

Proceedings of the American Academy of Arts and Sciences.

VOL. XXXIII. No. 13. — MARCH, 1898.

*THE BASIS OF THE SCIENCE OF POLITICAL
ECONOMY.*

BY EDWARD ATKINSON.

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Presented March 9, 1898.

I HAVE asked the opportunity to present a treatise upon the basis of the science of political economy, because there are many masters of the physical or exact sciences who deny the existence of such a science of social relations. It is held by the writers on what is called political economy that it relates to the production, distribution, and consumption of wealth. I do not think the name is well chosen, and I should vary that definition somewhat in the following terms: the science of the production, distribution, and consumption of the means of existence and of material welfare. If there is no science, then there are no fundamental principles constituting the basis of action of human beings in the maintenance of human life. If that is true, then material life rests wholly upon chance. Is there any such thing as chance in the universe in which humanity is a part? Is there not even a law of chances governing the accidents of life? Does not order prevail everywhere? Then, if order prevails in the provision for human wants, it must rest on fundamental principles. The definition of a principle in this connection would be, "a rule of action among human beings," — "a demonstrated truth that requires no further proof." I shall venture to present the evidence that certain rules of action have governed human beings from prehistoric times, and certain facts which are of the nature of demonstrated truths.

Man is the only trading animal. Other animals co-operate in tribes for mutual protection and to some extent for common sustenance, but none exchange product for product or service for service; none trade. No other animal except man has invented money as a medium of trade. It is therefore a rule of action governing human beings after they emerge from the merely animal stage, that they exchange services; they trade.

The law of commerce is the law of mutual benefit. The motive of commerce must at first have been an intellectual perception that by an exchange of products both parties benefited. There may no longer be any distinct intellectual action or separate and special conscious percep-

tion of mutual benefit actuating each transaction ; nevertheless, the motive of trade is a purely metaphysical perception of the fact that by an exchange of material things the work of sustaining material life is lessened.

The next fact which requires no further proof is the admitted fact that general moral welfare is only consistent with general material welfare. The essential wants of men must be supplied as a condition precedent to the development of moral faculties. It is of no use to preach to men with empty stomachs.

In the support of material existence, or in dealing with the products on which material life depends, and in treating the exchanges of these products by which general welfare is assured, we then find the three fundamental principles of a science governing the actions of men : the material, the metaphysical, and the ethical. Such is the trinity of trade.

As I have said, if there are no principles or rules governing human action in the supply of human wants on which a science can be based, it would follow that material existence rests wholly upon what we call chance. But is there any such thing as chance in the universe ? If order prevails in the supply of the wants of men, then have we not the basis of a science ?

Another admitted fact that requires no further proof is, that all men make a demand upon the means of existence, and all men must be supplied with food, — most men with clothing and shelter. Where shelter and clothing require no effort, mankind remains in the animal stage until aroused by trade. Society has recognized the right of this demand, and furnishes the supply of shelter, food, and clothing to the incapable, but to no others, except in exchange for some service rendered. Again, is it not true that all that any man can get out of material products or things are food, clothing, and shelter ? What more does the rich man consume ? what less will suffice for the poor man ? The cost of the capitalist is what he consumes ; his service is what he adds by his ability to the general product. Yet this science, applied to the supply of wants and dealing wholly with material subsistence and with physical conditions, is, as I have said, a purely metaphysical science. The motive which actuates commerce is personal benefit, — a purely intellectual conception. Apparently that is a selfish motive, yet every exchange implies, of necessity, two parties in every transaction. Each is governed by the same motive, to wit, his own benefit. It follows as a scientific demonstration that all commerce is, to use a bad modern phrase, *altruistic*, whether those who conduct it are conscious of the fact or not. It may not be uniformly beneficial, but is yet *altruistic*. The demand of the ignorant man may be for something that

does him harm, yet he seeks what he believes to be his own benefit. For instance, in buying quack medicines he thinks he is benefited by partaking of the sarsaparilla in Ayer's compound. What he really gets is twenty-six per cent by volume of alcohol, — in Hood's sarsaparilla about nineteen per cent. In other words, he secures a stimulant more active than sherry or Madeira wine, perhaps even in this way to his benefit. Dealings in noxious or fraudulent compounds are, however, very small relatively to the dealings in materials necessary to existence.

Again. I have stated that man is the only animal that has invented money. Money is a medium of exchange, a necessary tool in the conduct of commerce, which is for mutual benefit. All records, prehistoric and modern, prove the existence of commerce and the use of money. If I am rightly informed, the recent discoveries in Assyria and Babylonia prove the existence of a wide commerce, of which many of the terra-cotta plates give the records. The standard of that period has been stated to me by Professor Lyon as what might be called a silver "bob." That fact brings up a difficult problem. It would appear that silver existed in sufficient quantity to serve as a money metal four thousand years before Christ. It is proved by the Old Testament Scriptures that the shekel or weight of silver in the time of Abraham — about 2500 B. C., I believe — was the money of the merchant. Yet no deposits of native silver have ever been discovered of sufficient magnitude to supply even a small coinage. Native gold and native copper have been found in large quantities, and have served for monetary use; but silver is at the present time the product of complex processes of smelting and separation from the ore. Whence came this prehistoric silver? Did smelting and assaying exist and for a time become a lost art?

