the womb of Fate. There is, however, no human contrivance whatever, that can retard its natural progreſſion, excepting only hoſtile force, and miſtaken patriotiſm. And, if I am not very much miſtaken, there is infinitely more real danger to be apprehended from wild ſchemes, and dark machinations, of reſtleſs and

ambitious men, cloaked under the ſpecious maſk of patriotiſm, than from all the hoſtile powers of the world.

I muſt not conclude this ſection, without reminding the reader, that this Eſſay is confined to principles, and does not extend into minute particulars. Leſt, therefore, any reader ſhould conſider the practical converſion of the debt, to be a work of a more ſimple nature, than in reality it is; it is neceſſary to mention, that thoſe readers who ſhall actually ſtudy the practical part, with that ſtrictneſs of attention, which is indiſpenſably neceſſary, will diſcover a little chain, within theſe laſt eighteen pages, which is purpoſely comprehended in a general expreſſion, and left entirely unexplained.

If, barring only the accidental circumſtance of ſtriking on the exact link by a random ſhot, as one may call it, any thing ſhould be done in the actual converſion of the debt, without a perfect diſcovery of, and ſtrict attention to, the chain, to which I here allude, it will, mathematically and irremediably, produce an unneceſſary loſs to the public, of ſeveral millions; without a poſſibility of producing the ſmalleſt degree of benefit to any individual, but what would flow equally, with the avoidance of that loſs.

Unleſs the particulars of the chain to which I here allude ſhall fully appear (which is not very likely, without being fairly hunted up by an elaborate inveſtigation) the beſt method of making loans in the intermediate time, will be, to give the whole value of the actual loan (i.e. the value of the money to be actually furniſhed by the lenders) in a 3 per cent. capital, at whatever its market-price ſhall be; and to give the neceſſary *bonus*, in





an additional annuity, to continue two years, and then to ceaſe: as alſo, to lay new taxes, only for the payment of the intereſt on the capital ſo to be given; and to pay the additional annuity out of the ſurplus, by which the preſent revenue exceeds the intereſt of the debt.

If the remarks in the note, page 55, ſhall be found confirmed by the actual prices of the ſtocks in Exchange-Alley, there will, naturally, be good reaſon to hope, that the reader will venture to admit on credit, what is here mentioned for the avoidance of thoſe irremediable evils, which muſt infallibly attend an intemperate or precipitate zeal for reformation.

## SECT. II.

*Remarks on a Plan for raiſing Money by Public Loans, and redeeming the Public Debts; lately publiſhed by Dr.* PRICE.

I AM induced to make the following Remarks on Dr. PRICE's Plan for raiſing Money by Public Loans, and redeeming the Public Debts, for two reaſons; viz.

I. Becauſe the Doctor's plan is not only inadequate to the propoſed end; but he has likewiſe drawn inferences and concluſions, entirely remote and foreign from his *data*, or primary poſitions; and has thereby plunged himſelf into a labyrinth of error: And,

II. Becauſe ſome of the Doctor's principal readers, not obſerving that ſtrictneſs of attention, which

which is indiſpenſably neceſſary in the conſideration of mathematical and deductive ſubjects, have followed the Doctor into that bewildered labyrinth, without perceiving it.

The Doctor, preparatory to the opening of his plan, points out the ſuperior progreſſional power or efficacy of any given ſurplus revenue, or ſinking fund, by being applied to the redemption of capitals bearing a high, rather than a low, rate of intereſt. In this poſition, the Doctor is moſt perfectly juſt and right*. But I am perfectly aſtoniſhed at finding it inferred, that " reductions " of intereſt, are ſome of the moſt dangerous " temporary expedients ;" and, that " they only " poſtpone calamities, by accumulating them, and " rendering them leſs poſſible to be avoided †."

So far is this inference from being true, that, although indeed, the higher the rate of intereſt on any capital ſhall be, the ſooner the redemption of ſuch capital will be effected, by any given ſurplus revenue, or ſinking fund, that ſhall be thereto appropriated; yet, the lower the rate of intereſt on ſuch capital ſhall be, the ſooner will its redemption be effected, by appropriating thereto the ſame given revenue.

