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THE ECONOMIC AGES.

IN those delightful writings which Mr. Alfred Russell Wallace has brought together in the volumes entitled *Studies Scientific and Social* and which include, with discussions geological, biological and anthropological, other discussions that are economic, political and educational, the reader finds a chapter described by the headline, "The Problem of Utility." Naturally, if he is familiar with modern developments of economic theory, he will assume that the great English evolutionist, who shares with Darwin the honor of having discovered the process of organic evolution by natural selection, has found time to give his attention to the abstruse problems associated with the names of Cournot, Menger, Jevons, Walras and Von Wieser. Upon turning, however, from the table of contents to Chapter XVIII itself, one discovers that it is further described by the question, "Are Specific Characters always or generally Useful?" and by the following quotation from an article which Mr. Wallace published as early as 1867 :

> Perhaps no principle has ever been announced so fertile in results as that which Mr. Darwin so earnestly impresses upon us, and which is indeed a necessary deduction from the theory of natural selection, namely, that none of the definite facts of organic nature, no special organ, no characteristic form or marking, no peculiarities of instinct or of habit, no relations between species or between groups of species, can exist but which must now be, or once have been, *useful* to the individuals or races which possess them.

The principle thus described Mr. Wallace calls "The Principle of Utility." As thus employed, the phrase sounds strange to ears that have grown familiar with such locutions as "final degree of utility," "marginal utility" and "subjective utility." The modern economist has ceased to think of utility apart from the psychological facts of want and satisfaction. Yet none would deny that Mr. Wallace's employment of the word is an old and common one. Moreover, it would not be inconsistent with one definition given by Jevons — namely, "a *circumstance of things* arising out of their relation to man's requirements" [1] — if for the phrase "man's requirements" we might substitute the words "the requirements of a living organism." Such a substitution, however, would distort Jevons's conception and that of the whole school of writers to which he belongs. For Jevons elsewhere says: "Whatever can produce pleasure or prevent pain may possess utility." It is by the latter definition that we should interpret his phrase "man's requirements." In the last analysis, according to the modern economists, man's requirements are the diminution of pain and the increase of pleasure.

Thus, plainly we have two distinct notions of utility: one a concept of utility as objective, which plays a large part in the theory of biological evolution; the other a concept of utility as subjective, which is the foundation of modern economic theory. Utility objective is a circumstance of things arising out of their relations to organic life. It is a realized capacity to maintain life or to develop it, and the life so served may be conscious or unconscious, animal or only vegetal. Utility subjective is a pleasure-producing or a pain-preventing circumstance of things, itself varying with a state of mind — want or satiety — and consciously known or recognized as a cause of conscious satisfaction.

Not only in their employment of this somewhat technical word "utility" do the biologists and the economists reveal an interesting divergence of thought, but in their use of the words "economy" and "economic," as well, they present a significant

[1] Theory of Political Economy, ch. 3.

contrast. The economist, however deeply tinged his ideas may be with the color of modern biological knowledge, habitually thinks of economy as a practice or condition of human beings who have acquired arts, and who produce wealth — *i.e.*, exchangeable goods — by means of industry, well regulated by "business methods." Inherent in this conception — an almost essential part of it — is the notion that economy presumes a conscious being, endowed with capacity for pain and for pleasure, to plan and direct the economy and to profit by it. It is a notion that, after all, "economy" is only a refined form of the Greek "housekeeping," which the word originally meant.

From the Greek *οἶκος*, however, a far more general concept has been derived, and it is this which we straightway encounter when we turn from the pages of the economists to those of the biologists. Housekeeping is a system of activities and relationships that subserve the well-being of the housekeepers. Hence is derived the highly general notion of "economy" as any system of activities and relations which furthers the well-being of any class or species of living things. This is the biological meaning of the word, and we have therefore such phrases as the "economy of the animal kingdom," "the economy of the vegetal kingdom" and even — the most general concept of all — "the economy of nature." In these notions there is no implication of consciousness, of pleasure or of pain, and no presumption of intelligent planning or management on the part of the organisms that are benefited by their economy. The thought is altogether objective.

The immediate bearing of these reflections is upon a question that in recent years has been a good deal discussed and, as appears from many current economic writings, is not yet laid by as finally answered — the question, I mean, of the genetic antecedence of economic to social phenomena, or of social to economic, and the derivative question of the logical antecedence of a science of economics to a science of sociology, or of a science of sociology to a science of economics. In the light of a distinction which has just been drawn between the economist's

and the biologist's use of words, the position of economists who have contended for the priority of their science and the phenomena that it investigates is certainly a curious one. If it is, indeed, true that economic phenomena imply conscious intelligence, systematized industry and "business methods," even if no more complex than those of the οἶκος management of old Hellas, it cannot be maintained that economic phenomena are antecedent to those of social relations. If, on the other hand, economic phenomena are in reality fundamental and if economic processes are, as so many economists contend, the causes of social evolution, — a contention that has been worked up into something very like a cult, by the expounders of the economic or "materialistic" interpretation of history, — then it is incontestable that the economists must drop the economic conception of "economy" and adopt the biological. The ulterior purpose of my present paper is to show that, even if they should resort to the latter curious proceeding, they would be no better off than before.

The theses which I undertake to prove are: *First*, that in every stage of the evolution of life, from that of the lowest vegetal organisms to that of the highest human consciousness, economy is a function of two variables, namely, (1) the physical environment, (2) a plural number of living organisms or individuals; *second*, that the relation of these two variables to each other, which may at any time be affected by changes occurring in the physical environment, is at all times largely determined by the relations which the organisms or individuals in plural number sustain to one another; and, *third*, that economy, as thus determined, is developed through three great stages or ages, which I shall call, respectively, the Organic Economy, the Instinctive Economy and the Rational Economy, and that for unnumbered generations the rational economy is an Animistic and Ceremonial Economy before it becomes a Scientific and Business Economy. An analytical description of these economic ages will constitute the sufficient proof of my three propositions.

