A Currency for India.

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IN the beginning, articles of human need were simply bartered and the rate of exchange depended on the relation between demand and supply. With development of the agricultural life and trade the necessity of standards of value arose, and it is remarkable, that the first standards were based on articles of immediate necessity: grain, cattle, cloth. Further development of trade created a need for an easily portable standard and first metal in general and finally gold was adopted. Adoption of a gold standard used at that time for jewellery and vessels only, coincides with a very high degree of general prosperity, when the demand for articles of first need was satisfied to a great extent, and when trade was catering to big towns and courts. Political development introduced State treasuries and a problem of replenishing them—large payments had to be made and this led to standardised metal pieces, called coins. Kings, usually badly in need of means of payment, manipulated with the coins, and their value decreased steadily, or in other words, prices were going up. Development of banking introduced paper values, which later developed into paper money by the same process of State manipulations. Ultimately paper money has replaced gold coins everywhere and gold has become now an article of trade, like any other, while currency and prices are ruled mainly by legislation.

The tradition of basing the value of paper money on the amount of gold the State will pay on demand is becoming more and more obsolete. There are very few States that will freely give gold to their citizens in exchange of paper notes. In international relations payment in gold is still current, but the general tendency towards balancing the imports and exports whenever possible by means of commercial treaties or currency depreciation has for its main purpose the elimination of gold from international relations.

The fallacy of gold as standard of value can be well shown if we take an extreme example.

A country called *Eldorado* is lined with gold bricks, but is, apart from this, completely barren. Its inhabitants will pay with gold for war material to protect themselves and other goods to maintain themselves. The gold received in payment by the countries producing goods will be stored up in bank vaults and paper money issued to finance industry and agriculture to produce more goods demanded by our *Eldorado*. Provided the supply of gold bricks is big enough, the *Eldorado* State will flourish without producing anything, while other States will slave for it. The accumulation of war material may even lead to a political supremacy of *Eldorado* and all because other States have a fancy for hoarding up gold in their treasuries.

This may be an indirect test, but direct tests also show the unsuitability of gold as standard of value. The history of the last few hundred years of the West is a history of mankind suffering from gold poisoning. The production of gold does not go parallel to the development of the means of production and this leads to deep anomalies in the world trade and to periodical depressions. To consider them as natural would be to consider periodical attacks of malarial fever natural. They are signs of disease, of lack of balance between production and consumption, in short, of an unsound currency system.

The gold standard is also not moral in the sense of interfering with the self-evident right of every individual to self-expression". The shifting of the centre of gravity on a substance which is not an article of immediate and universal need has dislocated the attitude to life of the average man. Possession, and not service has become the goal. Everybody wants to have something, and not to be something and to do something. The harm, such mental distortion of outlook is doing to the individual and society cannot be over-estimated. Imagine the cells of your body obsessed with the idea of getting fat; some tissues, capable of collecting fat will become monstrously obese, while others, the brain and the nervous system first amongst them, will suffer acute emaciation. The bankers of the system, the heart and the liver will accumulate fat and will work lazily, which will lead to still bigger deposits of fat in some of the tissues.

To say that the same happens in our present-day society will not be an exaggeration.

To improve matters a change of attitude towards money is necessary. Gold is a static standard, it encourages possession, and not production and consumption.

Enormous amounts of human effort are spent on digging out the gold from one pit, called "mine" for putting it into another pit, called " bank". Since gold does not satisfy human needs, it stands to reason that the labour is a complete waste. As a matter of fact paper currency could be issued on the basis of the gold content of the soil of the country with the same effect.

The very chemical stability of gold, praised by its partisans is rather a drawback. A depreciating currency would be infinitely better for the general welfare. But a depreciating currency alone would not be sufficient.

We do not maintain that currency reform alone will heal all wounds. It is not possible. Currency is only a tool, a technical detail of social organisation; but the right choice of a tool may have a far-reaching influence. Give mankind a standard of value that favours accumulation—it will accumulate. Give it another standard, that will encourage production and consumption—it will produce and consume with the same enthusiasm.

In our search for the most suitable form of currency for India we shall take the country as it is, and not as we would like it to be.

The main problem of India is the problem of a most appalling poverty, probably even worse than in China. One-fifth of humanity is living on or below the mere level of subsistence. The average income of an Indian is 7ps. per day.

Poverty cannot be abolished by State or private charity, however generous and extensive.

