000 tons of common salt (the kind you season food with); enough gold to make a five-inch cube; enough silver to make a ball 25 inches in diameter. Multiply these numbers by 58 and the answer will represent the amount of each material that is possibly present in one cubic mile of ocean water. And these are but a few of the elements present.

Even when the millions of cubic miles of ocean is not considered, it is still incorrect to oppose an economy of abundance with the argument that there is an insufficiency of raw materials. We grant that it is not enough to merely show that large quantities of raw materials exist. It must be shown that the means for extracting and converting these into useful things exists and, what is more important, that it will continue to exist. Let us then examine present and potential power sources.

### SOURCES OF ENERGY

Although research into atomic energy release methods has revealed that, for the present at least, there would be difficulties standing in the way of any large scale production of nuclear energy for non-destructive purposes, we do not have to wait for methods of safely releasing energy from uranium or plutonium. There is another safe and dependable source of nuclear power that has not to date been utilized to the fullest extent. The sun is seldom given credit as a source of energy for industry, yet, prior to the experiments culminating in the explosion of the first atomic bomb, all energy used by mankind was traceable to the sun. "The equivalent of 2 tons of coal (20,000,000 kilo-calories of energy) per acre per day in the form of visible and invisible radiation pour onto the earth from the sun. (*Popular Science Monthly,* March 1949.)

For all practical purposes the energy of falling water at Niagara Falls, Boulder Dam and T.V.A. has its source in the sun. And the surface has been barely scratched insofar as utilization of water power is concerned. The energy released in the burning of wood, coal or oil also came from the sun. Oil sources appear to be growing scarce but a process has been successfully demonstrated whereby coal can be converted into oil. And coal is still plentiful. Iron, copper and other metals have been melted by reflected sunlight with the aid of curved mirrors measuring a yard or more in diameter. Photo-electric cells and thermo-electric cells have been used to produce enough electricity from sunlight for the operation of tiny electric motors and might conceivably be used on a larger scale to operate larger motors.

In Iceland, power is produced from natural underground steam. In Holland and elsewhere it is gotten from the wind. Even the tides can produce power. Will the sources of power dry up — disappear? Scientists agree generally that (1) The sun (Old Sol) maintains its tremendous output of heat and light by a process of nuclear fission and synthesis,** (2) It maintained this output for billions of years in the past, and (3) It will probably continue without noticeably diminishing for billions of years to come.

### KNOW-HOW

During the entire history of man's existence on this planet he has been accumulating the know-how with which to produce the things he needs and wants. During the last war two cities were built in order that two other cities might be destroyed with two atomic bombs! Both the Clinton engineering works at Oak Ridge, Tennessee and at Hanford on the Columbia river in Oregon were built where hitherto there has been a wilderness of trees and brush.

A thousand or more miles of road was built through muskeag and mountains from the United States to Alaska within a few months. Thousands of planes, tanks, guns and trucks rolled off assembly lines. There were no insurmountable obstacles where productive know-how for destructive purposes was called for and there need be none when know-how for an economy of abundance is desired.

**"Birth and Death of the Sun" Dr. George Gamow.



Vegetables have been and are being grown with water, seed, chemicals, and sunlight, *in the absence of soil,* and have been proved superior both in quantity and quality to those grown in the usual way. It was announced in the *New York Times,* March 7, 1937 that an average of 217 tons of tomatoes per tank acre had been produced by the process of soil-less agriculture. The average yield of soil-grown tomatoes at that time was 5 tons per acre. The process of growing vegetables without soil, which is called hydroponics, has since been improved many times. It is worthwhile noting here that the potential for abundance has also been increased by many improvements in ordinary soil culture.

In England a factory which is almost completely automatic operates by means of electronic controls. It has been turning out radios at the rate of three a minute.*** Similar factories are being erected for the production of other commodities.

Such processes as soil-less agriculture and electronically controlled production of goods are being expanded at a rate which is haphazardly calculated to satisfy the needs of the market. *They are not being expanded at a rate which is calculated to meet the needs of humanity.*

### HUMAN COOPERATION

Men stand with empty stomachs and wear ragged shoes while they lean against the windows of shops crammed with food and footwear. They listen to flamboyant politicians who rant and rave because of glutted home markets and foreign competition. Then they are given food and shoes which they themselves have produced that they may go to fight and die in a war for the purpose of securing a fresh market in which the "excess" food and shoes which they have produced may be sold. Must this insane state of affairs continue? We say no. Emphatically NO!

Let us produce and use the abundance which is possible now for the benefit and enjoyment of *all,* not for the profits of a few.

DALTON

***"Mechanics Illustrated," Apr., 1948, p. 92.

## AMERICAN WAY OF LIFE

**The Treasury Department reports that almost 50% of the people making income tax returns showed incomes of less than $1750 for 1947. This is $33 a week, and does not take out for income tax and social security deductions.**

**Only 2,227,013 out of the 52,600,470 persons filing Federal tax returns, or 4.23% of the total showed incomes of over $6,000 a year before taxes and deductions.** (Detroit Free Press, AP dispatch, March 10, 1949).

**The American Federation of Labor, seeking to find out how the workers were getting along in the post-war period with their wage increases, took a survey among its members in a large metal-working plant on the east coast. In spite of the fact that these workers had received wage increases of 38½ cents an hour from the war's end to March 1948, which is 5 cents an hour or $2 a week more than the average for factory workers, the following facts came to light as a result of the survey:**

**(1) More than ¾ of those reporting (77%) had been forced to cut their purchase of at least one important living necessity since the war. These cuts showed definite reductions in living standards. More than half the workers cut meat and butter; one-third cut eggs and fresh fruits and vegetables; one fourth reduced their supply of milk. About half the adults cut purchases of clothing and shoes, a fourth had to cut childrens clothes and shoes; 13% cut medical care, 20% dental care.**

**(2) Only 9% had been able to lay by any savings since October 1947, and 52% had gone into debt.**

**(3) Since the war, 86% had drawn on their past savings, and 83% had cashed war bonds. The significant point about this use of savings was that three-quarters of these families had to spend their savings for ordinary living expenses, while they thought they had accumulated these saving and bonds in war time to buy homes, autos, furniture, washing machines, and so forth . . .** (Labor's Monthly Survey, AFL, February, 1949, pp. 2-3.)

K. F.