October 13th 1949

Leo Szilard - Free Market Economy in a "Constsnt Flow" Monetary System.

Comments - Abba P. Lerner

A closed economy is worth examining even with a view to adaptation, where necessary, to an open economy. "One World" need not be brought in.

1. Bottomof page, seems to assume the conditions declared to be inherent in a monetary economy.

2. Why cannot a central bank try to keep spending rather than money constant?

    The onset of a depression means less spending inthe first place. Prices then may fall and this would ha e imprttant effects, but it is not the initiating item.

3. buying not selling.

    When a change in money does not affect spending (elasticity of liquidity preference infinite) monetary policy is ineffective and fixxk fiscal policy is usually reommmended.

bottomof page 3. Saving (or r ther thrift) does not increase money.

    Say "insufficient spending meand depression"

4.   It is not the taxing but the spending that alleviates depression. The taxing accentuates depression. For a simple analysis it is necessary to overcome the classical tendency (which you manifest) to take taxing-cum-spending as unit.
    Spending could be stabilised by purely monetary and fiscal measures without any planning other then the plan to stabilise aggregate spedding by compensatory monetary and fiscal actions. The government could keep its spending constant on desirable ebjectives, but reduce taxes, creating money to cover the deficit if taxes fall below govt spending.

    The device seems unnecessarily complicated and it is not clear how you would get from the stabilisation of the amount of money to keeping a constant flow of spending. It looks as if you are going to postulate a given velocity of circulationof money b making all money circulate just once in a"month". This does not seem to me to be fruitful approach, since all the real problems xfx arise from the possiblity of people increasing or decreasing their spending without any changes in the amount of money. Why not directly attack the total os spending by compensatory action rather than by try ing to force people to spend less or more than they want to spend by extrmeley high penalties or rewards which would destroy the appropriate relationship between the inducements to sp nd and the social necessity for economising in the use of resources?

GENERAL REMAKRS

Our paramount claim is that the two currency system described below,
if it is geared ~~xx~~ ~~begun~~ ~~work~~ to begin with to a high level of employment,
and is then left to itself, will tend to maintain a high level of employment.
~~In the subsequent chapters~~ we shall try to substantiate this claim. In the next chapter we shall
describe the rules under which a two currency system may operate. Some of
these rules represent essential features of such a two currency system, but
some others which are included are somewhat arbitrary, and represent only
one of several ways in which the system may be made to operate. One out
of several different possibilities ~~was~~ ~~selected~~ ~~in~~ ~~these~~ ~~latter~~ ~~cases~~ for
the sake of definiteness of presentation.

In reading the next chapter the reader is bound to have certain diffi-
culties arising from his familiarity with the conventional single currency
economy. This may lead him tacitly to assume that certain relationships with
which he is familiar have general validity, and will therefore also hold in
the two currency economy. This is by no means always so, and the few instances
cited in the following may serve as a warning in this respect.

1. In the two currency system the monetary situation is at all times
closely linked to the economic situation, much more so than in the case for
the single surrency system/which we are familiar. (And incidentally, it is
this close linkage which permits the automatic monetary mechanisms that operate
in the two currency system to secure the stability of the economic system.)

2. In the two currency system where a high level of employment is constantly
maintained, the fluctuations in the employment level are small, and therefore
a substantial temporary rise in the employment in the consumers goods industries
is necessarily accompanied by a corresponding fall in the employment in ~~xxxxx~~
capital goods industries. This is not necessarily so in the single currency
economy, where ~~great~~ ~~fluctuations~~ ~~in~~ employment accompny booms and depressions.

3   In the single currency economy. with which we are familiar a shift
towards increased employment in the capital goods industries is *generally* accompanied
by an increase in prices for consumers goods, but prices for consumers goods
follow rather sluggishly such shifts. In the two currency system on the other
hand, shifts of labor from the consumers goods industries to the capital goods
industries will not be accompanied by a price increase for consumers goods,
as expressed in green dollars. But *while* where the price of consumers goods will not
change in terms of green dollars in the two currency system; the price of red
dollars will respond quickly to shifts in the economic factors involved, and
the price of consumers goods will therefore not remain constant in terms of
red dollars; which on the contrary the prices of consumers goods as expressed
in terms of red dollars will change and will respond quickly to shifts in the
economic factors involved.

SPIELREGELN

V In discussing the two currency system we shall assume that the system has been in operation for a considerable period of time, so that the disturbances which may occur during the transition from the one currency system to the two currency system have faded out.

We shall, for the sake of simplicity, assume that there is only one bank, which we shall call the Bank; but we shall distinguish between the Bank and the Central Bank.

We shall assume that every person or business corporation has 3 accounts with the Bank: 1.) a red dollar account, ~~a green dollar checking account, and a green dollar~~ on which interest is credited at some current (variable) interest rate on the numerical value of the red dollar holding (in contradistinction to the market value) ~~of the~~ 2.) a green dollar checking account on which ~~banks~~ no interest is paid & 2.) a green dollar debit account on which interest is charged at some current (variable) interest rate

insert here 7 [illegible] old paper

~~SPIEGELMAN~~
~~SPIEGELMAN~~
~~SPIEGELMAN~~

We postulate that all wages and salaries are paid in green dollars at equal
time intervals, i.e., on the first day of the basic period of the system. If this
basic period is set to be one week, these payments will be made on the first day of
the week, and if the basic period is set for one month, these payments will be made on
the first of every month. We shall ~~discuss later the points of view which will de-
termine~~ just *what* time interval should be adopted as the "basic period." *(for the present leave or indetermined)* ~~In this
presentation we~~ *and in the meantime* shall simply call the basic period ~~one~~ *a* month, ~~and then~~ *(as that we shall)* speak of oper-
ations which take place on the first day of the "month" and the last day of the "month"
when we actually mean the first day of the basic period and the last day of the basic
period.

We further postulate that every person ~~and every business corporation has a
checking account with the bank in green dollars, and~~ that all wages are paid and all
purchases of goods ~~produced~~ are made in green dollars by transfer through check. (We
are thus/regarding *dis-* for the time being the possibility that for the sake of convenience
a certain limited amount of green dollars may be issued in the form of bank notes
to the public. ~~This point will be discussed later).~~ *we shall come back to*
The discussion of this point is taken up later)
~~Any person or business corporation may have with a bank an account in red
dollars.~~

~~However~~ Whoever has ~~such~~ a red dollar holding is entitled to obtain a loan
in green dollars from the bank in amounts up to the *nominal value* of his red dollar
holdings.

Only a fraction of the green dollar loans to which ~~all~~ the red dollar deposit-
ors are in toto entitled will in fact be taken up by the red dollar depositors, and
green dollar loans will be granted by the bank against securities other than red
dollar deposits also, i.e., stocks, ~~bonds~~ *bonds,* real estate, etc. The upper limit ~~of~~ *for*
green dollar loans which the bank may grant against such securities is determined by
the market value of each such security in the following manner: At the market value

of the security and the current price of the red dollars a certain amount of red dol-
lars corresponds to each such security, and the upper limit of the loan which may be
granted is equal to the nominal value of the pertinent red dollar amount.

Such green dollar loans on the red dollar deposits and other securities, may
be taken up at any time, and are paid at any time. They will be carried on individual
debit accounts on which interest is charged at a current variable interest rate for
debit accounts which is set by the Central Bank in a manner to be described below.

A service chage of perhaps 1% or a fraction thereof will however be charged
upon the granting of each new loan; i.e., a sort of initiation fee is charged each
time a new credit is opened.

Interest is paid by the bank on the nominal value of red dollar deposits at
a current rate which is set by the Central Bank in a manner to be described below.

Red dollards can be freely bought and sold on the open market, except that
there is a service charge of perhaps 1% or a fraction thereof on the sale of each red
red dollars. This is the same service charge of perhaps 1% on the sale (against green dol-
lars) of stocks, bonds, and other capital assets, but there is no service charge on the
sale of stocks, bonds and other capital assets against red dollars.

The amount of red dollard deposited in anyone's red dollar account is not
limited in any way, but on the 31st of the month the bank will remove from anyone's
checking account the amount by which this account exceeds his indebtedness to the bank
(as shown by his debit account), and the bank will buy on his behalf for this excess
amount red dollars on the open market which it will credit to his red dollar account.

We shall call these red dollar purchases which the bank undertakes on behalf of its
clients at the end of the basic period overflow purchases.

We postulate that the total number, G_0 of green dollars in the system is equal
to the total number, R_0 of red dollars in the system; i.e., the total amount G_0 of the
green dollars in the system is equal to the nominal value R_0 of the total amount of red
dollards in the system. We shall assume for the sake of this presentation that both

*red dollars in the system

red and green dollars are printed in the form of certificates which are kept either

in the bank or in the Central Bank, and which are not released to the public.   The

bank is obliged to keep 100% coverage in in red dollar certificates for red dollar

accounts, and 100% coverage in green dollar certificiates for green dollar accounts.