This poſition is of ſo ſimple a nature, that the reader will find no difficulty in being convinced of its mathematical truth ; and he will, from hence, perceive how indiſpenſably neceſſary it is, to conſider

* See the beginning of the firſt ſection of this Eſſay.

† See the note in page 26 of Dr. Price's pamphlet. I have likewiſe heard ſome of the Doctor's readers draw the ſame concluſion. Nay, ſome of the arguments in Parliament, ſeem to be founded on the ſame hypotheſis.



ſider all the parts of a poſition, before he ſuffers himſelf to be led away with an imaginary hypotheſis.

For example : If a revenue of 7 per cent. on any given capital, be appropriated to ſuch capital, then, it is evident, that if the intereſt thereon be 6 per cent. the ſurplus or ſinking fund will be only 1 per cent. But, if the intereſt be 5 per cent. the ſame revenue will give a ſurplus or ſinking fund of 2 per cent. If the intereſt be 4 per cent. the ſurplus or ſinking fund will be 3 per cent. If the intereſt be 3 per cent. the ſame revenue will give a ſurplus or ſinking fund of 4 per cent. And the like of any other revenue, that ſhall be appropriated to the debt.

If, for a further inſtance, a revenue of ſix millions and three quarters a year (or rather 3,375,000*l.* a half-year) be appropriated to a debt of one hundred millions capital, bearing 6 per cent. intereſt, it will, in twenty years, redeem only 28,275,375*l.* of ſuch capital: but, if the intereſt thereon be 5 per cent. the ſame revenue will, in the ſame time, redeem 58,977,450*l.* of ſuch capital: if the intereſt thereon be 4 per cent. the ſame revenue will, in the ſame time, redeem 83,053,440*l.* of ſuch capital: if the intereſt be 3 per cent. the ſame revenue will, in the ſame time, not only redeem the whole capital, but will likewiſe leave a nett ſurplus of 1,751,225*l.* in the treaſury, for further ſervices.

Hence then, reductions of intereſt, if properly conducted, inſtead of being " ſome of the moſt " dangerous temporary expedients ;" and inſtead of " accumulating calamities, and rendering them " leſs poſſible to be avoided ;" are, in reality, ſome of the moſt truly wiſe, truly ſalutary, and truly

truly beneficial, of all public meaſures: becauſe, thereby any revenue is enabled to bring into action, and to repay, larger and larger capitals, whether for the ſupport and improvement of commerce and induſtry, or for the public ſervice and defence.

If reductions of intereſt are improperly conducted, they will, indeed, be productive of diſadvantage, inſtead of benefit: but this is ſaying neither more nor leſs, than may, with equal truth, be ſaid of every thing elſe, that ſhall be conducted improperly.

In reductions of intereſt, care ſhould always be taken (in manner mentioned in the laſt note of the laſt ſection) that the reduction be not carried ſo far, as to leave the value of the capital in danger of depreciation. This is the only caution neceſſary to be attended to; and the impartial reader will obſerve, that it is to the full as much (nay more, if more be poſſible) the intereſt, and conſequently the duty, of the creditors, as of Government, to be attentive to this point: becauſe the creditors, in ſelling their ſtock, muſt be greater loſers than any other individuals, by the depreciation.

It muſt be confeſſed, that this neceſſary attention was omitted in the reduction of the intereſt of the public debt of Great-Britain: but, as its neceſſity could not regularly appear, excepting only from a regular inveſtigation of the nature and principles of the ſubject; and, as thoſe principles, conſidered ſcientifically, remained unexplored: ſo, conſequently, it would be equally ungenerous and unjuſt, to lay any blame either on Government, or on the creditors, as it would be, to blame our anceſtors for not having conducted their



their navigation, or their other arts, on the ſame principles, and in the ſame degrees of perfection, as has been done in latter times.

