REGION K LEGEND

Lithologic descriptions in the legend are based upon descriptions from previous reports and maps and upon field examinations conducted during reconnaissance mapping of previously unmapped areas.

SEDIMENTARY ROCKS

al Alluvium: Dark-brown, gray to white unconsolidated floodplain deposits of sand, silt, and clay; occasionally contains subrounded to well-rounded pebbles and cobbles.

cp Upland sediment: Buff to white, unconsolidated, Coastal Plain deposits of clay, sand, and gravel. Found on top of hills in the eastern portion of the area, mostly Franklin County.

T s Sanford formation: Red, brown, buff, dark gray, maroon to purple irregularly bedded Triassic sandstone, siltstone, mudstone, and shale; buff-colored arkosic sandstone is the predominant rock type; consists chiefly of angular fragments of feldspar and subrounded to angular quartz grains; mica constitutes up to five percent of the rock.

T sf Sanford formation fanglomerate: Poorly sorted, heterogeneous Triassic conglomerate with angular to subangular igneous and metamorphic rock fragments, boulder, cobbles, and pebbles and a reddish-brown matrix of sand, silt, and clay; little or no bedding present; contains lenses of mudstone and sandstone.

IGNEOUS INTRUSIVE ROCKS

Kd Cretaceous trachyte dikes; Dark greenish-gray to black, unmetamorphosed, porphyritic quartz trachyte dikes; composed primarily of sanidine, anorthoclase, quartz, and chlorite with minor plagioclase, apatite, clinopyroxene, calcite, pyrite, magnetite, and ilmenite; commonly amygdaloidal: width varies from three to thirty meters: Found in Northwestern Warren County.

T d Diabase: Dark greenish-gray to black, fine- to medium-grained, massive, unmetamorphosed dikes and sills; composed predominantly of plagioclase, clinopyroxene, and opaque minerals; width of dikes ranges from a few centimeters to 15 meters. Sills are restricted to areas of Triassic sediments. Solid lines

indicate where located in the field; dashed lines indicate where projected by aeromagnetic data; dots indicate isolated boulders or outcrops.

Pg Pegmatite: White to light gray to buff, coarse- to very coarse-grained dikes composed chiefly or microcline and quartz; contain small amounts of plagioclase, biotite, muscovite, garnet, tourmaline, and beryl. Some pegmatites contain individual feldspar crystals up to 30 centimeters in diameter and muscovite crystals up to 15 centimeters in diameter. Large pegmatites are found in extreme western Franklin, northeastern Franklin, and southeastern Warren counties.

icf Felsic intrusive complex: Light gray to pink, fine- to medium-grained, locally porphyritic, massive to well-foliated, metamorphosed intimate mixture of genetically related felsic intrusive rocks; includes granite, granodiorite, quartz diorite, and quartz monzonite; predominant minerals include quartz, plagioclase, potassium, feldspar, muscovite, and biotite. In some areas complex includes mineralogic gradations within a single body while in other areas it includes separate intrusions; complex in central and western Franklin and Warren counties contains numerous inclusions of mixed gneiss and schist; central Granville County complex contains small bodies of granodiorite and hornblende diorite as well as dikes of metabasalt and hornblende gabbro-diorite. An age date of 575 $\pm$ 20 M,Y. has been obtained by Glover and others (1971) for the complex in Person County.

fi Felsic intrusive rocks: Light gray to pink, fine- to coarse-grained, massive to foliated, metamorphosed and unmetamorphosed relatively homogeneous individual bodies of felsic intrusive rocks; includes granite, quartz monzonite, and granodiorite; Predominant minerals include quartz, plagioclase, potassium feldspar, muscovite, and biotite. The Wilton Pluton in southeastern Granville County has a Rb-Sr age date of 285 $\pm$ 10 M.Y. (Fullagar and Butler, 1979). The Castalia Pluton in eastern Franklin County yields a similar Rb-Sr age date of 313 $\pm$ 13 M.Y. (Fullagar and Butler, 1979).

Pgr Porphyritic granite: Light-gray, medium- to coarse-grained, porphyritic, well-foliated, unmetamorphosed biotite granite. Primary minerals include potassium feldspar, plagioclase, quartz, biotite, hornblende and minor amounts of muscovite. Potassium feldspar megacrysts, some greater than five centimeters in length, are aligned in a north-south direction parallel to the western contact of the intrusive. Located in

northeastern Warren County. Age is thought to be in the range of 265 - 325 M.Y. (Farrar, 1979).

di Diorite: Medium- to dark-gray, fine- to medium-grained, massive to well-foliated, metamorphosed intrusive rock composed predominantly of sodic plagioclase, hornblende, biotite or pyroxene, $\pm$ minor amounts of quartz and orthoclase. Found mostly in central Granville and western Person counties.