We *further* postulate that originally the red dollar deposits which the bank held for

the public amounted in toto to R_0 and accordingly, all red dollar certificates were

held by the bank covering the red dollar deposits of the public, i.e., originally there

were no red dollar certificates held by the Central Bank. We further postulate that

originally the total of the green dollar debit accounts of the public with the bank

amount to a, i.e., the public owed the bank in toto $D_0 = G$ green dollars and the bank

owed this amount to the Central Bank. We further postulate that the total C of the

green dollar checking accounts of the public with the bank also equals G, and accord-

ingly all green dollar certificates were orginally held by the bank covering the

checking accounts of the public, and no green dollar certificates were held by the

Central Bank.

In the original or standard condition, the total D of the debit accounts is

equal to the total C of the checking accounts, and also equal to the total amount G_0

of the green dollars in the system, which in turn is equal to the total nominal value

R_0 of the red dollars in the system.   In the standard condition we have $D_0 = C_0 = G_0 = R_0$.

We shall see that the standard condition is not necessarily maintained all the

time because as some green dollar loans are repaid by the public to the bank, and by

the Bank to the Central Bank, the Central Bank will purchase red dollars on the open

market for green dollars, and the total D of the debit accounts may then fall below

the total C of the checking accounts. However, as we shall see under the rules of

operation described below the system will return from time to time to the standard

condition. In the subsequent discussion we shall call the total D of the debit ac-

counts also the _loan volume_, and the total C of the checking accounts also the _money_

volume.

OPERATIONS OF THE CENTRAL BANK

If there is a trend toward trade shrinkage reflected by a decline in the total D of the debit accounts (the loan volume) by a ertain value delta D there will also be an equal decline, delta C in the total C of the checking accounts (delta C = ~~dalata~~ delta D). The Bank is then free to return to the Central Bank green dollar certificates x in the amount delta C.

We postulate the rule that the Central Bank shall immediately purchase on the open market red dollards for this amount delta C of green dollars. As a result of this purchase, the total of the checking accounts will rise by this same amount delta C, by which it had previsouly fallen, ~~and the total of the checking accounts is thus always maintained constant.~~

This activity of the Central Bank will continue as long as the loan ~~full~~ volume keeps shrinking. During this period of time the Central Bank accumulates a fund of red dollards purchased at rising prices, while the total C of the checking accounts remains constant (except for ~~one~~ _the last_ day's change which ~~may remain uncompensated~~ _(have as yet) remain uncompensated)_.
During the same period the total D of the debit accounts falls from its original value D = R_0 to a value D < R_0. If subsequently the demand for loans begins to rise the Central Bank will then sell red dollars from its previously accumulated fund, and it will do so at falling red dollar prices. The green dollars which the Central Bank so acquires will be loaned ~~to~~ _by_ the Central Bank to the Bank which will _then_ be in the position of granting the additional loans to the public which ~~have~~ _are being_ been requested. During this period of time in which the loan volume increases, the red dollar fund of the Central Bank diminishes, and the total of the checking accounts remains constant (except for ~~one~~ _the last_ day's change, which may _remain_ uncompensated). This process comes to an end when the red dollar fund of the Central Bank ~~is exhausted~~ _has fallen to R^*_, by which time the total D of the debit accounts has again risen to a value close to its total value R_0. This total D of the debit accounts may not have returned however necessarily to exactly the

original value D = G; it may be a trifle lower or a trifle higher, according to
whether the Central Bank made a loss or a gain when it sold its red dollar holding.
A minor adjustment which could be made annually and which as we shall see might *(to circumstances)* take
the form of a partial refund of interest on debit accounts would take care of this
point, and would bring D back to exactly its original value *(D =)* (= G) and thus restore
exactly the standard condition.

If now the process goes on Interest rate

THE INTEREST RATE

The Central Bank will control the interest rate on green dollars debit accounts
along the following lines: *Fixed with an increasing long value* It will begin to raise this interest rate, when the red
dollar holding of the Central Bank falls below ~~say about 1% of the total amount of~~ R^*
~~red dollars in the system,~~ and will raise it as ~~speedily~~ *sharply* as necessary to ~~provide~~
moderation 100% coverage ~~on~~ all checking accounts. ~~If the~~ red dollar holdings in the Central
Bank rise above ~~1% of the total amount of red dollars in the system,~~ R^* the Central
the "normal" Bank will charge ~~a certain~~ interest rate on loans ~~which was made~~ *we might call the*
until nominal interest rate. If the red dollar holding of the Central Bank exceeds ~~say 2%~~
reaches $2 R^*$ ~~of the total red dollar amount in the system,~~ *they* the Central Bank will lower the interest
rate on debit accounts down to a certain fixed minimum value, say perhaps 2 or 3% per
annum. *Beyond that minimum value the C.B* ~~If there is further increase in the red dollar holding of the Central Bank,~~
~~the Central Bank~~ will not further decrease the interest rate on ~~the~~ debit accounts,
~~but may now begin to pay~~ interest on the difference *[* d - c *]* of ~~the~~ debit account and
checking accounts which are held by individuals and/or business corporations.

The C.B. may gradually increase the interest rate ... all the account difference
... normal value
If the C.B the C.B. may ... begin to
... until the "loan value" begins to rise
again ...

INTEREST RATE

The Central Bank will control the interest rate on green dollar debit accounts along the following lines. If it is faced with an increasing loan volume, and accordingly the red dollar fund held by the Central Bank falls, the Central Bank will begin to raise its interest rate, when its red dollar fund falls below R*. It will then raise the interest rate as steeply as is necessary in order to maintain 100% coverage on all checking accounts. If subsequently the loan volume begins to fall, and accordingly the red dollar holding of the Central Bank rises, the Central Bank will lower the interest rate and by the time the red dollar holding of the Central Bank exceeds R* the interest rate should be lowered to its nominal value. It may then be held at this value until red dollar hold_ing_s of the Central Bank reaches say 2R*, and from then on, the Central Bank will lower the interest rate charged on debit accounts below its nominal value, until the interest rate reaches a fixed minimum value, perhaps 2 or 3% per annum. Beyond that minimal value the Central Bank will not further decrease the interest rate on debit accounts, but it may begin to pay interest on individual debit accounts, if the corresponding checking account has falls a value below the debit account. Interest will then be paid by the Central Bank on the difference between the two individual accounts and the interest rate paid on the account difference may be gradually increased by the Central Bank until the whole loan volume begins to rise again and accordingly the red dollar holding of the Central Bank begins to decrease.

Quite similarly, the/interest rate at which is paid on the nominal value of red dollar deposits will be raised whenever the interest charged on debit accounts is raised, and the former is lowered whenever the latter is lowered. However, the interest paid on the nominal value of the red dollar deposit will be further lowered when the interest charged on debit accounts reaches its fixed minimum value, and the interest paid on individual account differences is being increased.

The interest paid on the nominal value of red dollar holdings is set at any time in such a manner that the bank should at any time break even; i.e., that the interest which the bank has to pay in toto should just balance the interest which the bank receives.

Insert   Explanation for minimum interest rate

LONG TERM INCREASES OF THE RED DOLLAR AND GREEN DOLLAR AMOUNTS IN THE SYSTEM

In an expanding economy, whether the expansion is due to the increase in population, or to the increase in the standard of living, due to technological progress, there is a need for a steady increase in the money circulation if we wish to maintain a high level of employment at constant prices. To meet this requirement a certain number of green dollars and red dollars should be introduced in the course of each year by the Central Bank. These two numbers should be equal so as to retain the original equality of the nominal value value of the red dollar amount and of the green dollar amount contained in the system. A corresponding number of red and green dollar certificates would then be printed each year.

The amount of green dollars newly created should be loaned by the Central Bank to the Bank, and would enable the Bank to grant additional loans leading to a corresponding increase in the total, C, of the checking accounts. The red dollars which are newly created should, however, be distributed free among the population, in one manner or another.

not equal may be but ratio maintained!

a free market economy ~~operating under a slightly~~ ~~different~~ monetary system, which is based on two currencies rather than one. ~~it would be possible to have a stable market economy that will be free from the oscillations of the trade cycles.~~

We arrive at such a two currency system through the thought that money fulfills in the conventional, single currency, system two essentially different functions. On the one hand, it is used for paying wages and purchasing goods from current production; and on the other hand, it can be "saved" and thus used to establish claims on future production. As long as the same currency is used for both functions, the free market economy suffers, not from being too free, but rather from not being free enough. An additional degree of freedom is introduced if two different currencies, spending money, or green dollars, and savings money, or red dollars, are made to serve these two different functions, and if the exchange rate between them (the price of the red dollars) is permitted to remain free; i.e., if it is left to be determined by the market.

ADVANCE REMARKS ABOUT THE TWO CURRENCY SYSTEM

One result of the operation of the two currency system described below is that the ~~salaries and the general price level of consumer's goods~~ may remain constant as expressed in green dollars. ~~even over very long periods of time.~~ (This holds true ~~only~~ if we disregard the increase in the standard of living due to technological progress, which should lead to an increase in the wage level at constant prices of consumer goods.) the price of the red dollar, ~~on the other hand,~~ may undergo variations, and also may show long term trends. It is these variations of the price of the red dollar which make it possible to maintain the money volume of green dollars constant over periods during which there is a shrinkage of the loan volume of green dollars, and also to have a shrinkage of the loan volume of green dollars automatically accompanied by an increase rather than a decrease in the circulation of green dollars.