Rejecting then (as every impartial man muſt do) all degrees of blame in the parties concerned, I agree perfectly with Dr. Price, that the vaſt weight of artificial debt*, under which we now labour, has been owing to the improper reduction of the rate of intereſt, and to the modes of borrowing that have ſince followed it.

But, from the time the depreciation in the value of the ſtocks actually took place, an avoidance of the increaſe of this artificial debt (without eradicating the cauſe from whence it flowed) would have been neither more nor leſs, than an avoidance of a leſſer, by the ſubſtitution of a greater evil.

A depreciation in the value of the ſtocks, and a geometrical progreſſion in the increaſe of the debt, are, in their eſſence, mathematically inſeparable. They flow from one and the ſame cauſe, viz. from an inſufficiency of revenue appropriated to the debt. This deficiency of revenue ſo appropriated, mathematically produces a depreciation in the value of the ſtocks, and a geometrical progreſſion in the increaſe of the debt; in the ſame manner, and on the ſame mathematical principle, that a ſurplus of revenue, or ſinking fund, ſo appropriated, produces a geometrical progreſſion in the redemption of the debt, and an appreciation in the value of the ſtocks. A deficiency, and a ſurplus, muſt, neceſſarily and unavoidably, poſſeſs the ſame

* By the artificial debt, is meant the quantity, by which the nominal capital exceeds the actual value of the ſtock.

ſame mathematical properties, each as the other; ſave only, that the one is negative, the other affirmative: for, a deficiency is, mathematically, neither more nor leſs, than a negative ſurplus. And hence, any attempt to prevent any part or parcel of the effects, without eradicating the cauſe, from whence they mathematically flow, can only (like every thing elſe that ſhall be attempted to counteract the immutable laws of Nature) remove the malady ſomething further from the eye of a ſuperficial obſerver, and make it in reality worſe.

This is preciſely and exactly the caſe with Dr. Price's plan, for avoiding the geometrical increaſe of the nominal capital, or artificial debt, by funding on ſtocks bearing merely a higher intereſt. For, as the Doctor propoſes no limited point for the tender, to which the ſtocks ſhall or ſhall not be ſubject, for their redemption; whereby alone they can have any ſecure capacity for riſing above par; the higher ſtock will naturally be liable to the very ſame ratio of depreciation, as the lower ſtock; but will not have the ſame capacity for riſing in value. And, conſequently, no man, conſiſtent with his own intereſt, can give for ſuch higher ſtock, its full comparative value.

The reader will be ſufficiently convinced of the truth of theſe remarks, by recurring to any of our loans, in which a higher and a lower ſtock were eſtabliſhed at the ſame time.

In the year 1781, for example, a 3 per cent. and a 4 per cent. ſtock were eſtabliſhed. The 3 per cent. ſtock brought 58*l.* and the 4 per cent. ſtock brought only 70*l.* The 3 per cent. ſtock is now convertible into a progreſſional ſyſtem of redemption, from 60*l.* to 63*l.* and the 4 per cent. ſtock,



ſtock, from 80*l.* to 84*l.* as was ſhewn in the laſt ſection: wherefore, the neceſſary redemptional loſs on the money ſo received for the 3 per cent. ſtock, will be only from $3\frac{13}{29}$ to $8\frac{18}{29}$ per cent. whereas, the neceſſary redemptional loſs on the money received at the ſame time for the 4 per cent. ſtock, will be, from $14\frac{2}{7}$ to 20 per cent*.

Dr.

