not only on the upland plots, but also on the alluvial soil of the
"flats" located on the flood plain of the Potomac River. The soil
there was filled in by dredging from the river and is composed largely
of material washed down by the Shenandoah and upper Potomac
Rivers. It has a reaction of about pH 6.5. As usual, the seed of the
barley from the upland in large part retained its awns, while that
from the "flats" threshed clean, the awns being almost completely
deciduous.

Since brittleness of awn had been shown previously to be associated
with ash content,¹ ash determinations were made on different leaves
and parts of culms and of spikes from mature plants of Wisconsin
Winter (C.I. 2159) and Esaw (C.I. 4690) barley grown in that
year in the two locations referred to above. The separate com-
ponents were ground and dried at 130° C for 1 hour. Ash was deter-
mined in duplicate and is expressed in percentage of oven-dry sample
as shown in Table I.

In general, the percentage of ash decreases from the spike down-
ward. All plant parts show higher ash concentrations when grown
on the "flats". This increase in the flat-grown barley is striking in the
awns and the leaves. The seeds with high starch content, and the
nodes, with much lignified tissue, present poorer opportunities for
mineral deposition, and their increase in ash is much smaller.

The capacity for depositing ash is quite different in the two
varieties, as is seen by the fact that, when grown on the upland,
Esaw has the higher ash content in all parts except the nodes, while
on the flats Wisconsin Winter has the greater amount everywhere
but in the seed and the first node.—MERRITT N. POPE,
Division of
Cereal Crops and Diseases, Bureau of Plant Industry, Soils, and
Agricultural Engineering, Agr., Res. Admin., U. S. Dept. of Agri-
culture, Plant Industry Station, Beltsville, Md.

¹HARLAN, H. V., and POPE, M. N. Ash content of awn, rachis, palea and kernel

ASH CONTENT OF BARLEY AWNS AND KERNELS AS INFLUENCED
BY LOCATION, SEASON, AND VARIETY¹

In connection with the barley classification program of
1942-44, when the varieties were grown and studied at a num-
ber of locations, several varieties were chosen for ash analysis of
their awns and kernels.

It was noted that the spikes of two winter varieties, Tennessee
Winter 52 and Kentucky 1, from the 1943 crop at Raleigh, N. C.,
threshed very poorly while spikes of the same varieties harvested
in 1944 at Aberdeen, Idaho, threshed quite easily. Ash determina-
tions were made of the awns and kernels of these varieties and also
of the others reported-here, according to the following method.

The samples were ground in a Wiley mill through a 1-mm sieve.
In the cases where only a very small quantity of material was avail-
able, the samples were ground as finely as possible with a mortar

¹Supported in part by a research grant from the Wisconsin Alumni Research
Foundation.