It is this relationship between loan volume (of green dollars) on the one hand, and money volume (of green dollars) ~~and~~ as well as money circulation (of green dollars) on the other hand, which is responsible for the absence of that essential instability which characterizes the market economy based on the conventional, single currency, monetary system.

But an economy which is free from ~~this~~ the main instability could still suffer from considerable fluctuations; there could be a trade shrinkage with respect to certain types of goods, and an expansion of trade with respect to certain other types of goods. ~~If such~~ We are ~~not~~ concerned here only with shifts take place very rapidly, there may not be enough time for proper adjustment, and they could ~~be~~ unemployment in certain industries, while the production capacity of other industries remains insufficient to meet the demand. Such undesirable phenomena might develop in a two currency economy also, if the distribution of savings (of red dollars) should be deteriorated; i.e., if few people have very large savings, and the bulk of the consumers have no savings at all. For in that case an increase of consumption at the cost of savings may ~~come to be~~

The two currency economy described below would function all the more smoothly the larger the fraction of the savings (of red dollars) is which is owned by the consumers; and the more their distribution resembles the distribution of the normal spending of the individual consumers.

In the subsequent discussion of the two currency system we shall always implicitly assume a distribution of savings which is sufficiently far from deterioration. We shall also briefly discuss, later, the possibility that it might be necessary to prevent a deterioration of the distribution of savings over long periods of time, by some form of taxation, which might be based on the yearly increment of capital assets of the individual rather than on his annual income.

A shrinkage in the loan volume will in the two currency system always lead to an immediate fall in the price of consumer's goods, not in terms of green dollars, but in terms of red dollars, (the price of which will necessarily rise, as we shall see)

with the shrinking of the loan volume.) and _in this sense,_ the two currency
system is free from price rigidity.

In discussing the two currency system we shall assume that the system
hassbeen in operation for a considerable period of time, so that the disturbances
which may occur during the transition from the one currency system to the two
currency system have faded out.

We shall, for the sake of simplicity, assume that there is only one
bank, which we shall call the Bank; but we shall distinguish between the Bank and
the Central Bank.

SPIELREGELN

We postulate that all wages and salaries are paid at equal time intervals,
say monthly, on the first of the month, in green dollars.

the basic period of the system

We further postulate that every person and every business has a checking
account with the Bank, in green dollars; and that all wages are paid and all
purchases of goods are made by transfer through check, in green dollars. (We are
thus disregarding for the time being the possibility that for the sake of con-
venience a certain limited amount of green dollars may be issued in the form of
bank notes to the public. This point will be discussed later.)

Any person or business may have with the Bank an account in red dollars.

Whoever has such a red dollar holding is entitled to a loan from the Bank
of green dollars in amounts up to the _nominal_ _value_ of his red dollar holding.

All green dollar loans granted by the bank are carried on debit accounts,
on which _interest_ _is_ _charged_ (in green dollars) at the current interest rate.
Correspondingly, _interest_ _is_ _paid_ by the bank at the same current interest
rate (in green dollars) on the _nominal_ _value_ of all red dollar accounts.

Only a fraction of the total loans to which the red dollar depositors are
entitled may in fact be taken up by them, and loans will be granted by the Bank
against securities other than red dollar deposits.

Buying and selling of red dollars on the
open market // are long term contracts
in green dollars permitted?

We postulate that the total number of green dollars, G, in the system is equal to the total number, R, of red dollars in the system; i.e., the total amount, G, of the green dollars in the system is equal to the nominal value, R, of the total amount of the red dollars.

We shall assume for the sake of this presentation that both red and green dollars are printed in the form of certificates, which are kept either in the Bank or in the Central Bank, and which are not released to the public.

The Bank is obligated to keep 100% coverage in red dollar certificates for red dollar accounts; and 100% coverage in green dollar certificates for green dollar checking accounts.

We postulate that originally all red dollars (owned by the public) and accordingly all red dollar certificates were in the Bank covering the red dollar accounts of the public. The Central Bank owned at that time no red dollars, it owned all the green dollars, had loaned all of them to the Bank, and the Bank had loaned all of them to the public. In this original, or standard, condition, the total of the debit accounts, D, is equal to the total, C, of the checking accounts; and incidentally, also equal to the total amount, G, of green dollars in the system which is in turn equal to the total nominal value, R, of the red dollars in the system. That is, In the standard condition we have D equal C equal G equal R.

We shall see that this standard condition is not necessarily maintained all the time, because as some green dollar loans are repaid to the Central Bank the Central Bank will purchase red dollars in the open market for green dollars; and the total, D, of the debit accounts may then fall below the total, C, of the checking accounts. However, as we shall see, under the rules of operation described below, the system will return from time to time to the standard condition.

In the subsequent discussion we shall call the total, D, of the debit accounts also the "loan volume", and the total, C, of the checking accounts, also the "money

volume".

If there is a trend towards trade shrinkage, as reflected by a decline in the total, D, of the debit accounts (the loan volume) by a certain value, delta D, there will be also a corresponding decline, delta C, in the total, C, of the checking accounts (delta C equal delta D). The Bank is then free to return to the Central Bank green dollar certificates in this amount, delta C.

We postulate the rule that the Central Bank shall immediately purchase on the open market red dollars for this amount of green dollars, delta C. As a result of this purchase, the total, ~~xxxbxxxxkxxxixxg xxx~~ C, of the checking accounts will rise by this same amount, delta C.

This activity of the Central Bank will continue as long as the trend continues. During this period of time the Central Bank accumulates a fund of red dollars purchased at rising prices, while the total, C, of the checking accounts remains constant (except for the ~~last~~ one day's change, which may remain uncompensated.) During the same period the total, D, of the debit accounts falls from its original value, D equal C, to a value D - C.

If subsequently there is a reversal of trend; i.e., a tendency towards acceleration of trade, as reflected by increasing demands for loans, the Central Bank will then sell red dollars from its accumulated fund ~~xxxxxxxxxxxxxxxxxxxxx~~ ~~xxxxxxxx~~ at falling prices, and the green dollars which the Central Bank so acquires will be loaned to the Bank, which will then grant additional loans to the public. During this period of time, the red dollar fund of the Central Bank diminishes, the total of the debit accounts rises, and the total of the checking accounts remains constant (except for ~~their~~ one day's change, which may remain uncompensated.) This process comes to an end when the red dollar fund of the Central Bank ~~has been~~ is exhausted, by which time the total, D, of the debit accounts has again risen to a value close to its original value, C.

(This total, D, of the debit accounts, may not have returned, however,

what if new recommen sets in before it, red, fund exhausted

arbitrary

necessarily to exactly the original value of D equal G; it may be a trifle
lower or a trifle higher, according to whether the Central Bank made a loss or
a gain when it sold its red dollar holding. This is a minor point, but in order
not to leave any uncertainty on it, we postulate that the total, of D, of the debit
accounts is brought back to exactly the standard value of D equal G, either by
a flat bonus or a flat tax on all debit accounts. Either bonus or tax would be
very small because of the essentially symmetrical character of the processes
which lead to the accumulation and to the disposal of a red dollar fund of the
Central Bank. This minor adjustment could be made annually; and moreover, if it
is desired, it could always take the form of a partial refund of interest on debit
accounts, provided we are willing to let the interest rate demanded on debit
accounts be slightly higher then the interest rate ~~paid~~ *granted* on the red dollar deposits.)

OVERFLOW PURCHASES

expand

The amount of red dollars deposited on anyone's red dollar account is not
limited by any rule. Similarly, the amount of green dollars kept in anyone's
checking account <u>during the month</u> is not limited by any rule. <u>But on the 31st
of the month the Bank will remove from anyone's checking account the amount by
which this account exceeds his indebtedness to the Bank, (as shown by his debit
account); and the Bank will buy on his behalf, for this excess amount, red dollars
on the open market, which it will credit to his red dollar account.</u> We shall call
these red dollar purchases <u>overflow</u> purchases.

SERVICE CHARGES

Service charges play in this two currency system the role of friction, and
have the function to dampen fluctuations. A service charge of 1% perhaps, or a
fraction thereof, may be made on all <u>sales</u> of red money) *(payable by the seller.)* This service charge must
be kept so small as not to affect any legitimate business, but high enough to make
it improfitable for anyone to sell at the beginning of <u>each month</u> the red dollars

(may be)

which the Bank ~~has~~ purchased on his behalf for his excess green dollar holding.

Real estate, stocks, and other capital investment are according to our scheme purchasable ~~in~~ *against payment in* red dollars; and again service charges should make it unprofitable to make such purchases via green dollars by check drawn on a checking account. The purpose of these service charges is to prevent ~~the~~ *that* speculation in stocks, should lead to an increase in the loan volume which would not reflect the money requirement of the legitimate trade, would therefore blur the picture and make the stabilisation of the system by a simple set of rules rather difficult.

