OPAL PSEUDOMORPHS FROM WHITE CLIFFS,
NEW SOUTH WALES.

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(Plates vi—vii., text fig. 4).

The occurrence of Opal at White Cliffs as pseudomorphic crystals,
called locally "fossil pineapples" has been known for some time; they
have been described by several observers, but no agreement
has yet been reached as to the species of the original mineral.
Recently several good specimens have reached Sydney and were
examined by Professor T. W. E. David and the authors, the
conclusions arrived at being set forth in the present paper.

Occurrence.—Before proceeding to the description of the speci­
mens themselves, their mode of occurrence, so far as known to us,
may be briefly alluded to. The White Cliffs Opal-field was first
geologically examined in detail by Mr. J. B. Jaquet, and it is chiefly
to his report8 that we must turn for our knowledge. The opal
is found in the Upper Cretaceous or "Desert Sandstone" Series,
which at White Cliffs rests on Palaeozoic slates of probably
Silurian age. Overlying the Palaeozoic strata are (d) coarse
grits and sandstones, succeeded by (c) a thickness of fine white, kaolin­
like material of highly siliceous composition and containing large
waterworn boulders of quartzite with Devonian fossils. Con­
cretionary nodules, and more rarely thin beds of gypsum occur in
these deposits. Above this are (b) conglomerates consisting of
small pebbles in a white siliceous matrix similar to c. It is in
the beds b and c that the opal occurs. It is often found replacing
various organic remains as Sauropterygian bones, Crinoid calcites,
stems, and separate ossicles, Belemnite guards and bivalve and
univalve shells, as well as coniferous wood9.

N. S. Wales, Pal. No. 11, 1902, p. 10; Rec. Austr. Mus., v., 4, 1904,
pp. 248, 251; loc. cit., v., 5, 1904, pp. 306-316.
Pittman—Min. Res. N. S. Wales, 1901, p. 405.