One may be fed on doles, " Winterhilfe ", " Soupes popularies " or " National relief funds " and yet remain in the same state of wretchedness. All the unemployment schemes, etc., are nothing but production of beggars on a mass scale. Workmen dislike intensely these schemes ; unearned bread is tasteless for them. They postpone physical starvation, but mental and moral starvation remain the same. Vast millions are reduced in their human dignity and their capacity for work is wasted.

In India no unemployment or poverty-relief is yet organised. It is natural because poverty and unemployment are too general. Contrary to other countries, total employment is the privilege of a minority here. The vast majority of the population is partially or totally unemployed. All the resources of the employed part of the population will not be sufficient to finance even the most modest unemployment scheme.

Complete abolition of poverty involves a thorough economic reconstruction of which a currency reform is a single aspect only.

Whether it will take in India the shape of a State socialism, or of a God socialism, it is not for us to venture an opinion.

Thus, the system of currency we are in search for, should be designed so that its working automatically tends to diminish poverty, in other words : (1) It will favour production ; (2) It will facilitate proper distribution ; and (3) It will encourage consumption. Apart from this the proposed currency should be easily understood and accepted by the poverty-stricken man himself, *i.e.*, it cannot be an abstract currency, based on price indexes or other statistical averages.

In looking through the list of human needs we find that the first is food. Its importance is out of proportion to any other. In moments of distress the satisfaction of all other needs will be sacrificed for the sake of food and family affection only proves sometimes equally strong. Food being the first necessity it is also the biggest single item of man's production. More effort is spent on the production of food than on everything else taken together. Food is also the item in which insufficiency of production, distribution and consumption is most intolerable. It makes the availability of all other necessities of life worthless.

Let us imagine that by some magic, India is deprived of all amenities of civilisation but given an abundance of pure and healthy food. A nation of well-built nudists, walking briskly from Rameshwaram to Badrinath for a stroll, begetting sturdy little boys and girls in a happy promiscuity, worshipping, if at all, *Sri Annapurna* only and friendly to each other because there would be absolutely no reason for being otherwise, may look grotesque to our worry-eaten minds, but whoever loves man for his own sake will not deny that it would be an acceptable proposition.

Food being the first and by far the most important need of man, which, when required, will be willingly exchanged against anything else, the following idea occurs immediately.

Why should not the most common and urgent necessity be made a standard of value ? Will it work better ? Will it fulfil the requirements of India ? Will currency based on a food standard be *the* " morally sound currency " system for India ?

The first thing to note is that a food currency is not a new idea. It exists and works on a small scale in all purely agricultural communities. It still exists in the Indian village economy. It is in harmony with Indian traditions. It is in the very blood of the villager, and the villager *is* India.

In ancient times gold coins were stored by tradesmen, kings and temples ; the villager knew paddy only. Till very late even taxes were paid in grain and the only contribution to be paid in gold and silver were the homages offered to the ladies of the household.

The introduction in India of a foreign economic and industrial system has destroyed the village economy and ruined the very foundation of the country's prosperity. Everything had to be paid with money, with *rupees*, *annas*, *pies* and money has become a nightmare. Its value in terms of grain was changing constantly. Significant is the fact that the villager says : " so many measures of rice for a rupee " and not " so many rupees for a measure of rice ". It is because he had to purchase rupees, and never rice. He had to purchase rupees for payment of taxes, debts, implements, cloth, etc. Yet, in his mind, grain remained the standard of value and not money, which he had to get to pay off all his harassers till the next season.

Let us now make clear, what exactly we mean by the term " food currency " ; with its introduction, what would be its influence on the agricultural and industrial life of the country, in what way will it affect production, distribution and consumption and how will it influence Indian trade relations with other countries.

By " food currency " we understand a system of currency in which a staple food product of the country is taken as a standard of value. In India it will be a chosen variety of paddy and wheat. A certain quantity of paddy and an equivalent from the nutritive point of view, quantity of wheat will be chosen and called a rupee. To distinguish it from the old rupee the new rupee may be named *food-rupee*. For purposes of convenience the food-rupee standard may be so chosen, as to represent the value of a rupee in terms of grain at a rate most suitable from all points of view.

Legislation will have to be passed : (1) to convert all gold obligations : (2) to control the import and export of currency grains ; (3) to open State granaries, (4) to fix once for ever, the quantity of currency grain in a *food-rupee*, (5) to fix the seigniorage levied by the State when exchanging currency grain for currency notes.

The seigniorage is necessary to avoid the Government to become a merchant in grain. It may be one to two annas in the rupee, which will allow a margin of profit to all big and small grain merchants that will continue their trade within the limits of seigniorage, similar to the gold brokers of to-day.