Operations of the Central Bank here

THE INTEREST RATE.

should *interest rate not maintained until red dollar reserve pretty near exhausted the*

The interest rate ~~will~~ *be* raised by the Central Bank whenever its red dollar reserve approaches zero, and by raising the interest rate <u>sufficiently high</u>, it should always be possible to keep the demands for loans within the bounds set by the rule of 100% coverage of the checking accounts. Conversely, wherever there is a marked trend for the accumulation of red dollar reserves in the Central Bank, the Central Bank will decrease the interest rate until <u>some</u> <u>fixed minimum value</u> is reached.

LONG TERM INCREASES OF THE RED DOLLAR AND GREEN DOLLAR AMOUNTS IN THE SYSTEM

In an expanding economy, whether the expansion is due to the increase in population, or to the increase in the standard of living, due to technological progress, there is a need for a steady increase in the money circulation if we wish to maintain a high level of employment <u>at constant prices</u>. To meet this requirement a certain number of green dollars and red dollars should ~~therefore~~ be introduced in the course of ~~every~~ *each* year by the Central Bank. These two numbers should be equal so as to retain the original equality between the nominal value of the red dollar amount and ~~the~~ *of* amount ~~of~~ green dollars *contained* in the system. A corresponding number of red and green dollar certificates may be then printed ~~every~~ *each* year.

new removal charge very expensive red dollar purchases

The amount of green dollars newly created ~~must~~ *should* be loaned by the Central Bank to the Bank, and ~~will~~ *would* enable the Bank to grant additional loans leading to a corresponding increase in the total, C, of the checking accounts. The red dollars which are newly created ~~must~~ *should*, however, be distributed **free** among the population, in one manner or another.

PHYSIOLOGY OF THE TWO CURRENCY SYSTEM
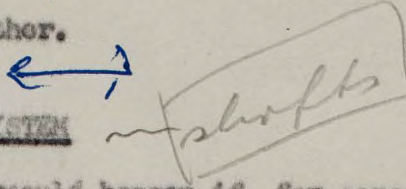
Let us consider now what would happen if, for some reason or another, *say* perhaps ~~in a~~ mistaken anticipation of a fall in the general price level of consumer's goods (as expressed in green dollars) dealers should be induced to hold back with purchases; i.e., if ~~they~~ they should begin selling from stock without replenishing their stock. If this happens, dealers will begin to repay loans to the Bank, on which they *would* have to pay interest; and this will reduce the total, C, of the checking accounts. The excess green dollar certificates no longer needed for 100% coverage of the checking accounts will then be currently transferred by the Bank to the Central Bank, and the Central Bank will then currently purchase red dollars on the open market. This activity of the Central Bank will immediately lead to a rise in the price of red dollars. ~~The rise of the red dollars produced by~~ ~~the Central Bank~~ Moreover, a certain percentage of the dealers who take in more green dollars than they disburse during this particular period, will begin to have more money in their individual checking accounts than corresponds to their individual indebtedness to the ~~Bank~~ *Banks*; and this will lead to overflow purchases of red dollars by the Bank on their behalf. These overflow purchases will also contribute to the increase of the red dollar price during this particular period.

A rise in the price of red dollars means that the savings of the consumers have increased in purchasing power. A certain fraction of the red dollars purchased by the Central Bank during that period ~~are~~ *will be* red dollars sold by consumers who wish to buy goods which in terms of red dollars, are now cheaper than they were before.

There *may* ~~will~~ be also consumers who ~~may wish to speculate, and assuming~~ *will assume* that the
price of red dollars will increase still further, *and others, wishing to speculate,* will prefer to borrow green
dollars on their red dollar deposits and then purchase consumer's goods with
these borrowed dollars.

Thus ~~It should be noted that~~ during this particular period there will be a
shift of green dollars from the checking accounts of the dealers, where money
turns over more slowly, to the checking accounts of the consumers, where money
turns over fastest; i.e., during this particular period of loan shrinkage, there
will be an increase rather than a decrease in the circulation of green dollars.
~~xxxxxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxxxxxxx xxxxxxxxxxxxxxx
xxxxxxxx~~   (We have seen before that in the two currency system there is no
shrinkage of the money volume, even though there may be a shrinkage of the loan
volume.)

We may ~~say~~ *further* that in this two currency system, if there is a tendency towards
the slowing of trade, prices will in a certain sense immediately "fall", *and they will fall immediately* but they
will "fall" in terms of red dollars and not necessarily in terms of green dollars.
Consequently, during such a period of "falling prices", dealers may continue to
buy and sell at essentially unchanged prices in green dollars, and make a profit.

REMARKS ON SAVING

A few remarks on saving in the two currency system might illustrate certain
peculiarities of this system.

An individual who consumes nothing can save as much as he can earn, but
what society as a whole can save is determined (if we disregard the possibility
of manufacturing products for stock and saving by the storing of products) by the
rate at which ~~its~~ *the* total production and consumption increases. In the particular
case, when there is no further *possible* increase in the population, no further technological
improvement, and thus no further increase in either production or consumption,
society as a whole cannot save anything. Let us see how the two currency system

would behave in this extremely ~~limiting~~ case.

We may, for instance, have a situation in which at any time people who wish to draw on their ~~xxxxxxx~~ red dollar savings just balance the people who wish to increase their red dollar savings. There will then be overflow purchases of red dollars by the Bank for individual accounts; but the price of red dollars will remain unchanged.

On the other hand, if there is a greater tendency to save, the price of red dollars will rise and will keep rising as long as this tendency persists. If a man who wishes to save buys red dollars at a high price that does not mean, however, that he incurs a loss; for if society persists in its saving habits, the price of red dollars <u>will</u> <u>continue</u> <u>to</u> <u>rise</u>.

If there should be a reversal of the trend, however; if for one reason or another a large number of people should suddenly decide that they want to increase their consumption rather than to save, and if they begin to draw on their red dollar savings, the price of red dollars will fall on the market, and this fall will tend to discourage an increase in the consumption on the part of those who want to consume at the cost of their savings.

Clearly it is not possible in any economy to consume the savings of many years ~~in one single year~~ within a short period of time. An attempt to do so would, in the two currency system, depreciate the red dollar holdings of the savers, but it need not lead to a rise in the price of consumer's goods, as expressed in green dollars; and therefore it need not disturb the relations of wages and prices. No new wage demands need, therefore, arise as a result of such a reversal of the saving habits of society.

Such a reversal of the saving habits of society is, of course, not likely to occur under ordered conditions. It is more likely that society will persist in its saving habits; and it is quite possible that this would mean continually rising red dollar prices. If this should be the case, ~~if~~ and if it should prove necessary to prevent the deterioration over long periods of time of the distribution of red

dollar holdings, it might perhaps be advisable to ~~have taxes~~ *introduce a tax* based on the annual capital gain represented by the increased green dollar value of individual red dollar holdings, ~~rather than based on the annual income, as is at present customary~~. Alternatively, a tax based on the annual increment of all capital assets owned by an individual might also be considered for the prevention of the deterioration of the distribution of savings. *Either of these taxes will be a graduated tax in analogy to the graduated income tax to ~~not~~ which we are accustomed*

BANK NOTES

If green dollars are also issued in the form of bank notes, as for sake of convenience they ought to be, there ~~is~~ *exists* theoretically the possibility of hoarding bank notes. In a two currency economy <u>there would not be much incentive for such hoarding</u>. But in order to stop any such tendency it might be required by law that bank notes in excess of, say, $100 per person, be deposited on a bank account before the 31st of each month. If one wishes one could even go a step further and remove all legal protection from any "illegal" hoards of banknotes. Finally, if there should be insistence on having a foolproof system, one might limit the validity of individual banknotes to one calendar month (or maybe one calendar year). Then, of course, we could be quite sure that all bank notes would be paid in on a bank account before the time limit set. It is *very* unlikely, though, that such a drastic measure ~~would~~ be required in the absence of any manifest incentives for hoarding of bank notes.

GENERAL REMARKS TO THE TWO CURRENCY SYSTEM

A market economy in a capitalistic setting will best function if there is an incentive to investment by expectation of profit. If it is profitable to invest, then we may expect that those who wish to borrow money for production purposes will be prepared to pay interest at a certain appreciable rate. In the system proposed in this paper there is an equitable allocation of loans by means of allowing the interest rate to be determined by the market, with the maximum

total volume of loans being fixed by the nominal value of the total amount of
red dollars in the system. If too many want to borrow too much, those willing
to pay the higher interest rate will have preference, as it should be.

A man who acquires green dollars, either by earning them or by selling
some of his assets, acquires the right to consume from current production. A
man wants to "save" can either buy goods and store them, or he might acquire by
buying red dollars the right to lend money to others at the current interest rate.
The equitable allocation of the right to lend money to others is accomplished by
permitting the price of red dollars to be determined by the market.