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* A 5 per cent. ſtock was propoſed for a part of this loan; but the price it would then bring, immediately convinced the noble Lord [Lord North] who conducted the loan, that its eſtabliſhment muſt have been attended with an immenſe additional loſs to the public: and his Lordſhip therefore, like a real patriot and friend to the public, determined to reſiſt the clamours that were excited in favour of the 5 per cent. ſtock, by the ſuperficial calculations of imaginary patriots. From his Lordſhip's arguments in the courſe of the debate on this loan, I am inclined to believe, that in the eſtabliſhment of 4 per cent. ſtocks (by which ſo much unneceſſary loſs to the public was incurred) his Lordſhip had prevailed on himſelf to ſubmit, in ſome degree, to the erroneous opinions then propagated by ſuperficial inveſtigators, entirely contrary to his own ſound judgment. It is impoſſible to do juſtice to the ſound judgment, and real patriotiſm, by which that noble Lord was actuated, in his reſiſtance to thoſe erroneous doctrines, without obſerving, that, although his Lordſhip had not preciſely ſatisfied himſelf, with reſpect to the particulars of a ſyſtem, for throwing the debt into a regular progreſſion of redemption, with the greateſt poſſible advantage to all parties; yet, his Lordſhip clearly ſaw, that it would become perfectly practicable, whenever the circulation ſhould become tranquil. His Lordſhip ſaw clearly (his argument fully manifeſts it) that, as the capital was not demandable by the creditors, but depended entirely on a future agreement for the terms of its redemption; a with-holding of the ſinking fund from that ſervice, until ſuch agreement ſhould be concluded, would naturally introduce terms of

Dr. Price is aſtoniſhingly alarmed at the increaſe of the nominal capital of our debt. He conceives, that the ſtocks may riſe in value, ſo as to make the whole, or nearly the whole, of the vacant capacity, or artificial debt, become a loſs to the public, in the redemption. This would indeed be the caſe, if Government ſhould apply a ſufficient ſinking fund to the redemption of the debt, without previouſly ſtipulating with the creditors, the conditions, on which the redemption ſhould be made; but it cannot happen otherwiſe.

The Doctor repeatedly declares, that nothing but a firm eſtabliſhment of a progreſſional redemption of the debt, can ſave the nation from running further and further, towards the gulf of bankruptcy, and finally plunging into it.

In this, the Doctor is perfectly juſt and right. But this is, in reality, declaring, that there is not the ſmalleſt danger of the ſtocks riſing in value, (whereby to cauſe an unavoidable loſs in the redemption) without ſuch eſtabliſhment. It is, in ſhort, declaring, that without ſuch eſtabliſhment, the ſtocks muſt go on depreciating, till at length they muſt fall to nought.

This being truly the caſe (and truly the caſe it really is) the danger of ſuſtaining loſs on account of the artificial debt, conſiſts ſolely in the danger of

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of redemption, to be agreed on in time of peace and tranquillity, infinitely more fair and equitable, than any terms that could (as things then ſtood) be fixed on, by the eſtabliſhment of ſtocks bearing a higher intereſt, in the intermediate time. Is it not aſtoniſhing to find this argument repreſented to the public, as being fallacious and miſchievous?



of running into erroneous ſchemes for its redemption. For, ſeeing the capital is not demandable, the creditors, for their own advantage ſake, will gladly accept of equitable terms, for throwing it into a progreſſional ſyſtem of redemption; becauſe, thereby alone can their loſs by further depreciation be avoided, or their gain by a future appreciation be hoped for.

But the plan propoſed by Dr. Price, for the converſion of our debt, is totally inadequate to this deſirable end.

The Doctor propoſes a converſion of our 3 per cent. ſtocks into 4 per cent. ſtocks, and to conduct future loans on a plan, that ſhall make them the means of effecting this converſion; by eſtabliſhing 4 per cent. ſtocks, and receiving only a part of their value in money, and the remainder in a tranſcription of 3 per cent. ſtock.

There is no doubt, as to the practicability of effecting this converſion, as things now are, by giving a premium for it: but it could not be effected without giving a premium, for the reaſons already mentioned; viz. the 4 per cent. ſtock would be liable to the ſame ratio of depreciation, as the 3 per cent. ſtock; but would not have the ſame capacity for riſing in value: and, conſequently, no man, conſiſtent with his own intereſt, could give the full comparative value for ſuch 4 per cent. ſtock.