The State granaries do not need to be many nor very big, if free railway transport of State grain is introduced, every station master may be authorised to issue food currency notes against currency grains and send the bags of grain to the State granaries.

Private hoarding of food currency notes will be prevented by proper legislation devaluing old currency notes, unless deposited in savings banks.

An additional legislation of immense importance, although not directly connected with the currency reform would be the transfer of a part of land revenue to a Crop Insurance Fund, out of which compensations for total or partial crop failures will be paid.

Let us now visualise the change as clearly as we can. We shall assume that the reform is already about 3 years old, and the storm of protests, declarations, petitions, resolutions and interpellations has subsided and the big grain merchants have chosen another field of money-making, that the villagers have thoroughly learned the welcome news that there will be no more variation of price of crops, however abundant the crop may be and the grain consumer has also learned that he does not need to pay grain above a certain rate, printed on every currency note in his pocket. The grain ports are usually deserted. Apart from this not much more changes will be found in the towns.

The real importance of the reform will be seen in the village. Every plot of land becoming virtually a gold mine and every villager a gold digger, unusual activity is observable everywhere. Grain has verbally become money—by growing grain money is grown—and everybody knows well in advance how much money is going to be grown. Every piece of land is utilised, irrigation schemes are put to execution, the selected grain varieties are sought for, agricultural improvements quickly popularised, best implements purchased, every village humming with activity, because for the first time in history the grain grower is sure of the crop, its price, its market.

Demand and supply relations govern other agricultural products, and their culture will not be forsaken, as their price will be always controlled by the value of grain that can be grown on the same land with the same amount of labour and usually they bring some small premium to the enterprising grower.

Every villager knowing exactly how much value he is growing every year, is enabled to lay out a budget and to have his own private 5-year plan. The indebtedness of the village has become possible to cope with, as the stabilised income of the villager has enabled the State to give long-term interest free loans on the security of the crops.

The industrial development of the country is tremendously accelerated. The currency notes the villager receives for his grain he has either to spend or to save. He spends on industrial products like carts, bullock shoes, lamps, hardware, paper, etc. The amounts saved are utilised by the Government for financing big irrigation and electrification schemes, reclamation of waste lands, building roads and railways. In both cases the money goes to the industries. As the industries develop and their own costs go down, prices of industrial products in terms of agricultural products go down, enabling the villager to purchase more and more. Thus the development of industries follows closely the rise of prosperity in the villages.

The State has profited in several ways. Its land revenue is stabilised and growing from year to year. The seigniorage has created a new source of income. The prosperity of the population is increasing steadily, any local famine is dealt with by the Crops Insurance Fund, and there is plenty of reserve funds for any major scheme. Food, being the currency itself, no need of curtailing its production is ever felt; when abundant quantities accumulate in the granaries, extensive sanitation, town building and road building schemes are financed, educational facilities extended and children, maternity and old-age protection schemes introduced. Heavy inheritance taxes curtail the accumulation of too big savings, money is grown intensely and spent intensely and proper balance between production and consumption maintained all the time.

Except for the severe control of currency grains imports and exports, little change can be observed in the international trade mechanism. The *Food-Rupee* being an internal currency, the international trade accounts are cleared by a special bank agency which keeps foreign money and gold stock for smoothening out the differences between exports and imports. The country's gold production, useless now for the internal economy, is more than sufficient to meet any foreign obligation, if they have to be paid in gold.

Needless to say that although the food currency will make a tremendous difference in the economy of the country and may open a new era in its development, as long as the land will be in the hands of landlords, it will make them very rich and also very dangerous. The new scheme will benefit them in the first instance. The tenants, usually left with just enough to live on till the next season, will get their benefits only indirectly, owing to increased demand for industrial and rural labour.

Yet any failure to give plenty to every individual in India will not be the fault of the currency system, but of other aspects of the present economic structure. The scheme by itself is able to foster production, facilitate distribution and increase consumption.

Can the reform be introduced immediately? Surely. It will make everybody's life easier. It requires a very simple legislation. It benefits the State and the citizen in the same measure.

Can it be introduced in a smaller area than the whole of India? Yes, provided two conditions are fulfilled :

(1) The chosen area can grow some excess of food over the needs of the population ; (2) Its revenue is entirely independent and it has no outside charges ; and (3) It has got freedom to regulate its imports and exports.

Some objections may arise and it will be useful to answer them in anticipation.

(1) Is it necessary to make food the currency itself? Will not a grain price policy based on State granaries do the same?