We begin, then, with the organic economy. This phrase must

be interpreted as an abbreviation of a longer expression — to wit, the economy of living organisms devoid of mentality, or of organisms in so far as they are complexes of physiological, but not also of psychological, phenomena. It is the economy of the vegetal kingdom, and of the animal kingdom in so far as animal life is physical and not mental. From the standpoint of evolution it is the lowest stage in the economy of living things, and from the standpoint of time it is the primal economic age — the economy that must have prevailed before the dawn of that elemental sensibility in living things which was to develop into conscious intelligence.

So understood, organic economy is a system of activities and relations that subserve the well-being of merely vegetal organisms and of all organisms in so far as they are physical and not psychical existences. In what, then, does that system of activities and relations consist? The answer has been given in elaborate detail in the writings of Darwin, Wallace, Asa Gray and later evolutionists. The activities include alimentation, the waste and repair of tissue and reproduction. Before Darwin's day an account of these processes would have been an extremely simple affair. Each would have been described in terms of observations made upon single and separate organisms, with but slight intimation that at every instant the physiological processes were vitally conditioned by the relations of coexistent organisms to one another. Darwin revolutionized the description by showing that alimentation was conditioned by a struggle for existence, and that metabolism and reproduction were conditioned by natural selection, a result of unequal alimentation and other consequences of the struggle for existence. In short, Darwin and the Darwinians first gave us an approximately complete account of organic economy, and the precise fact, previously ignored or misunderstood, which they brought into prominence and explained the significance of, was that of the varying relations of coexisting organisms to one another, whereby the whole scheme of organic economy was, from point to point and from generation to generation, determined.

Nor is it merely the relations of organisms of many species indiscriminately mingling in the same environment that thus determine the scheme of organic economy. Most important of all relations are those subsisting among individual organisms of the same species and, above all, of the same subspecies or variety and of the same generation. Between widely unlike species there may be mortal antagonism or there may be a relation of mutual protection. Precisely the same is true of the individuals constituting a variety, except that now the relation of mutual protection is more important than the relation of antagonism. In the struggle for existence among the hundreds of varieties of plants in any garden or field there is, indeed, a continual crowding to the wall of weakly individuals by competitors of their own kind; but in the long run it is whole kinds that are crowded out, while large tracts are overrun by the multiplying individuals of a single kind, whose very numbers and contiguity are their chief protection against the encroachments of any other species. Every individual stem of lichen, moss or fern is protected by surrounding masses of organisms like itself; every blade of grass or grain, by thousands of such blades; and every pine "in the murmuring wood," by the forest of pines about it. Thus in the realm of merely organic life we discover the economic importance of a grouping in one place of many individuals of the same kind. And this grouping and mutual protection of individuals of like kind, though hardly to be described as a social fact, is yet an incipient social phenomenon. It is a subsocial grouping, the beginning of phenomena that are to develop into social relationships.

How organic economy shades into instinctive economy we very imperfectly know. Manifestations of sensitiveness in nervous matter we can perceive. Reflex actions developing into cöordinated movements can be observed. But sensitiveness itself, and the process by which it develops into sensation, into pain and pleasure, and ultimately into intelligence, are facts which arise out of and disappear into the unknown. But, whatever the process, when the phenomenon of response to stimulus has appeared in the organic world, a new development

of economy has begun. Generations, numbered probably by millions, must live and die before this phase of economy can become a conscious calculation and creation of utilities, but the well-being of the sensitive organism is now furthered by means vastly more complex than those which suffice for non-sensitive organic life. Movement from place to place by the organism itself, and the ability of the organism to move things from place to place, have become factors of immeasurable importance in the economic scheme. Pain and pleasure, too, we have every reason to believe, have appeared as subjective factors.

But thus far all adaptations of external things to the uses of the organism are instinctive; they are not yet rational. The exquisitely delicate work of the wasps and bees in making their nests, the beautifully complicated labors of the nest-building fishes, the marvelously skillful weaving and sewing and clay modelling of birds, the coöperative hunting and fishing and the socially organized defense against enemies seen among both birds and the gregarious mammalia — all these are merely instinctive operations or, if some small measure of reason enters into them, it is so small that the comparative psychologists are as yet doubtful of the fact.

Now, instinctive action is not in any sense of the word a phenomenon of the conscious adaptation of means to ends, as educated human beings understand this term. Instinct does adapt means to ends. The means are seen or otherwise felt; the ends undoubtedly bring with them pain or pleasure. Nevertheless, there is no more reason to suppose that conscious planning is a connecting link between means and ends than there is to suppose that the musician consciously plans every muscular coördination when in an abstracted mood he lets his fingers wander carelessly up and down the keyboard, creating harmonies of which he is hardly half aware. The entire coördination is a product of nervous and muscular habits formed under the influence of natural selection, through endless repetitions of the same acts. Even where, to superficial observation, there is every appearance of conscious adaptation, there

is no certainty that reason has intervened. Thus, for example, there are well-authenticated observations of the apparently deliberate use of a pebble by the *ammophila* to tamp and smooth fine earth about her nest.[1] Yet this conduct can probably be explained as instinctive.

In short, in the whole marvelous economy of the animal kingdom, from the *protozoa* to man, there is no certain trace of what the modern subjective economists could by any stretch of meaning call economic. There are adaptations of means to ends which originate in nervous reactions. The welfare of the organism which is subserved includes a subjective element. Pain and pleasure have appeared, and the adaptation of means to ends tends on the whole to allay pain and to increase pleasure; but as yet subjective utility — that is, a circumstance of things varying with subjective want or satiety, and consciously recognized as the cause of an agreeable state of mind — does not exist. Only the elements out of which it may slowly be developed have come into being.