The only function of the Government in this system consists in determining
the rate at which <u>additional</u> amounts of red dollars are issued. Clearly, how much
should be invested in toto in accordance with the desirable and possible expansion
of the economy is a decision which the community must make in the light of the
increase of population and the advances of technology which make a rise in the
standard of living possible. There is no reason why the Government should enter
the economic picture in any other way, or why the budget of the Government should
not be balanced at any time. Only inasmuch as the Government may embark on
commercial or industrial enterprises, would the Government, like any other entre-
preneur, be justified in borrowing money at the prevailing rates.

It should be, however, the concern of the Government to maintain a
distribution of savings under which the two currency system can satisfactorily
operate. As we have mentioned before, one might think of various reasonable
systems of taxation which, if necessary, could be invoked for the purpose of
preventing deterioration of the distribution of red dollar holdings.

A rise in the market price of debit letters and other capital assets means that the savings" of the consumers have increased in purchasing power. A certain fraction of the debit letters purchased by the Central Bank during this period and a certain fraction of the debit letters and other capital assets purchased by the dealers during this period is sold by consumers who wish to use the proceeds to buy goods (particularly durable consumers' goods) which in terms of debit letters of a given nominal value are now cheaper than they were before.

A shrinkage in the total of the checking account of the dealers which will take place during such a period is accompanied by an equal rise in the total of the checking accounts of the consumers. Since money does not circulate in the constant-flow system as defined above—any faster on the checking account of any dealer than on the checking account of the consumers (though there are dealers, particularly those who deal in durable consumers' goods, on whose checking account money circulates at a slower rate), it follows that a slackening of trade such as we are here discussing is not accompanied by a slowing of the money circulation. The money circulation either remains constant or rises with falling special debit volume.

We might say that a slowing of trade such as we are here discussing will be accompanied, in the constant-flow system, in a sense, by falling prices of consumers' goods. But these prices will not fall in terms of money, they will fall only in terms of the nominal value of debit letters and other capital assets. Dealers who continue to replenish their stock and sell to the public may continue to do so at unchanged prices and thus may continue to make a profit. After a while those dealers whose stock begins to be depleted, will begin to replenish their stock and the special debit volume will again begin to rise.

B) 6.)

Stability of the Constant Flow System

For the purpose of this presentation, we will now postulate certain rules which
may be of no practical importance and, in fact, unnecessary, but which we wish to present
in order to permit a simple analysis of stability. These postulates are as follows:

1. All wages and salaries are paid on the second day of the month.

2. No checks will be drawn on the checking account on the last day of the
month, and checks received on a checking account during the month will, (a) if they
represent payments received for the sale of capital assets, be credited within a day,
(b) if they do not represent payments received for sales of capital assets, be credited
on the last day of the month.

3. The interest charged on the account difference, c minus d, (c - d) is calculated
from the amount shown on the checking account and the special debit account
on the last day of each month. In order to facilitate the discussion of the behavior
of the constant flow system, we imagine that all accounts are separated into two classes--
business accounts and private or consumer accounts. We assume that no expenditures for
purposes of consumption are charged to business accounts. The private person who owns
a business or a share in it, rather than have his share of the profits in whole or in
part transferred to his private account (distributed profit), may then spend the profits
so distributed whole or in part for the purchase of consumers goods.

According to the provisions listed above, that part of the cash which circulates
in the capital assets market circulates very fast. The cash on the private accounts of
those who receive salaries or wages, which will constitute the largest fraction of the
private accounts, is spent at the rate of its aggregate volume per month. According to
our above provisions, cash used for the purchase of goods cannot circulate any faster
on business accounts either, but it might very well circulate slower.
It would be also noted that according to the above provisions, consumers who do
not have any cash left at the end of the month on their private accounts are not burdened
with any interest payments on the account differences of their private accounts.

Replacement for page 6.

The Central Bank will, in setting the interest rate on green dollar debit accounts, proceed as follows. In a normal trade situation when the red dollar reserve of the Central Bank lies between $\frac{1}{2} R*$ and $1\frac{1}{2} R*$ the Central Bank will maintain the interest rate on debit accounts constant *at its normal level.* If it is faced with an increasing demand for loans and accordingly the red dollar fund held by the Central Bank falls below $\frac{1}{2} R*$, the Central Bank will begin to raise the interest rate on debit accounts, and will raise it *sharply* as ~~rapidly~~ as is necessary in order to maintain a 100% coverage on all checking accounts. *at the same time the C.B. begins the purchasing of red dollars at increasing* If subsequently the loan volume begins to fall and accordingly the red dollar holding of the Central Bank *increases* ~~rises~~ again, the Central Bank will ~~again~~ lower the interest rate *subject* ~~and~~ by the time its red dollar holdings exceed $\frac{1}{2} R*$, the interest rate will have become normal. As the loan volume further decreases, and the red dollar holding of the Central Bank further increases, the interest rate will be held at its ~~nominal~~ normal- nominal? value until the red dollar holdings of the Central Bank reach $1\frac{1}{2} R*$. From then on, the Central Bank will lower the interest rate on debit accounts below its normal- ~~nominal~~ value, and by the time the red dollar holdings of the Central Bank reaches the value of 2 R* the interest rate should have dropped to ~~its~~ fixed minimum value, perhaps 2 or 3% per annum. Beyond that ~~nominal~~ *minimal* value, the Central Bank will not further decrease the interest charged on debit accounts.

The reason for setting such a minimum value for the interest rate charged on ~~debit~~ debit accounts is the necessity for retaining a close linkage between the need for working capital of the economy and the loan volume. If the interest rate charged on debit accounts were too low, the total loan volume taken up by the business would be larger than is actually necessary for carrying on the ~~busxx~~ business in the current trade situation, and as a result the money circulation would drop without a corresponding decrease ~~if ix~~ of the loan volume, and therefore without a corresponding increase in the red dollar holdin of the Central Bank. It would not be possible automatically to maintain *the* stability ~~of~~ the economy if the green dollar circulation *were* ~~is~~ permitted to get out of control in such a fashion.

the net dollar reserve of the C.B

The interest rate set by the C.B. is a fixed function of the net dollar reserve of the Bank. In normal times the Net Dollar reserve of the C.B. will be between $\frac{1}{2} R^*$ and $1.5 R^*$

The interest rate charged by the C.B
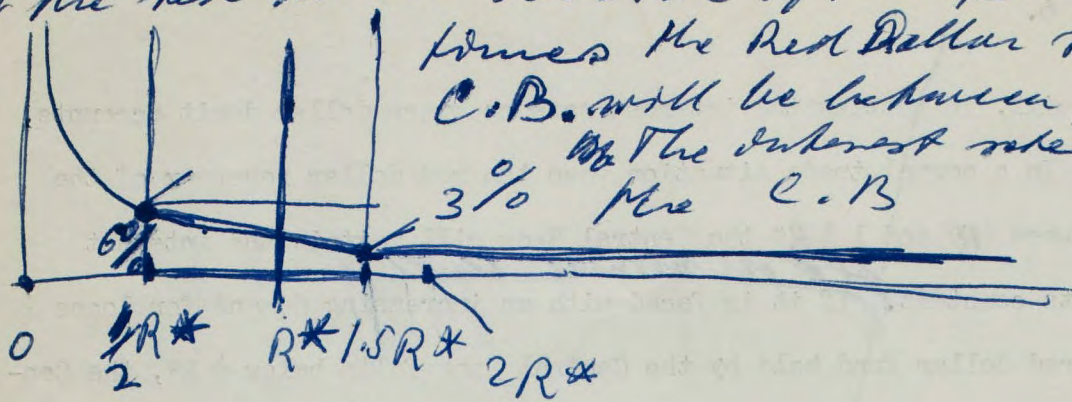
shall be 3% for $1.5 R^*$, ~~and~~ 6% for $\frac{1}{2} R^*$ and for ~~the~~ values $\frac{1}{2} R < R(CB) < 1\frac{1}{2} R^*$ the interest rate shall be a linear function of

i.e $p = [6 - 3 R(CB)]\%$

If the Net dollar reserve of the CB falls below $\frac{1}{2} R^*$ the C.B shall set the interest rate to $\dfrac{\frac{1}{2} 6 R^*}{R(CB)}$

for $\frac{1}{2} R < R(CB) < 1.5 R^*$

$$p \text{ in }\% = 6 - \left[R - \frac{R^*}{2}\right]\frac{6-3}{R^*} = 6 + \frac{6-3}{2} - \frac{R}{R^*}(6-3)$$

$$= p_1 + \frac{p_1 - p_2}{2} - \frac{R}{R^*}(p_1 - p_2)$$
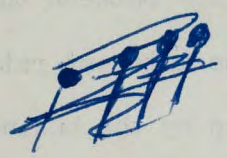
expressed in green dollars, nor would they be accompanied by a change in the wage level as expressed in green dollars, (though the wage level would gradually rise, corresponsing to the per capita increase of the productivity of the economy which may take place as a result of technological progress). But while prices of consumers' goods remain constant in terms of green dollars, they will not remain constant in

flexibility!

terms of red dollars, and the lack of rigidity of prices as expressed in red dollars is essential for stability of the economy in the two-currency system.