At a later period, when cattle constituted the medium of exchange, did the silver disappear, or did cattle, being more abundant and silver relatively difficult to provide, displace silver as money of the known world at that time? The evidence of the use of cattle for monetary purposes extends from Asia into Scythia, thence across the whole of Europe, even into Ireland. The tariff of the lawful charges of the physician or of the cleanser and bather is given in the Zend-Avesta in terms of cattle, among which female slaves are counted.

Then gold appears again, or rather a natural alloy of gold and silver known as *electron*, which, according to Ridgeway, — whose recent book upon coinage and weight measures is based upon the methods of evolution, as distinguished from the development of coinage under the application of the higher mathematics, — had begun to circulate in the form

of dust or nuggets passing by weight before the invention of coinage. He presents a good deal of proof that the first coin made of electron in Lydia, about 700 B. C., was equated with the cow at about one hundred and thirty-five grains of this alloy. He cites the proof of the common use of the bull's head and other signs upon the early coins. Thence coinage was carried into Greece, where the gold stater, or standard, or unit of value, was first coined by Philip of Macedon at a very similar weight; and that gold stater was for a very long period the standard or unit of the world's commerce of that period.

Again. There are few races of men so low in intellect as not to have invented money, choosing the many articles with which you are familiar which have for the time being served the purpose. At a later period came the invention of the decree or law of legal tender. From the dawn of history to the present time this conception of a legal tender born in fraud and nursed in corruption has been made use of to debase the coinage in order to cheat the masses of the people, or else for the collection of a forced loan, as in the instances of the Continental currency of our Revolutionary time and of our legal tender currency of the present day. The only exceptions to this rule regarding legal tender have been specific laws passed for the purpose of keeping the small change or subsidiary coinage within the limits of the country by which it has been coined, as a token of light weight in metal, redeemable in coin of full value. In these facts we surely find the basis of a science.

It is proved that in the very earliest stages of civilization men have invented money and have used it as a medium of commerce. Commerce rests upon mutual benefit. From period to period the thing used for money has changed, passing through various stages. Non-metallic subjects, such as cattle, stock fish, shells or cowries, wampum, leather, tobacco, furs and skins, have been adopted. Metals in useful forms, like hoes in Africa, have been used. The several metals iron, copper, silver, and gold have been used, one successively displacing the other with the progress of wealth and with the enlargement of commerce. In the end gold has become by a process of natural selection, and in total disregard of legislation, the unit or standard of the world's international commerce. For that purpose it is used now under a weight name, "pound sterling." There is no lawful coin of that name. The equivalent is named a sovereign. Pound sterling is now the definition of 113.0016 grains of gold, having originally been the name of a pound Easterling of silver, based on the Troy or Troyes table of 5760 grains, which was the standard of the Steel Yard where foreign goods were held in stock for sale in England. Drafts and

agreements made in the term of pound sterling can be liquidated and discharged only by the delivery of the exact weight of metal; thus coming back to the original conditions under which the precious metals served as money by the definition of weight, — the shekel, the mina, the drachma, and others. No conception of an act of legal tender could have entered the mind of any legislator or ruler, so long as the weight standard and the weight of coins were consistent. The only possible purpose of an act of legal tender in early times, down through the Middle Ages, and until the present century, was in fraud of the masses of the people upon whom light weight or base coins were forced. In these facts, do we not find the basis of monetary science?

Again. I have referred to the three elements or fundamental principles, rules of action governing human beings, upon which modern commerce has been progressively developed.

The first, the material necessity for the means of existence.

The second, the metaphysical perception of the benefits of exchange.

The third, the moral habit engendered out of these conditions.

I use the term "moral habit" as something distinct from conscious moral effort. Sir Henry Maine calls attention to the fact that the trust which is necessary to the conduct of commerce in all its branches is a very modern conception. In the Homeric records, the cunning of Ulysses and habits of fraud and deception are as meritorious and worthy of praise as the wisdom of Nestor or the courage of Achilles. Maine uses a phrase in respect to modern conditions substantially in the following form: "The trust imposed in and deserved by the many creates the opportunity for the fraud of the few." This becomes very manifest whenever the present conditions of trade are passed in review.