Yet, to an extent far greater than in the sub-instinctive or pre-instinctive organic world, economy has become a function of the relations of individuals to one another, at every moment determining the relations of each individual to the purely material environment. Readers of Darwin, Wallace, Brehm, Kropotkin, Romanes and Lloyd Morgan do not need to be told that every food-getting and nest-building instinct, as well as every protective instinct in the animal kingdom, has been influenced quite as much by rivalry and combat as by the mere quantity of food, the nature of the inhabited earth or water, or the meteorological conditions which have entered as factors into the struggle for existence. In a yet greater degree, perhaps, have all these instincts been developed through imitation. Not infrequently imitation occurs among creatures most widely unlike. But, from its very nature, imitation is easy and successful in proportion as the imitator resembles the imitated. It follows that, to an enormous degree, instinct is a product of

[1] Peckham, "Instincts and Habits of the Solitary Wasps," *Wisconsin Geological and Natural History Survey*, Scientific Series, No. 1, pp. 22 and 23.

the closely related activities of creatures of the same kind, living together in a common habitat. Under these circumstances instincts have become socialized, and social instincts and emotions — including not only a vague sympathy, but in many instances an unmistakable affection — have arisen.[1] Even more than a subsocial aggregation determines well-being in the vegetal kingdom do instinctive association and social instinct determine the well-being of an animal species. In fact, ages before man appeared upon the earth, and ages before any creature existed that could have entertained the concept of subjective utility, economy had been developed to the stage in which coöperation and the division of labor count as factors of the first importance.

Since the evolutionist doctrine became a part of the common stock of ideas among cultivated people, economists have avowedly or tacitly assumed that the economy of modern industrial humanity was through various stages developed out of the instinctive economy of lower animal species. The "historical economists," in particular, have prided themselves upon their distinctly modern evolutionary conceptions. They have even described for us in elaborate detail the early stages of this evolution. It seems, so our historical economists say, that in the beginning was a "hunting stage"; then, in the course of ages, appeared the "pastoral stage." At length, after some more ages, dawned the "agricultural stage," and finally, in the fullness of time, came to fruition the "industrial stage" — the end and consummation of nature's eons of travail. With all due respect to the historical economists, I must protest that this economic philosophy of history is inadequate. It fails to grasp the actual facts which have marked the transition from instinctive to rational conduct in the human species. Not that there is anything untruthful about it as far as it goes. It is true that man hunted and fished before he learned how to milk, and that he probably had made some

[1] See on this phase of evolution Sutherland's Origin and Growth of the Moral Instinct and my review of that work, in the POLITICAL SCIENCE QUARTERLY, XIV, 177 (March, 1899).

progress in the dairy business before he learned how to yoke the oxen to the plough, although not before his squaws had learned how to tickle the earth with a stick. But it is also true that historical economists too often have a keener sense of chronology than of value. This "historical" scheme of economic evolution, then, is as accurate as the multiplication table; but it is one from which everything of real significance in economic evolution is as carefully omitted as *lèse majesté* from a chancellor's address.

The real question for which we should, if possible, find the answer is this: How did the human mind, slowly developing from instinct to reason, successively grasp the environment, successively interpret the relations of cause and effect and successively attempt to control the processes of nature in the interest of human welfare? Of course the primitive man caught fish and killed game; but did he fish like the Rev. Dr. Henry Van Dyke or hunt like the Hon. Theodore Roosevelt? And, what is more important, did he think of man's relation to the fish as Mr. Van Dyke thinks of it, or of his relation to very fierce beasts as our redoubtable Vice-President thinks of it?

It so happens that we have an overwhelming mass of evidence that primitive man would have thought it absurd to the last degree to go "a-fishing" with no better equipment than a beautiful rod, a nice little basket, a choice assortment of flies, a dainty luncheon and a vest-pocket edition of Keats. He would confidently have lotted on meeting an ignominious death, if he had gone forth to battle with the mountain lion with no better implements than the "latest improved" rifle, a bowie knife, a brace or two of pistols and buckskin leggings. The primitive man would have made from a bit of wood as neat a carving of the fish as his artistic instinct and humble tools could fashion, and would have put it in the water to swim in the direction which the fish usually followed. Then he would fervently and believingly have prayed to the fish to come; and this would have caused them to arrive at once. When he went hunting, he would first have made an ingenious trap; then he would have clothed and decorated himself in the best possible

imitation of the ferocious beast to be caught. Mere buckskin leggings might, indeed, have had some virtue at this stage of the procedure, but on the whole the primitive man would have thought them insufficient. Having completed these preparations, he would nonchalantly have strolled off into the woods in the direction of the trap and, quite carefully failing to see it, have very carelessly fallen into it, crying out in alarm that he was caught. Then, regaining his composure, he would have extricated himself as best he could, and readjusted the trap, knowing with certainty that the first ferocious beast that unwittingly strolled that way would be caught and done for.

These fables teach that the economy of the primitive man is as unlike the economy of his modern child, even when the latter reverts to the "hunting stage," as the savage theory of creation is unlike Darwinism. The primitive man's economy is no longer merely instinctive. He has ideas, he consciously contemplates his situation, he perceives relations which the lower animals have never discriminated, and his imagination runs riot in explanatory activity. And yet it never once occurs to him that his well-being is to any great extent within his own control, least of all that by systematic labor, directed by "business methods," he could become master of his economic situation. He is beginning to be rational, but he is not yet scientific. He views the world as a marvelous aggregation of animate objects, possessed of mysterious and often amazing powers for good and for evil. His well-being, as he believes, depends almost entirely upon his relation to those powers.

Instinct is relatively unerring in its action. The instinctive bee does not experiment with new geometric designs in constructing its cell. The instinctive bird goes about its nest-building business with a directness that might well be the envy of the human architect or contractor. There is no hesitation at any point in the instinctive economy of the animal kingdom. But reason is never unerring, never unhesitating. While instinct is correlative of the adaptation of an organism to those facts of the environment which remain constant, reason is correlative of that variation from old adaptations which an organism

must make to a changing environment or to the varying features of an environment in which some features remain constant. Reason, therefore, always means choice, and choice means some hesitation, some deliberation. Accordingly, the rational economy of man, unlike the instinctive economy of the animal, is marked by perplexity, by doubt, by experimentation and the slow, painful process of discovery. Inevitably, therefore, rational economy develops by stages which can be understood only if we can trace the progress of man's intellectual development. The "obvious" stages of "hunting," "pasturage" and so on will doubtless still go chiming down the ages in the Mother Goose philosophy of history but, as was said, they have no scientific significance. Are there, then, any indications, psychological and historical, whereby we may discriminate the ages through which a rational economy has been evolving?