The number of empirical relationships which hold in the conventional single currency system market economy has no validity in the two currency system, and one must therefore

not be mislsd by drawing inappropriate xxx analogies. To take an

great

example for instance in the single currency system which is characterized by xxxxx fluctuations in employment which accompanies booms and depressions, an increase in employment in the capital goods industries is not necessarily coupled with the fall of employment in the consumers goods industries. In the two currency system, where a high level of employment is constantly maintained, and where a temporary rise in the employment in the capital goods industries is necessarily accompanied by a corresponding fall in the employment of the consumers goods industries, while in the singe currency system an increase of employment in the capital goods industries is accompanied by an increase in prices for consumers goods, no such increase will accompany shifts of labor from the capital goods industries to the consumers goods industries in the two currency system.

A free market economy is satisfactorily stabilized only if the fluctuation consisting in the fall of consumers goods is atomatically corrected depending on the rate at which technological progress proceeds at that time. The correction might arise from a shift of employment from the consumers goods industries to the capital goods industries, or it may consist in increased purchase of consumers goods or xxxxx else it may consist in both, but the correction must take place automatically whatever the rate of technological progress happens to be at that time. The two currency system described below satisfies this condition.

The interest paid on the nominal value of red dollar holdings is set at
any time at such a manner that the bank should at any time break even; i.e., that
the interest which the bank has to pay in toto should just balance the interest
which the bank receives.

GENERAL REMARKS

In the following we shall describe the rules under which a two-currency
system may operate. Some of these rules are determined by the essential features
of such a two-currency system, but some others which are included are somewhat ar-
bitrary and represent only one of many ways in which the system may be made to op-
erate. Whenever there are several different ways in which a rule could be set, one of
these ways was selected for the sake of definiteness of the presentation. The over-
flow sales which are described further below represent an essential feature of the
system without which the circulation of the red dollars in the system would not remain
constant, even though the total volume of green dollar money were kept constant.

Another essential feature of the system is that the interest rate charged
on green dollar debit accounts is never lowered below a fixed minimum value, and that
an initiation fee is charged on the opening of new green dollar credits.
The inclusion of features of this sort is necessary in order to make certain that
the monetary picture corresponds at all times to the trade situation. If these two clearly
were not closely linked, then the regulatory mechanisms operation in the monetary
field could not automatically ensure the stability of the economic system. We claim that
the two-currency system described below, if to begin with geared to a high level
of employment and if then left to itself, would tend to maintain a high level of
employment. It is assumed that labor is flexible and can be shifted from consumers'
goods industries to capital goods industries, and if technological progress proceeds
at an uneven pace such shifts would in fact take place in the two-currency system,
but they would not be accompanied by any change in the price of consumers' goods as

SPIELREGELN

In discussing the two currency system we shall assume that the system has
been in operation for a considerable period of time, so that the disturbances which
may occur during the transition from the one currency system to the two currency
system have faded out.

We shall, for the sake of simplicity, assume that there is only one bank,
which we shall call the Bank; but we shall distinguish between the Bank and the
Central Bank.

General
Remarks

SECOND VERSION

Leo Szilard
September 29, 1946

Insert on Page 3.

Further, for the sake of simplicity, we will consider the
aggregate of all banks as one single bank which we call the Bank to distinguish
between the Bank and the Central Bank. It appears further practical for the
sake of simplicity of the discussion, to assume that green dollars are printed
in the form of banknotes and that the total amount of green dollars in the
system is equal to the nominal value of the total amount of red dollars. The
green dollar banknotes are however either in the Bank or in the Central Bank
and all payments between individuals are made as mentioned before by means of
checks drawn on their checking account. We will assume that at the beginning
there was no red money in the Central Bank and as long as that is the case, the
total amount of deposits on checking accounts will be equal to the total amount
of loans which had been taken up and again we will assume that at the time when
our observation begins the total amount of loans taken up is equal to the total
nominal value of red dollar deposits in the Bank, which, in this particular case,
is identical with the total nominal value of red dollars which are in the system
since we assume that nothing is in the Central Bank at the time when we begin
our observation of the system.

We will now specify that wages be paid each month at the
first of the month and are deposited on checking accounts. And we require
that on the 31st of every month the Bank draw a balance of every checking account.
Whenever a persons checking account shows on the 31st of the month that his deposit
is in excess of his total indebtedness to the Bank, the Bank will cancel the excess
on the checking account of his client on that day and will buy on his behalf,
in the course of the first few days of the following month, for this excess
amount in green dollars, red dollars which it will credit to the red dollar

account of his client. When we began our observations all the green dollars

in the system were held by the Banks as a cover for the amounts owed by the

Bank on checking accounts and, as we said before, this amount was equal to the

total amount of loans which were taken up and also equal to the total nominal

amount of red dollars which were deposited with the Bank. In the course of

the further history of the system, ~~which may however be that~~ *there may be times however when* the amount of loans

repaid will exceed the amount of new loans taken up. There will be a corresponding

fall in the total amount of checking accounts and *the* fraction of the green dollars

held by the Bank ~~will~~ *which is* no longer *be* needed as a cover for checking deposits. ~~This~~

~~amount of green dollars~~ will then be ~~transferred~~ *currently* by the Bank to the Central Bank.

Apart from seasonal fluctuations whenever green money accu-

mulates in the Central Bank, *in this manner* the Central Bank will purchase for this excess amount

of green money, red dollars on the open market. In this manner a fraction of

the total amount of red dollars in the system may find its way into the Central

Bank. When that happens, the total amount on checking accounts will no longer

be equal to the total amount of loans ~~XXXX~~ taken up but ~~there will be an excess~~ *total*

~~amount deposited on the checking accounts.~~ *total of the*

former will show an excess over the

latter. —

As soon as demands for loans begins to rise again the Central Bank will procure the green dollar reserve which is necessary to meet these demands and for additional loans by selling its red dollar holding on the open market. If the demand for loans persists after the Central Bank has exhausted the red dollar reserve, the Bank will have to raise the interest rate in order to keep the total amount of loans taken up within the legal limits.

We have to distinguish here between two types of savings, savings which are held in red dollars, and savings which are held in the form of stocks. Stocks may be sold against green dollars or they may be sold against red dollars directly. We will assume that those who want to convert red dollars into stocks and vice versa will do this directly rather than go through the medium of green dollars. This can be insured by a suitable service charge for conversion from red dollars to green dollars and vice versa, from stocks into green dollars and vice versa, and from stocks into red dollars and vice versa. These service charges introduces a sort of friction which will make it cheaper to go from red dollars to stocks and vice versa directly rather than via green dollars. The same service charges will serve the purpose of making it cheaper for a person to borrow green dollars and keep it on a checking account rather than achieve the same effect by selling red dollar holdings each month during the first days of the month and buying red dollar holdings in order to counteract the operations of the Bank which will buy on their behalf red dollars during the first days of the month whenever their checking account shows an excess of green dollar holdings on the 31st of the preceding month. Let us now examine somewhat more in detail what effect on the circulation of green money the purchase of red dollars by the Central Bank will have. The checking accounts may be divided into two classes--those which will are held for business purposes and they

may contain four to six times as much money as corresponds to the monthly influx
and outflow. In the other categories for checking accounts held by individuals
on which the turnover may be more rapid since they may not keep more on the check-
ing accounts than perhaps an amount corresponding to one month's earnings.
There is a certain amount of money circulation in this system which is due to
what we might call an overflow and which is caused by red dollar purchases on
the part of the Bank on bhealf of clients whose checking account exceeds on the
31st of the month, their total indebyedness to the Bank. This overflow cir-
culation represents purchases of consumers goods because those persons who
were willing to sell red dollars to the Bank for green dollars obviously wxxxx
did so for the purpose of buying consumers goods. (Careful!)   There is such
an overflow circulation even at a time when there is no red money holding in
the Central Bank. There will be a definite increase in this overflow circula-
tion x if the Central Bank purchases red dollars on the open market. In order
to see this, it is essential to note that as soon as the Central Bank spends
a certain amount of green dollars for the purchase of red dollars on the open
market, the total amount of money on checking accounts is no longer equal to
the total amount of loans taken up but there is an excess amount on the checking
accounts which is equal to the total amount of green money which the Central
Bank paid for the purchase of its red dollar holding. This excess amount on the
checking accounts obviously performs an overflow circulation which increases
the already existing overflow circulation. One may be therefore sure that the
green money spent by the Central Bank for the purchase of red dollars is actively
circulated in the system and is turned over once a month.

From what was said above about service charges, we may be
sure that no circulation of green money will be absorbed by operations such as
the purchase of stocks inasmuch as conversion from stocks into red dollars and
vice versa do not go through green dollar checking accounts.

