gray, or nearly white on fresh fractures. It is ordinarily finer grained than
the dark-gray variety, from which it differs mineralogically mainly in the
subordination of dark components and thus the rock lacks the pencils of
the darker variety and consequently does not show the distinct pitch struc-
ture. It may possess a slight linear structure, but as a rule this is so
obscure that the texture of the rock is practically granite.

In the Raritan quadrangle both phases of the Byram occur but not
generally in distinct areas. The first or darker-colored phase is much more
abundant than the lighter phase. It comprises the entire body of some of
the belts, as that immediately west of Cranberry Reservoir, and the greater
portion of all the others. The lighter phase is limited to narrow layers
interlaminated with the darker variety and with layers of the Loosie and
Pochuck gneisses.

Intermediate phases between the Byram and the other gneisses have
intermediate characteristics.

Mineral composition.—In mineral composition the Byram gneiss differs
from the Loosie gneiss in its larger proportion of potassic feldspars, par-
ticularly in the form of microperthite, and from the Pochuck gneiss in its
smaller proportion of hornblendic and pyroxenic minerals. It commonly
consists of quartz, microperthite, microcline, orthoclase, a little brown horn-
blende, magnetite, apatite, and sphene. Diopside and hypersthene occur
in some phases but are not common. Biotite is generally present, in some
specimens in large quantity. It is commonly associated with hornblende,
but in a few specimens it is the only silicate found.

The Byram gneiss grades into the Loosie gneiss by introduction of oligo-
clase and into the Pochuck by increase in oligoclase and biotite.

Wherry, in an unpublished manuscript, in discussing this formation
states as follows:

Character.—The rocks grouped under the name of Byram gneiss are
rather variable in makeup and aspect, but the most typical phase is a
course-grained, pinkish-gray, obscurely banded gneiss, which weathers into
bronzy-surfaced round or flattened boulders. Locally it may be fine-grained
or take on a greenish, yellowish, or gray color. Feldspar is the most
prominent constituent, but quartz is also usually present in large amount.
Hornblende is the commonest dark mineral, but augite, biotite and magne-
tite or ilmenite are not infrequent, and locally any one of them may become
abundant. Greenish sericitized phases occur in several places.

Quoting further from the same manuscript regarding the Loosie
gneiss, which was described82 in New Jersey as a quartz, oligoclase
rock with small amounts of biotite and (or) hornblende, "Only two
very small areas of the Loosie have been observed on the Allentown
quadrangle, on South Mountain one mile south and a like distance
east of Emmaus, respectively." More recently Wherry has stated
in a personal communication, his belief that these areas, too, might
better be described as phases of the Byram gneiss. From a survey of
the work of previous students of the pre-Cambrian gneisses of Penn-
sylvania and New Jersey, it will be noted that the numerous early
granitic formations have been grouped under a gradually decreasing
number of formational names.

In the present publication, all the granitic rocks characterized by
the presence of quartz and alkali feldspar have been mapped as Byram

82 Wolff, J. B., and Brooks, A. H., op. cit., p. 440.