From the psychological point of view, it seems accurate to say that constructive reason begins with guessing, or conjecture. All authorities agree that the transition from instinct to reason is seen in the warfare of "contrary impulses" which is so admirably described by James[1] and in that "hesitation" which is emphasized by Marshall.[2] Circumstances having arisen, through some change in the environment — usually not the material, but the social environment — in which instinct no longer can guide the organism aright, the mind begins to "wobble." It casts about more or less wildly for an answer to its questionings, and that casting about or conjecturing we call in our everyday speech merely guesswork.

Now guessing, as we all know, is the prevailing intellectual method of childhood, when reason is struggling with instinct for supremacy. It is the confirmed intellectual method of ignorant and undeveloped minds, in which reason is arrested at the childhood stage. Guesswork, however, is extraordinarily fallible as a guide to action. Sometimes it pierces the situation by a happy intuition, and sometimes it hits disastrously wide

[1] Psychology, II, 389–393.

[2] Instinct and Reason, pp. 417 *et seq.*

of the mark. Stumbling along a miry road on a dark night, the backwoodsman comes to a swollen stream and "guesses" that he can ford it. Plunging in, he finds it not half so deep or so violent as it looked, and he emerges on the other side complacently glad that he isn't the kind of fellow to be too easily scared. This reflection, however, is not the only idea in his mind at the moment. He is at the same time blessing his "good luck." Had it turned out that the stream was more formidable than he had guessed, and had he reached the farther bank barely alive and mourning the loss of his horse and outfit, he would have been found not only chagrined over his bad guessing, but also energetically damning his bad luck. A strong belief in luck, in fine, always coexists with the guesswork stage of intellectual activity. The guess hits or goes astray, and luck does the rest.

Thus far the psychology of the primitive human mind as it survives among ourselves. How is it with the primitive human mind as it survives among savages? All observers unite in testifying that the lowest savage reasoning is purely conjectural, and that one of the strongest beliefs of the lowest savage is his ineradicable faith in luck. The element of industry enters into the economic life of the savage as largely, possibly, as it does into the economy of the lower animals. The savage looks for food and puts forth effort to appropriate it. He sometimes constructs rude weapons and equally rude tools. He sometimes builds a rude shelter and sometimes contrives a bit of clothing. Yet in all this economic activity he is disturbed and made doubtful of his procedure as the instinctive animal never is. If the savage gets the idea into his head that luck is against a particular plan of procedure in his hunting or fishing, or is against a certain pattern of construction, his economic activity in these directions is instantly inhibited. He then loafs about until guesswork and luck suggest some new procedure. That this is the true explanation of the seemingly paradoxical fact that the primitive man, a little higher in the scale of existence than the highest quadrumana, is often less industrious and much less systematic in his economic activities

than many lower species are, cannot, I think, be questioned by any investigator familiar with both the psychology and the sociology of savage groups. The fact is not, however, as paradoxical as it seems. A luck economy is the first stage of a rational economy, and the very lowest sort of rational economy is a degree advanced beyond the highest instinctive economy. It is precisely because the savage does hesitate and trust to luck that he breaks down a lot of habits which would have been fatal to progress and, more or less by accident, adopts many new ways in which the potentiality of progress lies.

One test of any hypothesis concerning the early stages of an evolutionary process is found in survivals of each early stage in a later time. What was chronologically first to a great extent survives as the structurally or functionally low, just as the rocks old in time are in position deep down in the stratification.

Do we, then, find in civilization significant survivals of the luck economy? Turn to the pages of Hesiod and read over again the *Works and Days*, but especially the calendar of lucky and unlucky days at the end:

Mind well, too, and teach thy servants fittingly the days appointed of Jove. . . . The eleventh and twelfth, both in truth are good, the one for shearing sheep, the other for reaping laughing corn: but the twelfth is far better than the eleventh, for on it, look you, the high hovering spider spins his threads in the long summer day, when also the wise ant harvests his heap. On this day, too, a woman should set up her loom, and put forth her work. But on the thirteenth of the beginning of the month avoid commencing your sowing; though to set plants it is best. The sixteenth, however, is very unprofitable to plants. . . . Nor, in truth, is the first sixth day suitable for the birth of girls, but a favorable day for cutting kids and flocks of sheep, and for enclosing a fold of sheep. . . . On the eighth of the month emasculate the boar and loud bellowing bull, and on the twelfth the toil-enduring mules. . . . On the seventeenth watch well, and cast upon the well-rounded thrashing floor Demeter's holy gift; and let the wood cutter cut timbers for chamber furniture, and many blocks for naval purposes, which are fit for ships. . . . Now, few, again, know that the twenty-ninth of the month is

best both for broaching a cask, and placing a yoke on the neck of oxen and mules and fleet-footed steeds. . . . On the fourth day open your cask.[1]

Hesiod and the graceless agricultural brother whom he admonished lived long ago, to be sure, yet the practical American of the twentieth century need not plume himself on being much less a devotee of luck than was the imaginative Greek. Give the average American his choice between making a certain competence by diligence and good judgment or possibly making a fortune by operations in stocks, and he will take the gamble every time. Endless protestations by "the moral element" have only demonstrated that the love of gambling is one of the strongest of human passions. Guesswork and a belief in luck, in fact, run through all our business undertakings and bring to naught innumerable promising enterprises. I have often wished that some ingenious statistician would compute the annual average loss of property and of life in the United States directly attributable to the belief in luck. The railroad corporation takes its chances with wornout rails and decrepit bridges and pays hundreds of thousands of dollars in damages. The owners of buildings take their chances with "jerry" construction and see their property disappear in collapse or in smoke. The shipowner takes his chances with rotten hulks on the sea, and the banker with rotten securities on the street. One and all, they are devotees of luck. Even the religious beliefs of this most secular and most sceptical of peoples are permeated through and through with the primitive man's philosophy of luck. I distinctly remember in my boyhood hearing old ladies tell how such and such an individual, who carried about with him through life a name that was enough to make him go out and "finish in style" like Judas, was named by his pious progenitor by opening the Word of God at random and inflicting upon the helpless babe the first outlandish cognomen that attracted the eye.

