```
        PUSH OBSTACK;
        INFO(CO) := STORE(I); comment make the object the current object;
        START(CO) := *;
   end
   else INFO(CO) := h(INFO(CO), STORE(I)); comment 'add' object to current object;
   PS := OBJECT;
  end;
  if NEWMARKER = S0
  then
  begin comment start of secondary segment of object on preceding scan;
   if CS = OBJECT and PS = COMPLETE
   then
   begin comment current object is joined to preceding object;
    POP PSSTACK;
    K := START(CO);
    INFO(CO - 1) := h(INFO(CO), INFO(CO-1)); comment join the two objects;
    POP OBSTACK;
    if START(CO) = * then START(CO) := K else MARKER(K) := S0;
   end;
   PS := OBJECT;
  end;
  if NEWMARKER = F0 then PS := INCOMPLETE;
  if NEWMARKER = F0
  then
  begin comment end of object on preceding scan;
   POP PSSTACK ONTO PS;
   if CS = NONOBJECT and PS = COMPLETE
   then
   begin comment if no more of current object to come then finish it;
    if START(CO) = *
    then output(INFO(CO)); comment object completed;
    else
     begin comment object completed on this scan;
      MARKER(END(CO)) := F;
      STORE(START(CO)) := INFO(CO);
     end;
    POP OBSTACK;
    POP PSSTACK ONTO PS;
   end;
  end;
end;
```


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Book review

Digital Circuits for Binary Arithmetic, by R. M. M. Oberman, 1979; ~340 pages. (*Macmillan*, £19·00)

In the few decades of computer development, logic circuits have been constructed in a variety of forms, but many of the functions they implement have remained comparatively unchanged. One such area is the subject of this book. Many of the logical operations described are similar to those used in the earliest computers; subsequent development has been in the adoption of parallel processing and the greater use of hardware prompted by the falling cost of micro-electronic logic.

The book starts with a discussion of number codes and the generation of error detecting and error correcting codes. The next two chapters deal with addition, subtraction, overflow detection and bit-slice adders. Chapters 4 and 5 describe parallel multipliers in 4 × 4, 8 × 8 and 16 × 16 bit configurations, with carry lookahead, serial/parallel multipliers and various forms of divider. The circuits mentioned include those based entirely upon logic circuits and also those which embody read-only storage. Chapters 6 and 7 deal with binary coded decimal arithmetic and floating point arithmetic and Chapter 8 is devoted to accumulators and accumulative adding. Block diagrams of most of the schemes described are included based generally upon standard TTL packages. Although bit-slice ECL devices are also used to construct fast arithmetic units, they are not mentioned, nor is the design of cellular arithmetic units.

The book shows some evidence of a lengthy period of preparation as most of the references relate to material dated 1974 or earlier and only three to the years 1975 and 1976. The treatment of binary arithmetic circuits is clear and comprehensive, including topics such as arithmetic operations on data in reflected binary code which are rarely discussed in textbooks. Those circuits which are described by logical symbols are of wide application, and being device independent are unlikely to become obsolete. Those based upon TTL packages designed 6-7 years ago, however, may soon be outdated as other technologies start to replace them.

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