But what ſhould we be the better, by this converſion? Dr. Price conceives, that we ſhould be the better, purely becauſe the nominal capital would be leſſened; whereas, in truth, the only real effect that would be thereby produced, would be this: The creditors would have a momentary, and only a momentary, gain, by the premium ſo

given for the converſion; and the public would forever loſe it, without being able to obtain thereby, the ſmalleſt degree of advantage whatſoever.

I have ſhewn, in the foregoing ſection, that even a 5 per cent. ſtock would be ineffectual, in the preſent ſtate of our finances; unleſs our taxes were to be increaſed by ſuch haſty ſtrides, as would be at beſt imprudent, if not dangerous. A 4 per cent. ſtock would be ſubject to the ſame ratio of depreciation, as a 3 per cent. ſtock; and would, of courſe, run down in the ſame manner.

The reader will eaſily be convinced of the truth of this remark, without the trouble of recurring back to the principles contained in the foregoing ſections, or in my former Eſſay, by adverting to the following plain and obvious conſiderations; viz.

Our public debt, at the end of the laſt war, in 1763, was only about two-third parts ſo great as it now is; our ſurplus revenue was then much greater in proportion to the debt, than it can at preſent be made (admitting the ſtatements lately publiſhed, to be near the truth) by the utmoſt rational exertions; our 3 per cent. ſtocks were likewiſe much higher then, than our 4 per cents now are: notwithſtanding all which, the ſtocks fell down, even during the peace, from the point to which they flew up at the diſcontinuance of the war, in ſpite of the ſinking fund that was applied to their redemption. Our debt being now ſo much greater than it then was; our revenue proportionately ſo much leſs; our 4 per cent. ſtocks being likewiſe much lower than our 3 per cents then were; and an immenſe out-ſtanding debt remaining to be funded; it would be perfectly abſurd,



ſurd, even without any further demonſtration, to ſuppoſe, that our financial ſyſtem ſhould be better, or even any thing near ſo well, able to ſupport 4 per cent. ſtocks from depreciation now, as it then was to ſupport 3 per cents.

Dr. Price recommends likewiſe (as if afraid his ſyſtem, in its own nature, would ſtill be incomplete) a poſitive law, conſigning a ſurplus, or ſinking fund, to commiſſioners, in order to render its appropriation to the redemption of the debt, unalienably ſecure. This, the Doctor conceives, would be a meaſure highly ſalutary.

In the latter part of the foregoing third ſection, I examined the poſition, from whence ſuch opinion muſt have originated; and ſhewed, that a poſitive law muſt be at beſt unneceſſary, and in ſome caſes pernicious. In our preſent caſe, were it admitted to be practicable, it would be pernicious in the extreme.

So far forth as the natural laws of profit and loſs, ſhall render an appropriation of money to the redemption of the debt, more advantageous than any other line of ſervice; ſo far, the gain alone will be a ſufficient ſecurity. A poſitive law would indeed be harmleſs in this caſe, but it could by no means be neceſſary; for the gain would be the ſtrongeſt of all poſſible ſecurities. But, where the natural laws of profit and loſs ſhall render the appropriation of money to any other line of ſervice, more advantageous than the appropriation thereof to ſuch redemption; the poſitive law muſt be pernicious.

In the examination of the above-mentioned poſition, in the foregoing third ſection, I ſhewed, that the appropriation of money to the redemption of ſtocks bearing a higher intereſt than that of

the market, would always be advantageous; but, that while money ſhould be wanted in any other line of ſervice, an appropriation thereof to the redemption of ſtocks bearing a lower intereſt than that of the market, muſt be attended with loſs to the public: becauſe, (plainly and ſimply, without troubling the reader to recur back to the examination of the poſition) in that caſe, the money ſo wanted for other ſervices, could not be obtainable in the market, without giving a greater revenue for it, than that which would be releaſed, by applying the ſame ſum to the redemption of the ſtocks.

