economic development. There is much less evidence that the lower class as a whole—the Chinese, South American, or Indian workers that have replaced European lumpenproletariat—have benefited from it. On the other hand, as the authors recognize, the level of economic inequality has direct implications for the health and nutritional status of the whole population. Inequality is now rising in most of the Western World which may somehow stop the virtuous technophysio process and, in the long run, even reverse it. The key question is thus to what extent is the changing body a human experience or one that is peculiar to the West during last three centuries. To answer this question, more is needed than simply computations of calories input and output.

Thus, the one major criticism of this fine piece of work is that the authors may be guilty of excessive optimism that is more or less implicit throughout the book and comes to a head in the final chapter. But that should not prevent readers from taking advantage of what is probably the most comprehensive survey of health and human development currently available. This is a clear and well-written book that not only complements but elegantly summarizes previous work by these four authors—all of them being leading authorities in the field.

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In the past decade or so, there has been an explosion of work on understanding human cooperation involving many different disciplines, including economics, history, anthropology, psychology, neurobiology, and evolutionary biology. Samuel Bowles and Herbert Gintis' A Cooperative Species: Human Reciprocity and Its Evolution is an important contribution to this research area. The authors bring together a great deal of empirical information, particularly from experimental economics and anthropology, with the results of formal modeling in an exploration of the conditions under which human cooperation can emerge and be sustained. The upshot is a very rich and original synthesis.

According to Bowles and Gintis, empirical evidence supports the conclusion that human beings are strong reciprocators. Strong reciprocators “sacrifice their own payoffs in order to cooperate with others, to reward the cooperation of others, and to punish free-riding, even when they cannot expect to gain from acting this way” (p. 20). Preferences for strong reciprocity thus should be distinguished from purely self-interested preferences, but also from unconditionally altruistic preferences, since, unlike unconditional altruists, strong reciprocators condition their behavior on the behavior of others with whom they interact, and will not behave kindly toward those who do not behave kindly toward them. Bowles and Gintis argue that strong reciprocity cannot be explained just as a consequence of the adoption of self-interested strategies in repeated games, as when self-interested players in a repeated prisoners dilemma both adopt strategies of “tit for tat.” Although a purely self-interested player will defect in a one-shot prisoners dilemma, and will fail to contribute in typical public goods games in which non-contribution is the dominant strategy for self-interested players, experimental evidence shows that many subjects instead behave cooperatively
in such settings. (This is true both of subjects from the contemporary United States and from many other societies around the world, although levels and forms of cooperativeness vary considerably.) Similarly, many subjects will “punish” non-contributors in public goods games even at a cost to themselves (that is, they will pay to reduce the holdings of non-contributors) and will do this even in circumstances in which imposing punishment will not increase their earnings. These and many other experimental results, as well as information about patterns of resource sharing in both contemporary and past hunter-gatherer societies support the conclusion that as an empirical matter, human beings have preferences for strong reciprocity that are distinct from purely self-interested preferences.

One reason why this should be of interest to economic historians is that the presence or absence of preferences for strong reciprocity can affect the performance of economic institutions and the outcomes of competition between different groups and societies. Consider “gift exchange” models of employer/employee relations according to which employers cannot fully monitor employee effort, but employees provide more than minimal effort in response to employer’s willingness to provide wages that are higher than those necessary to elicit minimal effort, with the result that both groups earn more than if only minimal effort was provided. Although not uncontroversial, such models are supported by a range of empirical evidence. They rest on the assumption that both employers and employees possess strongly reciprocal preferences. Indeed, whether reciprocal preferences are operative is important in virtually any case in which purely self-interested constraints are not sufficient to ensure compliance with contracts.

In one of the most striking portions of their book, Bowles and Gintis show that the existence of preferences for strong reciprocity as well as other sorts of “social” (i.e., non-self-interested) preferences is closely bound up with issues about the role of group competition in human history. A standard puzzle about non-self-interested preferences is how they could have evolved, given that those with such preferences would apparently be at a selective disadvantage in comparison with those with purely self-interested preferences. So-called kin selection which selects for preferences favoring those who are closely genetically related provides a partial answer to this question, but as Bowles and Gintis emphasize, human social preferences extend far beyond close kin. An alternative explanation, going back at least to Darwin, and systematically developed by Bowles and Gintis, invokes competition between groups. In one form of this approach, it is supposed that violent competition between groups (bands, tribes, and nations) was very common in human history. Groups with many members with reciprocal or social preferences would be at an advantage in this competition in comparison with groups consisting mostly of members with purely self-interested preferences. Thus a “group-level” selection process would be operative favoring more cooperative groups. However, it is also likely that within any group, including groups consisting of many reciprocators, those with purely self-interested preferences will do better in comparison with those with more cooperative preferences. So at the individual or “within-group” level, there is selection for selfish behavior. Whether social or reciprocal preferences can evolve depends on the relative strength of these two effects. Bowles and Gintis provide plausible formal models and (refreshingly) empirical evidence for parameter values in those models showing that when competition among groups is sufficiently fierce (a common occurrence,

\footnote{Akerlof, “Labor Contracts.”}
according to the authors) and when measures like punishment and other forms of social control are available that suppress within group selfishness, social and strongly reciprocal preferences can evolve. The somewhat disturbing message of this work is that social preferences that we admire may be bound up with darker impulses associated with intergroup violence and xenophobia.

Although there is much of value in this book, there are, inevitably, topics that one would have liked to have seen treated in greater detail. As remarked above, the empirical evidence for cooperation on which the authors focus comes mainly from experimental economics and anthropological/archeological studies. It would be very interesting to see the authors’s ideas applied to episodes of economic and institutional change in which there are more adequately documented historical records. A related point concerns the considerable variation in the extent to which different groups are motivated by reciprocal preferences and the various ways in which such preferences are institutionally mediated and change over time. Although the authors are certainly aware of this variation, and have interesting things to say about the factors that influence it, this is an obvious topic for more detailed exploration.

I very strongly recommend this book to anyone with an interest in understanding human cooperation or in understanding the limitations of models of behavior that treat human beings as purely self-interested.

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REFERENCES