Let us now consider what would happen if, for some reason or another, xxx say in a perhaps mistaken anticipation of a fall in the general price level of consumers goods(as expressed in green dollars) dealers should be induced to hold back with purchases; i.e., if they should begin selling from stock without replenishing their stock. If this happens, dealers will begin to repay loans to the Bank, on which they would have to pay interest; and this will reduce the total, C, of the checking accounts. The excess green dollar certificates no longer needed for 100% coverage of the checking accounts will then be currently transferred by the Bank to the Central Bank, and the Central Bank will then currently purchase red dollars on the open market. This activity of the Central Bank will immediately lead to a rise in the price of red dollars. Moreover, a certain percentage of the dealers who take in more green dollars than they disburse during this particular period, will begin to have more money in their individual checking accounts than corresponds to their individual indebtedness to the Bank; and this will lead to overflow purchases of red dollars by the Bank on their behalf. These overflow purchases will also contribute to the increase of the red dollar price during this particular period.

A rise xxx in the price of red dollars means that the savings of the consumers have increased in purchasing power. A certain fraction of the red dollars purchases by the Central Bank during that period will be red dollars sold by consumers who wish to buy goods which, in terms of red dollars, are now cheaper than they were before. There may also be consumers who will assume that the price of red dollars will increase still further, and who, working on speculation, will prefer to borrow green dollars on their red dollar deposits and then purchase consumers goods with these borrowed dollars.

Thus during this particular period <u>there</u> <u>will</u> <u>be</u> <u>a</u> <u>shift</u> of green dollars from the checking accounts of the dealers, where money turns over more slowly, to the checking accounts of the consumers, where money turns over fastest; i.e., <u>during this particular period of loan shrinkage, there will</u> be an increase rather than a

decrease in the "circulation" of green dollars. (We have seen before that in the two currency system there is never a shrinkage of the "money volume," even though there may be a shrinkage of the "loan volume.")

We may further say that in this two currency system, if there is a tendency towards the slowing of trade, prices will in a certain sense "fall" (and they will fall immediately) but they/"fall" in terms of red dollars and not necessarily in terms of green dollars. Consequently, during such a period of "falling prices," dealers may continue to buy and sell at essentially unchanged prices in green dollars, and make a profit.

Physiology of the Two Currency System.

As we have seen the "money volume, ie, the total of all checking accounts,
remains constant in the two currency system. We mya consider this total as composed
of two ~~items~~ parts 1); the total of the checking accounts of the consumers, and the 2) total of
the checking accounts maintained by business, which represents their working capital.
There will be monthly fluctuations between these two parts, since at the end of the
month the checking accounts of the consumers will be at a minimum, and the checking
accounts of business will be at a ~~xxxxi~~ maximum; whereas at the beginning of the
month, after wages have been paid, just the reverse situation will hold true. ¶Apart
from the monthly fluctuations there may be, however, also shifts in the/average *as the result of changes in the crandense sit. monthly*
value of the total of the checking accounts of the consumers, and the monthly average
value of the total of the checking accounts of business. ~~Such shifts xx may be accomp-~~ *the questions now arise, if they would*
~~anied by shifts in the circulation velocity of the green dollars in the system~~ We *whether such shifts of they occur would lead to a decrease* *could onecase*
might define the circulation velocity of a checking account as the average daily
withdrawal from an account, divided by the monthly average amount in that account.
The circulation velocity of all the consumers' checking accounts, taken together,
~~might~~ *Could generaleally* be higher or lower than the circulation velocity of all the checking accounts
of business taken together, and if either ~~is~~ *were* the case, the circulation velocity of
green dollars in the system ~~will~~ *would* change whenever there is a shift of money between
these two types of account (disregarding of course the regular monthly fluctuations).

Since consumers by and large spend each month about as much as they
receive in wages, and ~~therefore dont~~ *do not* need to carry over beyond the end of the month
substantial amounts of green dollars in their checking accounts, they will have negli-
gibly small debit accounts, and consequently circulation of green dollars in consumers'
checking accounts is fixed ~~at a~~ *at a* (constant) value. ¶We shall assume *now* that the basic
period of the system, here arbitrarily ~~fixe~~ called one month, has been so chosen that
the circulation rate is larger than the ~~rate at which green dollar~~ circulation ~~in~~ *rate* *in the consumer checking account*
the checking accounts maintained by business (a ~~shortening of the~~ *shorter* basic period would
~~naturally increase the~~ circulation rate of the consumers checkings accounts and ~~the~~ *a* *give a higher*

longer devise period would give its slower

~~lengthening of it would conversely decrease the~~ (circulation rate). ¶ Let us now ~~see~~

as an example consider the behaviour of the system ~~in~~ with respect to ~~the possibility~~ *disturbances*

~~of fluctuations which ~~might be called~~ inventory cycles.~~

in the simple currency economy lead to the so called "inventory cycles". —

Physiology of the Two Currency System.

As we have seen the "money volume," ie, the total of all checking accounts, remains constant in the two currency system. We may consider this total as composed of two parts; 1) the total of the checking accounts of the consumers, and 2) the total of the checking accounts maintained by business, which represents their working capital. There will be monthly fluctuations between these two parts, since at the end of the month the checking accounts of the consumers will be at a minimum, and the checking accounts of business will be at a maximum; whereas at the beginning of the month, after wages have been paid, just the reverse situation will hold true.

Apart from the monthly fluctuations there may be, however, also as the result of changes in the economic situation shifts in the monthly average value of the total of the checking accounts of the consumers, and the monthly average value of the total of the checking accounts of business. The question now arises whether such shifts if they occur would lead to a decrease or increase in the circulation of green dollars in the system. We might define the circulation velocity of a checking account as the average daily withdrawal from an account, divided by the monthly average amount in that account. The circulation velocity of all the consumers' checking accounts, taken together, could conceivably be higher or lower than the circulation velocity

of all the checking accounts of business taken together, and
if either were the case, the circulation velocity of green
dollars in the system would change whenever there is a shift
of money between these two types of account (disregarding
of course the regular monthly fluctuations).

Since consumers by and large spend each month about
as much as they receive in wages, and do not need to carry
over beyond the end of the month substantial amounts of green
dollars in their checking accounts, they will have negligibly
small debit accounts, and consequently circulation of green
dollars in consumers' checking accounts is at a fixed (constant)
value.

We shall now assume that the basic period of the system,
here arbitrarily called one month, has been so chosen that the
circulation rate is larger on the consumer checking account
than the circulation rate of the checking accounts maintained
by business (a shorter basic period would give a higher circu-
lation rate of the consumers checkings accounts and a longer
basic period would give lower circulation rate).

Let us now as an example consider the behavior of the
system with respect to disturbances which in the single currency
economy lead to the so called "inventory cycles." -

1. It is not clear that the elimination of trade cycles is a desirable
   objective. If the elimination of trade cycles costs too dear a price
   in secular growth of productivity and income per head, it is an unec-
   omic objective. We do wish definitely to avoid trade cycles on the
   order of 1873-1879 or 1929-1933, because it is demonstrable that they
   involve a major setback in secular growth. In short, the appropriate
   goal is some optimum combination of stability in the short run and
   growth in the long, not stability unconditionally.

2. An economic system on your model, with net investment apparently zero
   or at some very low level in the "standard" condition, would be extreme-
   ly stable even with our present monetary system. Trade cycles do not
   result from instability of consumer demand. Important trade cycles
   do not originate in variable business demands for inventories of con-
   sumer goods. The chief troublemaker in the modern economic system is
   typically business demand for durable production goods, including con-
   struction. The trade-cycle problem is how to stabilize this variable
   or compensate for it, without discouraging it unduly and so putting
   a damper on secular progress.

3. On the assumption that you have a stagnant economic system to deal
   with you urge equalization of savings. Now equalization of savings
   involves reducing the average proportion of savings to income. In
   a buoyant economy there is something to be said against a high ratio
   of consumption to income. A high ratio means that the effect of
   fluctuations in output of capital goods upon income is aggravated
   severely by instability in the consumer-goods industries.

4. Your criticism of the present monetary system is "that the interest
   rate cannot be made less than zero." A succinct statement of the
   change you propose for interest rates would be a desirable addition
   to the introduction. Your system does imply the use of negative rates
   of interest to force dissaving, increased expenditure on consumption,
   and so revival of income from a depressed level.

   As recession sets in owners of red money are induced by a capital gain
   or by the prospect of capital gain to disgorge red dollars and spend
   the green proceeds on consumption. The opportunity to seize the capital
   gain puts a premium on improvidence. If the capital gain is foregone
   the saver has only the low rate of interest on red money to console
   him. In real income he loses by not consuming -- he earns a negative
   rate of return by stubbornly refusing to dissave.

   Again, as recession sets in hoarders of green deposits are threatened
   with eventual capital loss. They are unwilling buyers of red money
   at premium prices. They are forced to purchase a form of security at
   on an upswing in its price, with the prospect that individual circum-
   stances will force them to sell on a downswing in its price. If they
   do liquidate red money on the downswing they suffer a capital loss,
   a negative rate of interest.

   Your economic society appears to consist of two classes, bright people
   and dull people. The bright people never sell red money at a falling
   price; the dull people always do. As a result the bright people get a
   windfall of real consumption in each recession. The dull people never
   learn that if they don't eat all that is set before them, the leavings
   will be seized for the benefit of the bright.