The second stage in the development of reason, following close upon the guessing or conjectural, is that of reasoning

[1] The translation is that of the Bohn Library Edition.

from analogy. The mind begins to form conclusions by assuming that essential resemblance, or identity, goes with superficial likeness. Imagination is a lively coadjutor of reason at this stage, and the reasoning is as likely to follow the psychological laws of the blending of mental images as to obey any law of logic. Yet, even so, it enormously multiplies the number of possible ways in which man can experiment in his economic life. Imagination, however riotous, corresponds on the whole a little better than conjecture to objective possibility. In other words, experiments suggested by imagination and analogy are likely to yield a larger percentage of successes than experiments suggested by mere guesswork.

Now it is quite in keeping with the nature of things psychological that we discover, at a certain stage in the evolution of savage culture, a wonderful system of thought and practice which corresponds accurately to the analogy-loving stage in the development of reason. That system is known as magic. Until very recently magic has been regarded by ethnologists as all of a piece with ghost worship and primitive supernaturalism in general. Certainly it is not at first differentiated from animism, and it is well charged with animism to the last. Nevertheless, a careful analysis has led the most cautious and painstaking of later investigators to conclude that magic, instead of being the beginning of supernaturalism, is, in reality, the beginning of naturalism, in a word of a natural philosophy. Ethnologists "in the field," like Spencer and Gillen in Central Australia, Miss Kingsley in West Africa and W. W. Skeat in the Malay Peninsula, quite unconscious of each other's researches, have almost simultaneously arrived at this conclusion, and the whole matter is admirably summed up by that tireless and delightful scholar, Mr. J. G. Frazer, in the new edition of *The Golden Bough*. The fundamental principles of magic, according to Mr. Frazer, can be reduced to two, namely:

> First, that like produces like, or that an effect resembles its cause; and second, that things which have once been in contact but have ceased to be so, continue to act on each other as if the contact still existed. From the first of these principles the savage infers

that he can produce any desired effect by merely imitating it; from the second he concludes that he can influence at pleasure and at any distance any person of whom, or any thing of which, he possesses a particle.

That this philosophy is the natural product of human reasoning in the pictorial stage of its development is too plain for argument. Naïvely accepted as obviously true by the savage mind, it gives plan and direction to the entire scheme of economy. Examples of its application to fishing and hunting have already been given. Others could be added almost without limit. When an Aleut has wounded but not killed a whale he promptly separates himself from his people for three days and, abstaining from food and drink, snorts in imitation of a dying cetacean. This helps the whale to die.[1] The Galelareese of Halmahera — an island west of New Guinea — when going out shooting are careful to put a bullet in the mouth before dropping it into the gun. By thus imitating the eating of game, success in hunting is rendered certain.[2] A Blackfoot Indian who has set a trap for eagles will not eat rosebuds, because, if he did, when an eagle alighted near the trap the rosebuds in the hunter's stomach would make the bird itch and, instead of swallowing the bait, the eagle would merely sit and scratch itself.[3] When a Malay has baited a trap for crocodiles he is careful in eating his curry to begin by swallowing three lumps of rice successively. This helps the bait to slide easily down the crocodile's throat.[4] Spencer and Gillen have described in minute detail the elaborate ceremonies performed by the Central Australian natives for the purpose of multiplying the witchetty grubs which are an important means of subsistence. Men of the witchetty grub totem build a long narrow structure of branches in imitation of the chrysalis case of the

[1] I. Petroff, Report on the Population, Industries, and Resources of Alaska, p. 154.

[2] M. J. van Baarda, "Fabelen, verhalen en overleveringen der Galelareezen," in *Bijdragen tot de Taal-Landen Volkenkunde van Nederlandsch Indie*, XLV (1895), 502; quoted by Frazer, Golden Bough (second edition), I, 25.

[3] G. B. Grinnell, Blackfoot Lodge Tales, pp. 237, 238.

[4] W. W. Skeat, Malay Magic, p. 300.

grub. In this bower the men seat themselves and sing of the witchetty in its various stages of development. At length they shuffle out in a squatting posture, singing of the insect emerging from the chrysalis. This insures an abundance of grubs.[1]

Survivals of imitative magic are not quite so easy to identify in later civilizations as are survivals of the economy of luck, yet they are by no means infrequent. Many of the festivals connected with agriculture among the Greeks and the Romans, and similar festivals surviving until a comparatively recent period in parts of Central Europe, are clearly of this nature. In nearly all of these festivals a pantomimic element in the songs and dances and in the processions around or back and forth across the fields is associated with a sacrificial element of later origin. The pantomimic element may without much hesitation be regarded as a survival of the age of magic. The myth of the burning brands tied to foxes' tails, which we find in the story of Samson, and again in the Fasti of Ovid,[2] is believed by Mannhardt, Frazer and others to have originated in the very widely spread notion that the fox's tail bears a close resemblance to the ear of wheat. Professor Gubernatis[3] quotes a modern Italian folk tale in which a fox is frightened away by chickens, each of which carries in its beak an ear of millet. The fox is told that these ears are all foxes' tails, and he runs. It is highly probable that, in a long-forgotten past, the foxes were let loose to run over the fields, that the magic influence of their tails might insure an abundant harvest; and it is likely, too, that the burning brands were imitative and symbolic of the light and heat that would also be necessary to ripen vegetation. Such a use of the brand is, indeed, so obviously in keeping with the whole spirit of the imitative magic that one is surprised to find Fowler, commenting upon Ovid, saying: "If the foxes were corn spirits, one does not quite see why they should have brands fastened to their tails."[4] The Roman festival of the

[1] Spencer and Gillen, The Native Tribes of Central Australia, p. 176.
[2] IV, 681 *et seq.* [3] Zoölogical Mythology, II, 138.
[4] Roman Festivals, p. 78.