True it is, agreeable to Dr. Price's obſervations, that if a ſurplus, or ſinking fund, had been invariably applied to the redemption of the debt, from the year 1752, or 1753, while the ſtocks were at and above par, leſs than one million a year would have been ſufficient, for the purpoſe of preventing their depreciation; and the nominal capital of our debt would not, at this time, have been two-third parts of what it now is. But, it muſt be remembered, that, as the principle for giving the ſtocks a free and ſecure capacity for riſing in value above par (by limiting the tender to which they ſhould be periodically ſubject, for their redemption) had not then occurred; the application of money to their redemption, would naturally have ſubjected the creditors to a further reduction of the intereſt, without affording them, as individuals, the leaſt equivalent. This, the creditors would very naturally endeavour to avoid; and they therefore, very naturally, threw all poſſible obſtacles in the way of every thing that ſhould lead to it.

Had



Had the principle occurred, for giving the ſtocks a free and ſecure capacity for riſing in value above par, by limiting the tender to which they ſhould be periodically ſubject, for their redemption, the creditors would gladly have embraced the acceptance of a tender, equal to the annuity or intereſt; becauſe, in that caſe, although they would in effect have ſuſtained a reduction of the intereſt on the part ſo to be tendered; yet, they would always have gained juſt exactly double as much, by the increaſe in the value of the remaining capital, as they would loſe by ſuch, in effect, reduction of intereſt; which is the *maximum*, or greateſt gain, that they could, in mathematical poſſibility, derive from any receipt or payment, whether greater or leſſer.

But this, as I ſaid before, not occurring, a reduction of the intereſt was the only thing that the creditors guarded againſt; and, leaving their capital unguarded, its value naturally depreciated, for want of a progreſſional redemption to ſupport it: and the increaſe of the debt, in a geometrical progreſſion, proceeded naturally, hand in hand, with that depreciation. This is, preciſely and truly, the exact nature of the caſe.

From the time this depreciation in the value of the ſtocks took place, an appropriation of money to the redemption of the debt, while it ſhould be wanted for any other ſervice, muſt, as I ſaid before, have been attended with loſs to the public; becauſe, the revenue neceſſarily required to obtain any given ſum in the market, muſt have been greater than the revenue, that would have been releaſed by applying the ſame given ſum to the redemption of the debt.

At

At this time, the rendering of a ſinking fund unalienable, (without previouſly eſtabliſhing the conditions of redemption, by an effectual converſion of the debt) would be attended with a moſt immenſe loſs to the public. If ſuch a ſcheme were really practicable, and actually to be carried into execution, it would effectually ſaddle the public with that very loſs, which Dr. Price hath been ſo ſeduloufly endeavouring to avoid: for, in that caſe, the ſtocks muſt be redeemed continually, at a price above their actual value, until at length they ſhould become raiſed, from their preſent price, to par.

There is nothing but the power of alienating or with-holding the ſinking fund, that can, in nature, command a converſion of the debt; nor is there any thing in nature, but an effectual converſion of the debt, that can obtain for the public, equitable terms for its redemption.

But this power of alienating or with-holding the ſinking fund, will always naturally command the acquieſcence of the creditors, in the neceſſary converſion of the debt, on terms that ſhall be perfectly equitable: becauſe, the creditors muſt either accept of the terms, when offered; or elſe, by alienating the ſinking fund, and keeping the revenue ſomething leſs than the expenditure, they muſt ſuſtain further and further loſs, by the conſequent depreciation of the value of the ſtocks, until they do actually accede to the neceſſary converſion; be it ſooner, or be it later. Any heſitation or delay on the part of the creditors, muſt unavoidably make their loſs greater and greater, until they ſhall become diſpoſed to accept of equitable terms: and thoſe equitable terms will likewiſe



likewiſe become leſs and leſs, from period to period, until accepted.

Immediately after the converſion of the debt, the ſtocks will riſe, as was ſhewn in the laſt ſection; and the creditors, of courſe, will thereby regain gradually, the loſs that ſhall have been ſuſtained by their depreciation.

