tence of those who aroused his wrath. Sometimes he pursued them with sharp polemics, and he unnecessarily regarded as "enemies" those who happened to disagree with him. This weakness, which Krebs portrays frankly, was associated with Warburg's passion for scientific truth as he saw it. He could be extremely rude in getting rid of visitors when he did not want them to bother him, but he could be most charming, and a delightful host and conversationalist, with those whom he found congenial. He avoided lecture tours, public interviews, committee work, and other distractions in order to devote himself fully to his research.

Dedicated to science, Warburg never married, and he apparently had scarcely any close friends except for Jacob Heiss, who came in 1919 to manage his household and later his laboratory operations, for the rest of Warburg's life—a life that he apparently found fully satisfying. Warburg's long-term co-workers were highly skilled technicians and worked closely under his direction, although some eventually evolved into independent investigators. Many scientists came from Germany and from abroad to work with him. At least three Nobel Prize winners—Otto Meyerhof, Krebs, and Hugo Theorell—were profoundly influenced in their subsequent careers by the training they received, and the problems they worked on, in Warburg's laboratory.

In the Nazi era Warburg continued to pursue his research in Berlin, thanks to a decree by Hermann Goering that he was only one-quarter Jewish and could therefore be allowed to continue undisturbed. Some of Warburg's colleagues and admirers, especially in England and the United States, were personally alienated from him by his willingness to accept this form of coexistence with the Nazis rather than leave Germany and seek to continue his work elsewhere (a point Krebs does not mention). To Warburg, getting on with the work was the supreme objective, as long as it involved no compromise with truth as he saw it.

Krebs, in this relatively short book, portrays with skill and insight a great investigator who was also an interesting and unusual person. One could wish for more such short biographies of great scientists, but few authors could match Krebs in his combination of deep knowledge of his subject with literary skill and a keen interest in the history of science.

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Issues of Production and Consumption

Distortions of Agricultural Incentives. Papers from a workshop, 1977. THEODORE W. SCHULTZ, Ed. Indiana University Press, Bloomington, 1978. viii, 344 pp., illus. $12.95.

Agriculture, like the steel or petrochemical industries, is a means to an end. Its primary role is the provision of food and fiber for society. In the process it provides most of humanity with its livelihood; whether richly or poorly depends on many factors, some of which are treated in this book.

The two major public policy issues concerning agriculture in both the developed and the developing worlds are the adequacy with which agriculture supplies the world's food and the adequacy with which that supply is allocated among the world's 4-billion-plus population. There are extremely important linkages between the two issues, and these linkages are intimately tied up with incentives and disincentives for agricultural production. This book edited by Theodore W. Schultz, without doubt the dean of economists concerned about agricultural development, is aimed entirely at the first issue and virtually ignores the second.

Despite chapters on biological and environmental constraints on agricultural production (by Charles Pereira and Howard A. Steppler) and on institutional factors slowing the growth of food production (by Vernon W. Ruttan), the book is narrow. Neoclassical economists are quite good at understanding production effects of government policies and quite bad at understanding income distribution and consumption effects. The inevitable tendency is for economists to urge policy-makers to set optimal policies by production criteria and to "correct" any distributional problems through taxes or other transfer mechanisms that the politicians must manage on their own. But an analysis of the widespread disincentives to agricultural production that ignores their direct and indirect impact on consumption misses the real complexities of modern and traditional food economies.

The six chapters by Schultz, W. David Hopper, Gilbert T. Brown, Randolph Barker, Martin E. Abel, and G. Edward Schuh present the essence of the message: politicians in developing countries find it expedient in the short run to erect barriers to the "efficient" development of their agricultural sector, and these barriers become significant disincentives to agricultural production. Several of these chapters are devoted to enumerating the various forms disincentives can take and their likely impact on output. Although one author's underincentives are sometimes another author's overincentives, the tenor of the book remains that most governments are penalizing their agricultural sectors.

Schultz attempts to answer the obvious question why this is so:

> There are many "reasons" why governments undervalue the economic contributions of agriculture. These reasons are strung together by various ideologies, most of which have been "imported" from high income countries.
>
> Even though the rural population in low-income countries is much the larger, the political market strongly favors the urban population at the direct expense of rural people. Politically, urban consumers and industry demand cheap food. . . .
>
> Furthermore, the undervaluation of agriculture by governments is still being rationalized by an array of arguments that include the colonial heritage, the backwardness of agriculture, and its presumed low estate in contributing to economic growth. . . .
>
> Currently, various arguments are advanced on behalf of welfare considerations with the implication that economic efficiency in agricultural production is at many points inconsistent with the welfare of the population.

Schultz argues that:

> The easy analytic road is to accommodate the purposes of government or, for that matter, to embrace any of the various internal special political interest groups. . . . Clearly, when economics is used to serve special interest organizations, it sells economic analysis short. Although governments obviously perform necessary functions, to make economics subservient to them regardless of what they do to the economy is to take the heart out of the utility of economics. When economists merely accommodate governments, they serve only to rationalize what is being done and lose their potential as educators. When this occurs, and it can be readily observed, economists become "yes-men" in the halls of political economy.

But the knife cuts both ways. One might wonder who is rationalizing the status quo more, Hopper, who argues in his chapter that tractors and large farms are necessary if Indian agriculture is to be more productive, or the economists who argue that hunger and malnutrition in India seem remarkably little related to India's food production and that fewer tractors and smaller farms would help rather than hurt the access of the hungry to food. It is at least as much of a "sell-out" to argue that problems of poverty should be dealt with through income transfer mechanisms that few Third World countries can operate effectively as it is to defend cheap food because

urban unions can send a million workers into the streets if bread prices rise.

