to express in terms of rules, language, and
learning. Since these attempts have not
been and are not likely to be successful, Dr.
Taube concludes that the mechanization of
language translation and learning and (by
implication) of abstracting and indexing is
not possible. The author writes interest-
ingly, often amusingly, but the tone of his
argument raises some doubt as to the au-
thor's detachment, an essential characteris-
tic of a critic. This Dr. Taube himself seems
to sense when he states in his introduction
that at times his argument becomes quite
devious and difficult to follow. "After all,"
he tells us, "if the fox twists and turns, so
must the hound."

Briefly, here are some of his arguments:
For machine translation of languages, lan-
guage A has to be formally (mechanically)
translatable into language B. This presup-
poses that languages A and B can be trans-
lated into formal elements A and B and
that there is a one-to-one relationship be-
tween elements A and B. Dr. Taube claims
that neither supposition is true. Chess play-
ing by computer is cited as the classic ex-
ample of machine learning. Dr. Taube dis-
tinguishes between learning the rules
of the game and learning to play the game.
The latter learning process cannot be mechan-
ized. The rules of chess can be formalized,
but at a cost. Dr. Taube estimates that a
forty-move game requires $10^{120}$ instructions.
Learning to play chess, and by analogy
learning, is not a formal process and can,
therefore, not be mechanized.

This book can be read on at least two
levels. On a rather unsophisticated level, it
reassures librarians that their jobs will not
be taken over by computers. Dr. Taube does
more than this. He questions the validity
of the work of leading researchers in the
fields under discussion. About ten years ago,
Dr. Taube introduced the Uniterm system
of coordinate indexing and along with it
levelled some serious charges against tradi-
tional indexes. This is not the time nor the
place to discuss these charges. Suffice it to
say that the questions are still under debate
and that Dr. Taube's words and deeds have
stimulated work in this field to the benefit
of the profession. In writing this book Dr.
Taube has once again put on his armor, but
this time against an army of opponents who
are ahead of the times (in fact, way out ac-
cording to Dr. Taube) instead of behind the
times. There is no doubt that this book
will stimulate thought and action on these
important problems.—G. Jahoda, Esso Re-
search and Engineering Co.

**Photocopying**

*Photocopying from Bound Volumes.* By
William R. Hawken. Chicago: ALA,
4) $5.00.

For the past several decades, libraries have
acknowledged a responsibility not only for
selecting, acquiring, and organizing books
but also for transmitting information by
methods other than circulating library ma-
terials. Since the 1930's, microphotography
has been the primary method of intermed-
iate transmission. Although full-size copying
was first developed in 1839, it was not until
1950 that techniques were perfected (xer-
ography, transfer reversal) which gave li-
braries a tool for direct, full-size copying
from bound volumes. Since that time the
market has been flooded with a bewildering
variety of equipment, all of which seem to
promise the ideal solution to the informa-
tion transmission problem.

Recognizing the impossibility of the aver-
age librarian's evaluating the myriad claims
of competing types of equipment (one ma-
chine has been marketed by six companies
under six different trade names!) the Library
Technology Project, under a grant from the
Council on Library Resources, commissioned
William Hawken to analyze and report on
all varieties of book copying devices, exclud-
ing microfilm.

Over the period of a year, Mr. Hawken
tested twenty different copying machines.
The report thoroughly covers the generic
types of copying methods so that the reader
is familiarized with the basic differences be-
tween contact reflex (diffusion-transfer-re-
versal, thermographic, gelatin-dye-transfer)
and optical copying methods. Each type has
certain problems as well as advantages,
which are well summarized, and the author
evaluates the permanence of the copy pro-
duced by each method.

Of particular value is the detailed analysis
of each machine tested. The author has
given machine specifications, price, exposure
area, possible damage to the book being copied, and a critique of the advantages and disadvantages of each piece of equipment tested. Detailed unit-cost studies are given for supplies and operator's time, with the latter reported in tabular form according to hourly rates ranging from 90 cents to $2.40 per hour. A step-by-step operational analysis gives the reader a basis for comparing the relative complexity of operation between various types of machines.

Difficulty of operation is reflected in the unit costs, and quality of results is stated. The author admits that the waste factor is one of the important elements in evaluating the performance of a given type of copier but, as this is dependent on the skill and experience of the operator, the variable is too uncertain to be included in the unit cost figures. There is, however, a table showing unit costs assuming 10 per cent, 25 per cent, 50 per cent, and 100 per cent remakes.

As a result of the tests, a variety of techniques were discovered which avoid damage to the bound volume while making the copying operation easier. These techniques will also result in a better finished product.

With their fourth publication, the Library Technology Project has performed a real service for the profession. Mr. Hawken has done an excellent job of listing copying machines available, their purchase price, capabilities and limitations, permanence of copy and the unit costs of operation.

This publication will be valuable to use not only in selecting equipment to be purchased but also in providing an excellent operator's handbook for libraries which have already acquired a copying machine.

A complementary publication surveying the literature of book copying methods is the author's Production of Full-Size Copies, which appeared in 1960 as Volume 5, Part 3 of The State of the Library Art, published by the Rutgers University Graduate School of Library Service.

Particular attention should be called to the quality of design, layout, typography and illustration which distinguishes this report from most similar publications being issued today.—James E. Skipper, University of Connecticut Libraries.

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