This being truly the caſe, there is no danger of an heſitation on the part of the creditors, after they ſhall have conſidered the matter ſeriouſly. I am much miſtaken, if the creditors would heſitate a ſingle half-hour, at accepting of the terms mentioned in the foregoing ſection. I am fully perſuaded, that they will be glad to accept of lower terms, before Midſummer in 1784; and ſtill lower, before Midſummer in 1785.

But, ſhould they even heſitate ever ſo long, there will be no danger, either of a public bankruptcy, on the one hand, nor of their finally complying, on the other; while the revenue ſhall be kept any where between the intereſt of the debt, and the whole amount of the expenditure. Even, were the 3 per cents to run down to 45*l.* (and that they muſt do, long and long before there can be any real danger of a public bankruptcy, from any other cauſe but inſurrection, and force of arms) a converſion of the debt into an 8 per cent. annuity ſtock, ſubject to a periodical tender for the redemption of the capital, equal to the annuity therefrom periodically flowing (which would then be worth $109\frac{1}{11}$*l.* ſo that 100*l.* of 3 per cent. ſtock, would then be worth $41\frac{1}{4}$*l.* of ſuch 8 per cent. ſtock), would even then, as is evident from the foregoing ſections, eſtabliſh the neceſſary progreſſions; and would thereby effectually defeat the bankruptcy, and reſtore the public

lic credit to its priſtine ſtate, with a mutual and equal advantage to all, and without the ſmalleſt mixture of future diſadvantage or burthen, to any.

I have, I believe, pointed out to the ſatisfaction of every attentive reader, a ſufficiency of the errors with which Dr. Price's Obſervations on the Principles of Public Credit are through and through, from root to branch, pervaded. The Doctor intimates it to his readers as his then opinion, that, if he could ſerve the public in any thing, it was, in projecting that erroneous ſyſtem of finance, which has been the ſubject of theſe remarks. Should he continue to poſſeſs the ſame opinion, there is reaſon to hope, that he will, in future, conſider his poſitions more maturely; and not ſuffer the warmth of his zeal for reformation, however laudable the intention may be, to hurry him, in future, into ſuch viſionary ſchemes, and hypothetic ſyſtems. I am the more ready to hope, that this may be the caſe, becauſe I am confidently of opinion, that if he ſhould re-examine his Obſervations on the Principles of Government, with that attention and ſtrictneſs, which the principles of every thing indiſpenſably require; he will not find them leſs erroneous, than his Obſervations on the Principles of Public Credit.

If in any inſtances in the courſe of theſe remarks, I ſhould have departed from that civility of expreſſion, which might be wiſhed; I ſhall not fail (on their being pointed out) to have them corrected, in any future edition that may be called for: In the mean time, the reader will, I hope, make candid allowances for them, on recollecting that they are expreſſions of a member of thoſe unfortunates, that are plunged into labyrinths of calamity



calamity and diſtreſs, eaſier to be conceived than deſcribed, by the erroneous ſchemes that have been purſued for imaginary reformations, on the weſtern ſide of the Atlantic. The projectors might perhaps have ſet out, equally with Dr. Price, free from any real intention of producing injury. It may with the utmoſt ſafety be preſumed, that they intended, at the leaſt, to have avoided all poſſible evils, but what were, in their nature, inſeparable from a ſtate of warfare. But, in the hurry of their zeal for reformation, they took up an hypotheſis without examining it maturely; and the conſequent calamities would, as they indeed always muſt, unavoidably follow.

THE END.