Parilia consisted very largely of imitative magic. The sheepfold was decked with green boughs and a great wreath was hung on the gate:

> Frondibus et fixis decorentur ovilia ramis,
> Et tegat ornatas longa corona fores.[1]

This sort of decoration found throughout Europe to the present day at May Day, Midsummer, Harvest and Christmas, is admittedly a survival of primitive magical rites to influence vegetation. The purification of the Roman sheep by sprinkling was, in like manner, imitative and symbolic. The real purification was accomplished by burning sulphur.

That very many survivals of a magic economy could be found in our own country I have not the slightest doubt. A few practices will occur to almost every one. When John Uri Lloyd in *Stringtown on the Pike* makes Cupid turn his coat inside out in order to change his luck, he describes a practice that is by no means confined to negroes. A year ago I witnessed the magical treatment of lockjaw, on a Massachusetts farm not distant from my own. A nail driven into the hoof of a horse by a careless blacksmith was, when pulled out by the veterinary surgeon, carefully greased by the owner of the horse, wrapped in flannel and kept in a warm place until after the equine obsequies.[2] In the rural neighborhoods American farmers in large numbers still believe that hogs should not be killed in the old of the moon, because a waning moon will make the pork shrink in the pot.

A higher stage of reasoning than the analogical is the deductive and speculative, or dogmatic. The mind has grasped the difference between mere analogy and necessary implication. It has acquired logic. Granted certain premises, the deductive thinker can with a high degree of certainty arrive at necessary conclusions. He begins to reconstruct the entire scheme of knowledge. But, enamoured of logical method, he fixes attention almost exclusively upon the successive steps

[1] Ovid, Fasti, IV, 737, 738.

[2] For a like example, see Cooper, The Spy, ch. xi.

of the reasoning process, often to the utter neglect of the premises upon which the whole superstructure rests. The premises, therefore, of the most pretentious system may be a lot of childish beliefs that have acquired sacredness through mere age.

It is when this stage of reasoning is reached that barbarian man, reconstructing his philosophy of nature, as represented both in magic and in the equally ancient belief in spirits or ghosts, begins to people the unseen realms of the sky, of the sea and of the underworld of earth with personalities of supernatural power; he begins to create the immortal gods. To his anthropomorphic deities he now ascribes the function of meting out good and evil. His whole welfare he conceives is determined by their attitude toward him as an individual or, to a yet greater extent, by their attitude toward the community to which he belongs. Their friendliness must at any cost be secured. They are supposed to have the needs and to be subject to the passions of men. They must therefore be propitiated; they must be well fed and lavishly praised. If the propitiator has reason to know that his deities have arrived at "the agricultural stage," he gives them corn and wine. If, however, like Cain, he reasons from false premises, he comes to grief, and the blessing falls upon the Abel who has offered meat. Thus the entire scheme of economy is now transformed. It becomes a sacrificial economy. Communities and individuals prosper in their herding and their agriculture if they are faithful and, above all, generous in their sacrifices. Everything that happens is viewed as a special providence. Droughts, famines and pestilences are punishments, to be averted, not by forestry or quarantine, but by holocausts and prayer. Glorious crops and riotous prosperity are rewards bestowed upon exemplary piety.

To recount the survivals of the sacrificial economy in civilization would be to catalogue a half of the doings of Babylonians and Egyptians, of Greeks and Romans, and of later Western peoples. More significant is it to observe specific survivals that preserve the combination of the magic economy

with the sacrificial, as well as specific survivals of a later time which show the continuing influence of the sacrificial tradition in communities that have become materialistic and businesslike. Of the former there is probably no better specimen than the festival of the Fordicidia (April 15), one of the oldest sacrificial ceremonies in the Roman religion. It consisted in the slaughter of pregnant cows, one in the Capitol and one in each of the thirty curiæ.

> The cows were offered [says Fowler], as all authorities agree, to Tellus, who, as we shall see, may be an indigitation of the same earth power represented by Ceres, Bona Dea, Dea Dia, and other female deities. The unborn calves were torn by attendants of the virgo Vestalis Maxima from the womb of the mother and burnt, and their ashes were kept by the vestals for use at the Parilia a few days later. This was the first ceremony in the year in which the vestals took an active part, and it was the first of a series of acts, all of which are connected with the fruits of the earth, their growth, ripening and harvesting. The object of burning the unborn calves seems to have been to procure the fertility of the corn now growing in the womb of mother earth, to whom the sacrifice was offered.[1]

Here we have a perfect connecting link between the magic economy and the sacrificial. The burning of anything of value would have been sacrifice. The selection of a product and emblem of fertility, that the corn might abundantly fructify, — that was imitative magic, pure and simple.

One almost hesitates to speak of very modern examples of the sacrificial economy, even in a strictly scientific spirit, lest one should unwittingly wound the religious feelings of people whom he respects. Disclaiming all such intention, however, let me call attention to the almost unparalleled intensity of the belief in Providence which prevailed in New England down to the present generation. Among the earliest acts of the Plymouth colony was the institution of days of fasting and of thanksgiving, which were no such mere holidays as we have become used to in later times. Let no one

[1] Roman Festivals, p. 71.

imagine that these religious institutions of the Pilgrims had any direct bearing upon the problem of weal or woe in a future life. They were religious institutions of the strictly economic order. They were supposed and expected to influence well-being in this present evil world, on the shores of Plymouth Bay, A.D. 1621. No one can read the writings of R. C. Winthrop, J. Winthrop, Cotton Mather, Bradford and Samuel Sewall, without seeing that in the belief of those founders of our Puritan statecraft in New England the people of the colonies were especially chosen of God to play a leading rôle in the outworking of the divine plan of salvation, and that to such end their economy would be guided and furthered by the Almighty to just the extent necessary to accomplish the divine purpose. Practically every event that happened — every change in prosperity, every famine or abounding harvest — was explained as essentially miraculous, and as following upon the piety or the wickedness of the colonists, rather than upon their shrewdness, their energy or their thrift. The title of Edward Johnson's famous treatise, *The Wonder-Working Providence of Zion's Saviour in New England*, perfectly expresses the habitual attitude of the early New England mind.