I have computed the value of our annual product at approximately two hundred to two hundred and twenty-five dollars' worth per head of food, fuel, materials for shelter, and clothing, at the present time. These are first produced in their crude form from the field, the forest, and the mine. They are passed in the process of trade or exchange to the converters or manufacturers, so called; thence to the wholesale dealers; thence to the retail dealers. In respect to many articles there are as many as ten different trades or transactions between the original producer and the consumer. The average cannot be less than three. Under these conditions, the volume of trade which is necessary to the supply of human wants in this country only without which modern society could not exist, comes to not less than one hundred million dollars every day in the year, including Sundays. It is in fact more.

Now, in proof that a moral habit has of necessity been engendered in the conduct of this traffic, it is a well established fact that it would not be worth twenty-five cents on a hundred dollars for the nation to guarantee the prompt payment of every obligation or trust incurred in the process of this trade. The dealers, the bankers, the merchants, could not afford to pay a guarantee of twenty-five cents on a hundred dollars.

You will bear in mind, by the way, that all that any man can get in a material sense in this life by means of this method of production and distribution is his board and clothing, no matter how rich he is. But into that branch of the subject I do not propose to enter.

I have said that the very existence of society can only be conceived on the basis of this mutuality of the service of commerce. Its benefits are gained in exact proportion to the freedom of trade, whether among the people of one country or between countries. Protective tariffs have to some extent interfered with commerce between this and other countries, and have given for the time being a misdirection to a small part of our energy. On the other hand, absolute freedom of trade among the States has been assured by the constitutional provision thereto.

Now, what are the facts developed under this system, which have become "admitted truths requiring no further proofs," and may therefore be taken as the basis of a principle? The people of this country have enjoyed absolute free trade among the greater number and over a larger area than have ever enjoyed that natural condition before. What is their condition relatively to other countries? The resources of the European continent are as great as those of our country. The resources of South America, with perhaps the exception of coal, on which I am not informed, are as great as those of North America. Yet the material progress of the people of the United States puts all other countries or nations in the shade. It has been vastly greater. Moreover, it is becoming an admitted truth, requiring no further proof since the publication of Wright's Report on Prices and Wages for Fifty-two Years, that under the influence of these conditions those who perform the manual, mechanical, and farm work of this country — the working classes, in the narrow sense — have secured decade by decade an increasing proportion of a constantly increasing product, and have become the most prosperous people in the world, taken as a whole; better served in every respect with railways and waterways, and while numbering only five per cent of the population of the globe, consuming between thirty-three and forty per cent of the iron, steel, and copper; twenty-eight per cent of the cotton:

and twenty-five per cent of the wool; also consuming such a wasteful abundance of food, that in spite of waste we feed others to nearly half our own number.

I therefore venture to submit the claims of political economy to recognition, not only as a science, but as the science to which all the physical sciences are subordinate, except as pursuits for those who, being sustained in their material existence by the efforts or work of others, devote the whole time to pure science, without regard to its application. Yet without the application of science to the pursuits of peace, order, and industry, could even the devotion to pure science be justified? There is but one department of philosophy to which we must all bow, and that is the science of law. None can attain the place of the true jurist who deals with rights and establishes the conduct of society on the foundation of rights. Yet political economy emulates the science of law in bringing to the gradual conviction of mankind the sense of the fact that rights must be sustained in order that the greatest material prosperity and the greatest physical welfare of humanity may be secured. Moreover, the science of political economy is not only a handmaid of jurisprudence, but the foundation of liberty. In the interchange of services the greatest benefit ensues. The greatest benefits are gained where the utmost freedom is permitted, subject to restriction only for police purposes or for the protection of the public health. The motto of the social scientist and of the political economist, if there is a distinction to be made, may rightly be, "Liberty and Law," — freedom to use but not abuse the opportunities which year by year are widened and extended, opening broader fields and more numerous ways to the attainment of the common welfare.

"Of what avail the plough or sail,
Or land or life, if freedom fail?"

I had completed the essay of which this is a digest some time ago; and on reading it aloud, one of my sons remarked the close analogy to Kant's essay upon *Eternal Peace*. I confess that I was surprised and gratified to find that I had been an unconscious plagiarist of so great a man. There is a close analogy between the conclusions which I have derived from the experience of this free country, and the wonderful prophecy which Kant uttered a hundred years ago regarding the necessary effect of the free conditions of the English speaking people in promoting *Eternal Peace*.

Proceedings of the American Academy of Arts and Sciences.

VOL. XXXIII. No. 14. — APRIL, 1898.

CONTRIBUTIONS FROM THE ZOÖLOGICAL LABORATORY OF THE
MUSEUM OF COMPARATIVE ZOÖLOGY AT HARVARD COLLEGE,
UNDER THE DIRECTION OF E. L. MARK, No. XC.

*STUDIES ON THE CENTRAL AND PERIPHERAL NER-
VOUS SYSTEMS OF TWO POLYCHÆTE ANNELIDS.*

BY MARGARET LEWIS.

WITH EIGHT PLATES.