No, it will not do, as although it stabilises the prices to a certain extent, it will always be subject to the whims of the Governments and does not give the certainty, that the food currency itself can only give. Apart from this, the gold poison will not be eliminated.

(2) Will not a food currency lead to over-production of grain? No, because human needs are various and with the increase of prosperity the population will create a demand for other agricultural products, that will become more paying to produce, than grain.

(3) The food currency will foster barter transactions in the rural areas, with the elimination of currency notes.

It would be a welcome procedure, eliminating the middleman completely and giving to those concerned the full value for their services.

(4) It will be difficult to collect taxes in grain.

Taxes will be collected as usual, in currency notes. Exchange of grain against currency notes is done separately, preferably by the station masters.

(5) The State will incur heavy losses by accidental deterioration of grain.

The modern granaries can keep grain for very long periods. If the reform is passed by the Government, we undertake to design air conditioned and ventilated granaries in which grain will keep as long as in the Egyptian Pyramids.

(6) A heavy load will be put on railways.

Not at all; State granaries will not be big at all. The majority of grain transactions will pass through private hands, who will desire to profit by the seigniorage. Apart from this the increased railway traffic, due to higher prosperity, will pay off the railways generously the necessity of sending a trainload of grain free.

(7) Excess of grain will accumulate in State granaries.

Grain is a starting point in a variety of chemical industries. It can be dumped away by the State. A large percentage of currency notes issued will never be claimed to be exchanged for grain and the excess of grain can be sold to licensed chemical industries at lower rates or exported.

It is impossible in a single article to go into all the details of the scheme and to discuss all the corollaries. However utopian it may look at the first sight, it is a simple, understandable scheme. It deserves consideration—and we are sure that a generation will come that will take it seriously and put it to practice.

Stratosphere Flight in the Balloon "Explorer II".*

IN the issue of *Current Science* for April 1936, a brief summary was presented of the balloon ("Explorer I") expedition into the stratosphere; it was organised and conducted in the U.S.A. under the joint auspices of the United States Army Air Corps and the National Geographic Society. This hydrogen filled balloon with a volume of 3,000,000 cubic feet, made and equipped with meticulous care began to give way at a height of about 61,000 feet and ended in disaster; the three heroic fliers had to jump out of the gondola hurtling down under its own weight and save themselves by parachutes.

Nothing daunted, preparations for a second balloon expedition were almost immediately organised; this second balloon—"Explorer II"—was bigger by 70,000 cubic feet and filled with helium instead of hydrogen to avoid all risk of explosion. As in the case of the previous expedition, a large number of scientists and scientific institutions, firms and government departments enthusiastically co-operated in the great adventure. The gondola was again a remarkable floating laboratory equipped to carry out an amazing variety of scientific measurements and observations, all automatically recorded; nature, intensity and directional distribution of cosmic rays; atmospheric ozone distribution; electrical conductivity; composition of air; pressure, temperature and wind velocity variations with height; micro-organisms in the stratosphere, etc.

On 11th November 1936 (Armistice Day), leaving the Stratobowl near Rapid City at 7 A.M., "Explorer II" safely returned to earth eight hours later, after a remarkably successful flight to the record height of 72,395 feet. The details of the flight and the preparations for it are very vividly, and with humour, described by Major Stevens, the Commanding Officer.

The theoretical and practical considerations underlying the design and construction of the balloon and the gondola; the radio telephone communication system by which the balloon was in touch with the earth throughout; the photographic and recording arrangements; the apparatus and operation for the large number of scientific observations and their automatic recording; all these are described in appropriate detail, supported by a large number of line diagrams and excellent photographs.

The results of the examination and analysis of the various records and specimens are reported in a series of scientific articles occupying nearly two-thirds of the volume. Each of these is written by a specialist. As in the case of "Explorer I," cosmic ray investigations occupy a prominent place.

The general reader will be interested to know that the electric potential at 72,000 feet is some 400,000 volts above earth and 100,000 volts above the value at 16,500 feet. Though the air pressure is no more than about 35 mm. of mercury, the wind velocity at 70,000 feet is so high as 40 miles an hour. No wonder that under this churning action, the composition of the air at these heights differs really little from that at sea-level. Of no small significance is the evidence from the cosmic ray records that nuclear disintegrations can take place without the capture of the incident particle.

For the specialist as for the general reader, the book will be very interesting reading.

A great adventure in every way, finely planned and carried out.

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* *The National Geographic Society—U. S. Army Air Corps Stratosphere Flight of 1935 in the Balloon "Explorer II,"* Stratosphere Series No. 2, published by the National Geographic Society, Washington, 1936; Price $ 1·50.