force. Similar considerations explain the emphasis on severance pay in the Newspaper Guild contracts.

Brief mention may be made of two areas not covered by Professor Kennedy's analytical section. He discusses the restrictions on automation funds imposed by Taft-Hartley, but he does not discuss the restrictions imposed by the Internal Revenue Service. Benefits under the ILWU-PMA fund were delayed an entire year by the necessity of getting IRS approval so that employer contributions could be deducted as business expense, and, when approval finally came, it was in such form as seriously to complicate administration.

Secondly, Kennedy does not discuss the implications of automation funds for wage theory. It is customary to relate wage increases to rising productivity in the economy as a whole, rather than to productivity gains in specific industries. To tie wage increases to productivity change industry by industry would result in a chaotic wage structure. It is for this reason that in our industry we agreed with the employers that benefits should be separate from wages and from existing fringes. We contend that by reason of the plan the men are now getting total wage and fringe benefits in excess of what they could have obtained absent the plan. In return for agreeing to measures which increase productivity and efficiency, the West Coast longshore employers are having to pay competitive wages and fringes, plus an overage.

Professor Kennedy's book will be found to be a handy source of reliable information on the plans covered. It is written concisely and simply and is adequately indexed.

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Automation. Edited by Charles C. Killingsworth. *Annals of the American Academy of Political and Social Science.* Philadelphia: The Academy, March 1962. pp. 1–126. (Vol. 340). $1.50 to members; $2. to non-members.

In his foreword Professor Killingsworth states: "This symposium is intended to be an introduction to the subject for the layman rather than a compendium for the expert." Since there are very few, if any, experts on all aspects of automation and its impact, some of the fourteen articles should be of interest even to the expert, however.

The introductory character of the volume is particularly evident in the opening papers by J. F. Reintjes on the "Intellectual Foundations" of automation and Arthur Samuel on "Artificial Intelligence." Since these papers summarize large areas of knowledge in very few pages, it would have been useful if each had provided at least a short bibliography of selected references. This comment also applies to most of the other articles.

For this reviewer the most informative section is one on "the Current State of the Art" which contains pieces on "Detroit Automation" by Anderson Ashburn, "Process Control" by Thomas Stout, and "Information Technology" by John Diebold. As a novice on the technical aspects of automation, I found the descriptions and cataloguing of different types and applications of automation helpful.

Of particular value, also, is the evidence that production automation (as opposed to data processing in offices) has not been moving forward in the gigantic steps that some have feared. Ashburn comments that the "peak period" of introducing production automation ended around 1958 and that it is possible that "the decade of the 1950's will be seen as the one great rush to automation in the industries that mass produce for consumers." The data presented on the pace at which automated machines and processes have been adopted tend to support the conclusion that automation, as such, cannot be charged with the high levels of unemployment in recent years. None of the authors presents contrary evidence.

The relationship between unemployment and employment, on the one hand,

and automation, or technological change broadly defined, on the other, is inadequately treated in the next group of articles on "the Impacts of Automation." Walter Buckingham, writing on the "Great Employment Controversy," fails to explain what this controversy is, and this lack of analysis weakens the effect of his recommendations.

The other articles in this section, although suffering from the handicap of being "introductory," are more analytical. Seymour Wolfbein, using Census-BLS data on occupations and BLS studies of automation in specific industries, briefly discusses changing occupational and skill requirements. Admitting that "we are only at the very beginnings of an understanding" of the skill requirements of automation, he argues that the evidence so far indicates we need an increasing number of workers who are "as maneuverable, flexible, mobile, and responsive to change as possible."

W. A. Faunce, E. Hardin, and E. H. Jacobson discuss the impact of automation on the individual worker in an article that seems to be more solidly based upon research than most of the others. The reported research shows a great diversity in the effects on the workers involved but suggests that changes in jobs themselves are not as important as the numbers entering given occupations, thus significantly altering the occupational distribution. Similarly, if work is becoming less important relative to leisure, this will be more the result of shorter hours and the non-work temptations of an affluent society than the result of a less satisfying work environment.

Killingsworth discusses both recent and probable effects of automation on industrial relations systems. His article, although perceptive and revealing much personal knowledge of developments in collective bargaining and arbitration, shows the dearth of current research in this area. One suspects that the lack of research reflects, in part, a general failure of labor and management to develop constructive solutions to many of the problems arising from technological change. The emphasis here and in similar symposia on the experiments at Armour, Kaiser, and a few others may mean there is little else to discuss. Killingsworth is probably right in suggesting that the full impact on industrial relations is yet to come.

Thomas Whisler and George Shultz in discussing the effects on the "management process" attempt to foresee what management will be like in the future on the basis of developments in so called information technology. They see a greater centralization of control and decision making and suggest the possibility that displacement problems and job-content changes may be proportionately greater in management work forces than among non-supervisory blue-collar and white-collar workers.

The final group of articles on "Private and Public Policies" for Automation is limited to specific points of view. Malcolm Denise of Ford argues that the Ford Motor Company has not created unemployment by automating. Walter Reuther presents UAW proposals for collective bargaining and government action. Arthur Goldberg presents the views of the Kennedy administration as of the end of 1961. Finally, David Morse points out in a very brief piece that automation and its problems are not limited to the United States.

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GOVERNMENT AND LABOR

Staff Relations in the Civil Service: The Canadian Experience. By Saul J. Frankel. Montreal: McGill University Press, 1962. ix, 331 pp. $7.50.

A Model for Negotiation and Arbitration Between the Canadian Government and its Civil Servants. By Saul J. Frankel. Montreal: McGill University Press, 1962. 76 pp. $2.

In Canada, as in the United States, employer-employee relations in the public service are moving toward the patterns prevailing in private employment. Professor Frankel, whose book is a dis-