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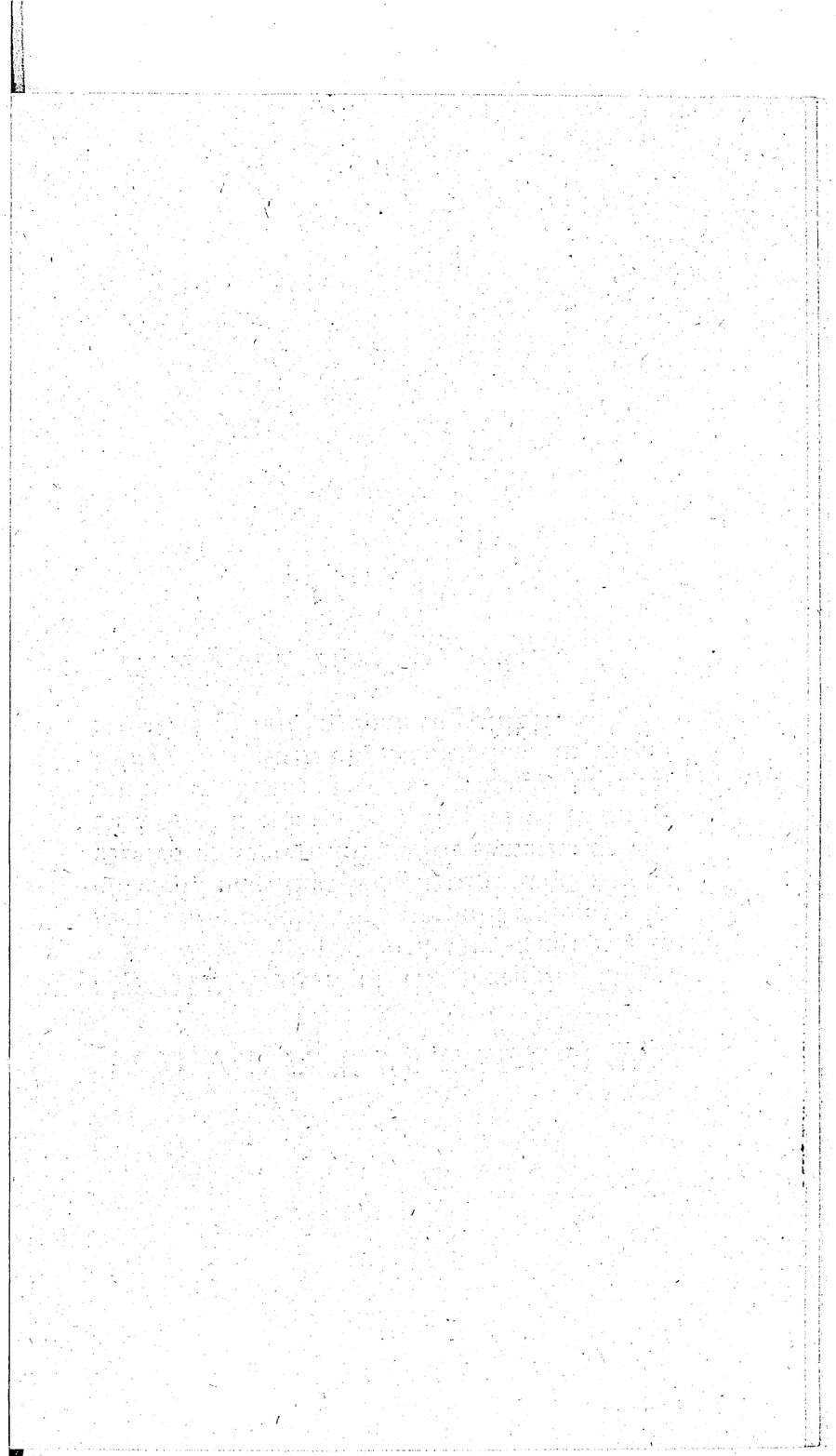
## ADVERTISEMENT.

THE Writer of the foregoing Eſſay, being unable to be in England, ſo ſoon as he would wiſh its publication to be effected, begs that Gentlemen, who may be pleaſed to favour him with remarks or obſervations thereon, will be pleaſed to communicate them, free of poſtage, to Mr. BENJAMIN WHITE, Bookſeller, in Fleet-Street, London, as ſoon as poſſible.

*St. Auguſtine, March* 31, 1784.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