Is that attitude entirely a phenomenon of the past? Surely no one will venture so to say. There are Western boys still studying political economy in college classes who can remember the days of fasting and prayer that were observed in the Middle West when locusts were moving in devastating march across the great grain belt, and they will not need to be reminded that the best people of that section to this day believe and say that the locusts disappeared immediately after and in consequence of those acts of worship.

Let me now recall my main contention that in any age the system of economy then prevailing is a function not merely of the relation of an individual to a purely physical environment, but rather of the relation subsisting between a physical environment and a plural number of coexisting and resembling individuals, subsocial or social in their relations to one another.

Organic economy I showed was thus to a great extent a function of subsocial relations — that is to say, of certain groupings of resembling organisms in one given place or region. Instinctive economy, in like manner, I showed was a function of both subsocial and social relations, existing among the lower animals. In a still higher degree, it is certain, the luck economy, the magic economy and the sacrificial economy, constituting the first three stages of the rational economy of man, are functionally determined by the social relations of men to one another in their slowly developing communities. These three economies may be brought under the inclusive term, Ceremonial Economy. In one and all the specific conduct which is expected to bring economic well-being is the performance of some ceremonial act. Labor *to some extent* of course is necessary. Coöperation and the division of labor *to some extent* may be found, but these purely practical and materialistic factors in and of themselves would be absolutely unavailing, in the belief of primitive or of barbarian man. Far more thought does he bestow upon the exact performance of some rite than upon the exact performance of his labor. Far more time and wealth does he bestow upon sacrifice than upon the accumulation of a fund of capital.

But ceremony, it is quite unnecessary to argue, is purely a social phenomenon. It is developed by imitation and handed on by tradition. Equally unnecessary is it to argue that the successive developments of reason, from the conjectural stage, which goes with and produces the luck economy, through the imaginative and analogy-loving stage, which produces the magic economy, into the deductive stage, which produces the sacrificial economy, are also a product of social relations and could nowise be accounted for by the direct relationship of the individual to his physical environment. Reasoning presupposes conceptual thinking, and conceptual thinking presupposes language.[1]

[1] A clear perception of this truth has led Payne, in his admirable History of the New World called America, to break in upon his clear exposition of the economic history of the civilizations of Mexico and Peru, and to devote a large part of his second volume to an account of the nature and evolution of the American languages.

Ceremonial economy is, then, from first to last, a function of the social relation.

Now at length I come to a consideration of those stages of economic evolution to which, and to which alone, the modern science of economics can be said to have an explanatory relation. It is not until social phenomena have become complicated in a high degree that the phenomena which admit of explanation in terms of modern economic concepts come into existence. The phenomena of organic economy and of instinctive economy can be and must be explained in terms of the useful potentialities of the environment, complicated by subsocial grouping or by social relations. The phenomena of the first three stages of rational economy must be explained in terms of the same facts, further complicated by that developing reason which will presently evolve the notion of subjective utility. Only when that notion comes to birth, and with it the ideas of marginal value and marginal cost, do there exist phenomena admitting of explanation in terms of modern economic science. Those ideas appear at the dawn of civilization or possibly just before. They certainly do not exist at a much earlier time. The luck economy is roughly coincident with that stage of evolution which I have elsewhere called anthropogenic association.[1] Magic economy is roughly coincident with the metronymic first half of ethnogenic association. Sacrificial economy is roughly coincident with the patronymic second half of ethnogenic association. Only with demogenic or civic association does ceremonial economy in all its forms slowly begin to give place to the business economy of the modern man, the subject-matter of the studies of the political economist.

Antecedent to this change is, necessarily, the evolution of the fourth stage of reasoning. In the third stage of reasoning, as we have seen, man has become logical. No longer satisfied with mere analogy, much less with conjecture, he reasons deductively from accepted premises to "necessary" conclusions. The fatal weakness of his procedure lies in the usual indifference of his mind to the validity of his premises. He has not

[1] Principles of Sociology.

yet learned to subject them to a searching criticism, and he does not learn to do so until, little by little, his mind becomes in a measure inductive. Now induction, strange as it may seem, is in a certain sense a return to analogy. Systematic induction begins with observing the resemblances of things that are alike and the differences of things that are unlike, and, on the basis of resemblances and differences, sorting things into classes. Strictly speaking, the great difference between the analogical reasoner and the inductive reasoner is the difference between a thorough, exact worker and a superficial, inexact worker. Deductive reasoning, in like manner, is a development of the conjectural or guesswork state of mind. It is the careful drawing out — by exact logical steps — of whatever may be contained in a premise taken for granted — that is, in nine cases out of ten, conjectured. A few pages back I said that magic was the beginning of a natural philosophy. I may now add that belief in luck was just as truly the beginning of supernaturalism. The doctrine of magic was the product of minds reasoning by analogy and capable, in course of time, of developing into minds inductive and scientific. Belief in luck, in like manner, was the product of minds reasoning conjecturally, and sure in time to develop into speculative philosophers and dogmatists.

Only when the human mind had become to some extent systematically inductive and critically observant of premises could the real relations of cause and effect in nature be discovered; and only then could man understand that his prosperity must depend chiefly upon his systematic industry, his invention, his skillful organization of association — in short, upon the development of his business habits, rather than of his ceremonial punctiliousness. Then, and only then, could begin the later economic ages, namely: the age of Slave Economy, or of the systematic exploitation of servile labor; the age of Trade Economy, or of the exploitation of situation; and the age of Capitalistic Economy, or of the exploitation of the powers of nature.