Roger W. Fox, in his comment on Brown's paper on pricing policies, provides a simple calculation that sets out the issue neatly. If Pakistan were to adopt the incentive food price policies recommended by Brown and others in this volume, its internal price would rise (to world market levels), thus inducing higher production and lower consumption. Because both blades of the scissors would be cutting, the effects would be so substantial that Pakistan would change from a net importer to a net exporter of wheat. From a production standpoint it would have solved its food problem. But what about consumption? Fox calculates that it would drop 5 to 10 percent in total and 20 to 25 percent among the lower-income groups. He concludes that this "would not be politically acceptable, and that the Pakistan government would quickly introduce measures to keep consumption near previous levels." In other words, there are equity consequences that are not adequately dealt with in the price policies recommended by Brown.

Schuh's paper provides the major attempt in the book to come to grips with such economic-efficiency-equity tradeoffs. Schuh's main point is that "many policies designed to deal with 'basic needs' and/or equality have strong resource-allocation effects both within the agricultural sector and between the agricultural sector and the rest of the economy, often with serious adverse effects on output." He illustrates his argument with two primary examples: price and food policies in India and trade and exchange-rate policies in Brazil. In both situations the governments have undervalued agricultural output, causing much poverty to be concentrated in rural areas. For both situations Schuh urges more concern for investment in human capital and for raising labor productivity than for land productivity. Such a recommendation does not come to grips with the problem. Schuh's failure to see the income distribution consequences of resource allocation recommendations is simply the mirror image of politicians' failure to recognize the resource allocation implications of their equity policies.

How then can poverty be alleviated? Schuh in particular, and the other authors in general, are saying that higher food prices in the short run are needed to provide lower food prices in the long run and that sharply improved incentives for agricultural production will ultimately raise productivity and incomes sufficiently for poverty to be eliminated. The difficulty is that, as Harry Hopkins said during the New Deal, "people don't eat in the long run; they eat every day or they starve."

It is correct, and important, to point out that there are social costs attached to a cheap food policy, and this book makes these costs abundantly clear. It is a different matter to presume that no benefits accrue to cheap food policies beyond those ephemeral returns the economist labels "political." Cheap food keeps the poor from starving in many countries. The challenge to societies is to find ways to deal with both issues simultaneously, and for this challenge the book provides little guidance.

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Eyewitness Reliability

The Psychology of Person Identification. BRIAN R. CLIFFORD and RAY BULL. Routledge and Kegan Paul, Boston, 1978. xiv, 254 pp. $20.

Honest but mistaken identification by prosecution witnesses was the prime cause of two recent miscarriages of justice in England. In view of the serious questions raised by these two cases, a committee was appointed to look into the law and procedures relating to identification. The committee, chaired by Lord Devlin, held its first meeting in May 1974, and in April 1976 it reported with a number of recommendations.

The failure of the Devlin committee to make adequate use of psychological evidence in arriving at its recommendations constituted one of the chief stimuli for the writing of *The Psychology of Person Identification*. In the book, Clifford and Bull cover an impressive array of psychological insights that can be brought to bear on the conduct of lineups (or "identification parades," as they are called in England) and the practice of the courts in matters concerning eyewitness testimony.

The more meaty chapters are introduced with some historical and recent ideas from cognitive and social psychology. The authors take a stand from the start on human cognitive functioning. Instead of decoupling the memory system from other systems, they support the now widely held view that perception, memory, language, and thought are intimately connected. All must be considered in a full explanation of eyewitness recognition, or of any intellectual task for that matter. And just as perception and memory are inseparable from each other, so they both are inseparable from a person's social existence. Since person identification is typically carried out in a social context, it cannot be understood without considering such factors as stereotyping, prejudice, and social values.

In discussing recent research in traditional cognitive psychology that might bear on person identification, the authors begin by gnawing on some bones that other psychologists have elsewhere thoroughly chewed over, including such questions as: (i) What causes forgetting—decay, interference, retrieval failure, motivations? No one theory, they argue, can explain all the facts of eyewitness testimony. (ii) Do verbal and visual memories involve the same or different processes? It doesn't seem necessary, they think, to argue for separate processing systems. (iii) Are faces processed differently from other visual information? Their answer is: "The evidence is at best not strong and highly equivocal" (p. 49).

Now the socially relevant material begins. The possibility is examined that witnesses may have stereotypic expectancies and notions about the kinds of physical appearance criminals have. People hold stereotypes about the "typical" criminal's attractiveness, body build, age, and manner of dress. Yet it has never been shown that these stereotypes have any validity.

An important chapter thoroughly dissects the research on identification by means of the human face. A useful point here is that even though memory for faces as tested in the laboratory can be quite good, one should not assume that real-life person identification will be equally good. In fact, simulated-crime studies customarily yield very much lower estimates of a person's ability to recognize a previously seen face. The unexpectedness of the latter situation is undoubtedly a partial cause of the poorer performance.

Identification by other means, such as the voice, has been studied less often than identification by face. This parallels the finding that police and judicial procedures for recognition of persons by the way they speak are not as firmly laid down as those for facial recognition. Interest in this subject is on the rise, however, spurred particularly by those wishing to develop spectrographic voice identification techniques.

The whole interrogation environment,