5. The mechanism of your plan is to force a capital loss onto hoarders and to confer a capital gain of equivalent amount on spenders for consumption goods. Why should consumption be the only beneficiary of capital gains. Why not confer them on buyers of capital goods -- stimulate real investment by a negative rate of interest? That is one way of promoting secular progress. If you conceded this alternative, your worries over "deterioration of the distribution of saving" would be over.

6. I am still worried about the case of persons or firms whose income-expenditure periods do not fall inside your "confiscation periods" for green balances. An employer who has green-dollar sales receipts on the 31st of the month has them converted into red balances, even though his expectation is to make wage payments, say, in the relatively near future. If his red balances are bought for him at a premium, he cannot borrow from the Bank an amount of greens equal to his sales receipts. He takes a capital loss, even though he cannot be termed a hoarder. Of necessity, he is one of the dull people whose capital losses finance the capital gains of bright consumers.

   The plan would put pressure on everyone to fit his pattern of money payments into the rigid mold of the confiscation period. This implies a major change in business customs that is worthwhile only if the desirable end of economic stability cannot be obtained in any other way.

7. There is a problem of adjustment in real output that bothers me. Suppose that our economy does not have zero or negligible real investment or output of capital goods in the "standard" or full-employment condition. Then a decline in the output of machine tools, perhaps, gives a windfall to consumer-owners of red money. Consumption rises to fill the gap left by the recession in capital-goods production. But productive-power cannot be transferred in weeks or months or even years from the investment industries to the consumption industries. Hence, consumer prices must rise, as consumer output fails to keep up with consumer demand. The rise in consumer prices means that the consumer industries can afford to bid resources away from other industries, not from the machine-tool industry alone. The rise in prices of productive factors tends to make more of the capital-goods industry unprofitable and to deepen the crisis in the non-consumer-good sphere of output. Using the consumer-goods industries as the lever for recovery seems to me to be a guarantee of a stagnant economy by increasing the variability of factor prices to the capital goods industries.

8. Can the central bank fail in its job, possibly by running out of red money to sell on an upswing? That is, can the velocity of money _increase_ sufficiently to force a rise in commodity prices. You have a minimum limit for velocity in the confiscation of green balances. There is no maximum limit on V. This is a factor that casts some doubt on the condition of R= G. (P. 7) Do you need not only _overflow purchases_ of red money but _overflow sales_ as well?

9. I would say that the service charge on sales of red money is a device for "dampening fluctuations" because it does amount to putting a negative rate of return on confiscated hoardings.

10. Speculation in stocks is a minor evil in our society, dramatized much beyond its true significance. Your proposals to limit dealings in securities by service charges are another device the result of which is to discourage transactions in other things than consumer goods, and especially in items of capital equipment.

11. I do not understand why the system should rely on changes in interest rates by the central bank to control loan volume and the supply of green money. Downright confiscation is used to control the velocity of money. Why not use downright refusals of loans -- the principle of the "unsatisfied fringe" -- to control the supply of money? Some comments should be made on the relationship between the bank rate of interest and the open-market rate of interest. In recession, the bank rate should go below zero if need be, to keep pace with yields on open-market securities including red deposits.

12. The diagram below is a rough representation of your scheme. It amounts to a plan for consumer-subsidization on an inverse-cycle pattern. There are ways of achieving this result without resorting to the administratively complex system that you propose.
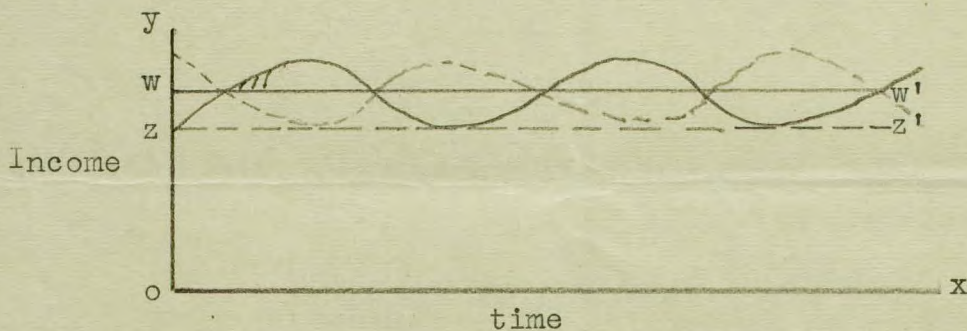
Time is measured along the ox axis, income along oy. oz is some minimum level of national income assured by a stable bedrock of consumer expenditure. ow is the target level of national income. The oscillating solid line measures replacement of inventories of consumer goods by business concerns. The oscillating dotted line measures subsidized consumption. As the solid line intersects ww' net investment and net saving are zero -- your equilibrium condition -- and ow represents both total consumer expenditure and total income.

As the dotted-line-p solid line rises above ww' the dotted line is forced below ww' by the fall in price and rise in interest return on red money -- by the threat of a negative rate of return on saved assets. As the solid line falls below ww' the dotted line is forced above ww' by the threat of a negative rate of return on new investment by business concerns.

13. A basic assumption is that the economic system tends to unemployment. The difficulty may be not only that interest rates cannot fall below zero but also that they do not rise enough soon enough to stop inflationary booms like the present one.

14. I foresee fluctuations in the price of red money that would make our stock market appear to be the most sober of institutions. In fact couldn't one get the results of your program by requiring every saver to buy common stocks?

Bull speculators will be invited into the red market every time that trade slackens. Bears will be invited in every time that trade booms. I am inclined to think that the result would be an enormous waste of people's time and effort on playing the "red" market. The result would certainly be enormously disturbing to the types of investment that depend on some sense of security about the future.

15. There are various arbitrary actions that would result in public squabbling. First, there is the adjustment for the central bank's profits and losses. Then there is the insertion of increments of red and green money to allow for secular change. Again, there is the adjustment for "deterioration" of savings.

16. Have you considered the possibility of an inverse deterioration of savings? Perhaps in a very buoyant economic system you should grant a bonus on accumulation of wealth to prevent the eruption of inflation out of competition by consumers for productive factors that are in high demand for capital output.

17. Have you considered the special penalties that would fall on certain types of enterprise, say insurance companies?

18. My feeling is that this plan amounts to an abnormally difficult way for alternately subsidizing and penalizing expenditure on current output. It is also a way that would handicap large-scale investment in capital goods. What the world needs most is a simplified financial system that will encourage secular growth to the utmost. Mankind is very poor, and it would be a serious mistake to put unnecessary obstacles in the way of growth in real wealth and income.

The immediate problem is to lessen economic fluctuation in the advanced countries, especially the United States. It is not necessary to eliminate fluctuation completely. Secondly it is essential that there be a large overflow of savings from the advanced countries to the poor, to lift living standards to a more uniform scale. There are numerous devices available for a program like this that do not require a revolutionary change in the monetary organization. It is not new economic techniques that are required. It is economic sense among ruling groups.

13. Questions of fact:

    a. You can devise an oscillating system, of course, in which changes
       in the rate of consumer demand are reflected in changes in the
       rate of investment in inventory. But a system which oscillates
       for this reason alone (p. 9) is not a very interesting one, and
       its oscillations would not be great enough to worry about.

    b. (p. 9) Dealers disinvesting in inventory would also begin to
       buy red money, if they had no indebtedness outstanding at the
       bank. But why would dealers pay off bank loans, which they pre-
       sumably obtained at low rates of interest? Wouldn't they risk
       remaining indebted to the bank indefinitely -- on long-term
       loans -- in preference to the alternative of borrowing again
       in the future on much more rigorous terms? I would expect the
       bank to become loaded down with long-term paper.

    c. (p. 10, first sentence) Isn't this a negative rate of interest
       on consumer loans?

    d. The generalization that dealer's income-expenditure periods
       are longer than consumers' is a doubtful one.

    e. (p. 11) (second full paragraph) But the threat of a negative
       rate of return is there to force consumption.

    f. (p. 11 -- fourth full paragraph) I do not understand this.
       In what sense are you using the word "savings?" -- the individual
       sense or the social sense? All that can be consumed in any
       period of time socially is the current output of consumption
       goods.

    g. (p. 12 -- first sentence) Again a negative rate of interest.

    h. (p. 12) How would you apply service charges to green pocket
       money used to buy securities?

    i. I do not understand still the reason for a minimum limit on bank
       rate. As recession sets in, I should expect speculators to borrow
       from the bank and with the proceeds buy red money. The speculator
       would hold red money for the rise in its price, hoping to sell out
       at the peak. Why not bring him into action sooner by offering a
       negative rate of interest to him on bank loans?

    j. (p. 12 -- first sentence in last paragraph) I suspect typo-
       graphical difficulties here.

    k. (p. 12 -- on currency issues) As a matter of fact, a world gov-
       ernment would be faced with the problem that the big share of
       the population would not use bank deposits, but would use hand-to-
       hand money. It is very few countries that can report an excess of
       checking deposits over legal tender.