Such a change in man's habits of reasoning probably could not have occurred without some great social disturbance to

produce it. The social disturbance that actually did produce it was the migration and conquest which always preceded the establishment of a true civilization. Tired of a nomadic life, or goaded by the diminishing returns of herding, eked out by a barbarian agriculture in an unfertile habitat, federated tribes abandoned the home of their fathers and, falling upon a weaker people, gradually wrested a relatively fertile land from its earlier possessors and presently learned how to compel the conquered to do agricultural and mechanical task work. In this loss of old associations and in this contact with a new environment, but above all in this contact with another people, who cherished unfamiliar traditions, long-accepted premises were for the first time questioned. New categories of things and of thoughts were inductively formed. From such a shock dogmatism could never wholly recover. Aroused by such a stimulus, the scientific spirit could but undertake the mighty task of the reorganization of human knowledge. Civilization was born ; and, equipped with a business economy, man at length, with some show of success, set about obeying the injunction to subdue the earth and to multiply after his kind.

To sum up the conclusions of this article, they are these :

First. If any economist maintains that a certain distribution of useful things or qualities in the physical environment is antecedent to society, he is on safe ground so far. If he chooses to call the study of such distribution economic geography, as I believe Professor Keasbey does, then he will be quite right also in maintaining that the study of economic geography is logically antecedent to the study of sociology.

Second. But if any economist maintains that utility (conceived as objective or as subjective) is identical with useful things or with the useful qualities of an environment, he is wrong. Utility is a circumstance of things in their relation to organic well-being or to a state of mind ; and in either case it is a product of some activity of the organism, with reference to the useful things or qualities of the environment. In themselves the qualities of the environment are *potential* utilities only.

Third. A system of activities on the part of the organism whereby potential utilities are converted into utility is itself an *economy*.

Fourth. If at this point any economist claims that economy is antecedent to society and creates society, he may be right, but he probably is wrong. He is right only if he means that a merely organic economy of purely physical organisms is antecedent to society; he is wrong if he means that any system of economy found among animals is antecedent to animal society, or if he means that any system of economy found among men is antecedent to human society; and even in respect of merely physical life he is wrong if he means that organic economy is antecedent to a certain subsocial grouping; all *because:*

Fifth. Organic economy is a system of activities which is *caused* by the relations of physical organisms to a physical environment, but which is *formed* and *directed* by the relations of the organisms to one another — that is, by subsocial grouping; instinctive economy, in like manner, is a system of activities caused by the relations of animals to their physical environment, but formed and directed by their social relations; and rational economy is a system of activities caused by the relations of men to their physical environment, but formed and directed by their social relations.

Sixth. Economy in general is a system of activities — not originally *caused*, but always *formed* and *directed* by social relations or by subsocial grouping, whereby a community converts potential utility into actual utility.

Seventh. Society, therefore, can never be explained in terms of economic principles. Much less can it be explained in terms of utility, which is the product and not the cause of social relations.

Eighth. Society can be explained only in terms of mental evolution, which in its turn must be explained in terms of organic evolution, which finally must be explained in terms of *potential* utility, as found in the qualities of the environment.

Ninth. In other words, sociology presupposes psychology, which presupposes biology, which presupposes economic

geography. Sociology does not presuppose economics, and there can be no scientific economics which is not based on sociology.

Tenth. Genesis, or the first appearance of any given kind or grade of life, is separated, in causal sequence and in time, from the *development* of that kind or grade of life, by the intervention of (*a*) a social correlation and (*b*) an economy. Social correlation follows genesis; economy follows social correlation; development follows economy; and *genesis* of a *higher* grade of life follows *development* of a *lower.* Development is a function of economy; economy is a function of society; society is a direct, immediate function of genesis *in pluribus.*

Eleventh. The genetic order of social and economic evolution briefly presented in a scheme, then, is as follows:

1. Distribution of useful things: Potential Utility.
2. Genesis of physical life.
3. *Subsocial grouping.*

4. ORGANIC ECONOMY.

5. Objective Utility: The welfare of a physical organism: development of physical life.
6. Genesis of animal life.
7. *Zoögenic Association.*

8. INSTINCTIVE ECONOMY.

9. Objective Utility: The welfare of an animal organism: development of animal life.
10. Genesis of human life.
11. *Anthropogenic Association.*

12. RATIONAL ECONOMY.

A. *CEREMONIAL ECONOMY.*

(1) LUCK ECONOMY.

13. Objective Utility: Welfare of the primitive man or of the lowest savage: development of the human mind.
14. Genesis of tribal consciousness, first stage.
15. *Ethnogenic Association: Metronymic.*

(2) MAGIC ECONOMY.

16. Objective Utility: Welfare of the higher savage: development of the tribal consciousness, first stage.

17. Genesis of the tribal consciousness, second stage.

18. *Ethnogenic Association: Patronymic.*

(3) SACRIFICIAL ECONOMY.

19. Objective Utility: Welfare of the barbarian: development of the tribal consciousness, second stage.

20. Genesis of the civic consciousness, first stage.

21. *Civic Association: civilization, first stage.*

B. *BUSINESS ECONOMY.*

(1) SLAVE LABOR ECONOMY.

22. Subjective Utility: Conscious comparison and calculation of utilities and costs: development of civic consciousness, first stage.

23. Genesis of civic consciousness, second stage.

24. *Civic Association: civilization, second stage: Progress.*

(2) TRADE ECONOMY.

25. Subjective Utility: development of civic consciousness, second stage.

26. Genesis of civic consciousness, third stage.

27. *Civic Association: civilization, third stage: Democracy.*

(3) CAPITALISTIC ECONOMY.

28. Subjective Utility: development of civic consciousness, third stage.

FRANKLIN H. GIDDINGS.