di+gb
gb Mafic intrusive rocks: Dark greenish-gray to black, fine- to coarse-grained, massive to foliated, post- and pre-metamorphic, mafic intrusions of gabbro and intimate mixtures of diorite and gabbro; unaltered plutons composed primarily of calcic plagioclase, pyroxene and/or hornblende; quartz, magnetite, and other opaque minerals may be present in small quantities; altered plutons may contain chlorite, tremolite-actinolite, epidote, calcite, and sphene. Pyroxene is commonly replaced by hornblende. Found mostly in Granville and Person counties.

um Ultramafic rocks: Olive-green to dark-green, greenish-gray to black, fine- to coarse-grained, massive to well-foliated, metamorphosed lens-shaped bodies of pyroxenite, serpentnite, and soapstone. Some are individual bodies of these rock types but most are mixed. Pyroxenite is composed primarily or pyroxene and/or amphibole, plagioclase, and opaque minerals. Serpentinite and soapstone contain talc, chlorite, antigorite, actinolite epidote, magnetite, and occasionally chromite and corundum. Found predominantly in western Person, southeastern Granville, and western Franklin counties.

METASEDIMENTARY AND METAVOLCANIC ROCKS

fv Felsic Volcanic rocks: Buff to red, light- to medium-gray to greenish-gray, fine- to medium-grained, massive to well-foliated, metamorphosed rhyolite flows and felsic tuffs; includes felsic crystal tuffs as well as felsic crystal-lithic tuffs with well-developed foliation. Rhyolite flows are commonly flow banded, porphyritic, and/or spherulitic and lack well-developed foliation. Predominant minerals are feldspar, quartz, sericite, chlorite, and epidote; minor amount of light grayish-green to dark green pyroclastic rocks and flows of intermediate to mafic composition are interlayered with the felsic volcanic rocks.

fv+mv Mixed felsic and mafic volcanic rocks: Intimate mixture of felsic and mafic volcanic rocks. Felsic volcanic rocks are described under the felsic volcanic rock unit.

Mafic volcanic rocks consist of gray, medium greenish-gray, dark green to black, massive to well-foliated, dense, fine-grained, locally porphyritic and/or amygdaloidal, metamorphosed andesitic to mafic tuffs and flows; composed primarily of chlorite, hornblende, actinolite, epidote, plagioclase, calcite, and sphene. Found in northern Granville and western Person counties.

ve Volcaniclastic-epiclastic rocks: Buff to light greenish-gray, massive to well-foliated, metamorphosed tuffaceous epiclastic rocks and reworked tuffs. Includes phyllitic volcanic sandstone, siltstone, and sericite phyllite, chlorite-sericite phyllite, and minor conglomerate and pyroclastic deposits of felsic to mafic composition. Rock fragments incude quartz, feldspar, and volcanic rock types. Fine-grained matrix consists predominantly of sericite and chlorite.

pag Interbedded metagraywacke, meta-arkose, greenstone, and chlorite-sericite phyllite: Heterogeneous unit of metagraywacke, meta-arkose, chlorite-sericite phyllite, and greenstone. Includes some felsic metavolcanic rocks. Colors vary from light gray to brown and dark green to medium green. Meta-arkose and metagraywacke are well- to poorly-foliated and are composed primarily of feldspar, quartz, muscovite, chlorite, sericite, epidote, and magnetite. Chlorite-sericite phyllite and greenstone are well-foliated and contain chlorite, sericite, epidote, quartz, and magnetite. Found just east of the Triassic basin in southeastern Granville County. Correlates with a similar unit of metavolcanic and metasedimentary rocks mapped by Parker (1979) just east of the Triassic basin in Western Wake County.

ar Argillite-mudstone: Light- to medium-gray to brown, fine-grained, metamorphosed, interbedded thinly laminated argillite and massive mudstone; bedding plane and slaty cleavage well-developed in the argillite; composed predominantly of quartz, feldspar, sericite, and chlorite; contains local beds of quartzite; occurs in northeastern Franklin and southeastern Warren counties. Western contact with mixed gneiss in gradational.

METAMORPHIC ROCKS

hg Hornblende gneiss-amphibolite: Dark green to black, fine- to medium-grained, massive amphibolite and well-foliated hornblende gneiss. Contains hornblende, plagioclase, $\pm$ biotite, epidote, actinolite, and quartz. Commonly interlayered with biotite gneiss and schist.

fg Flesic gneiss: White to light gray, buff to pink, fine- to coarse-grained, foliated, locally lineated, equigranular to porphyroblastic granitic gneiss; predominant minerals are quartz and feldspar with relatively minor amounts of muscovite, biotite, and garnet; contains minor inclusions of biotite and hornblende gneiss and muscovite-biotite schists. Well-developed lineation is present in the fine- to medium-grained felsic gneiss in western Franklin and south-central Vance counties. Rocks in this area are equivalent to the felsic gneiss of Wake County as mapped by Parker (1979).

ag Augen gneiss: Light gray to pink, medium- to coarse-grained biotite-muscovite granitic gneiss containing microcline augen; commonly interlayered with siltstone and muscovite-biotite schist in eastern Warren County. Also found in central and southeastern Vance County.

Ms Mica schist: Light-gray to silver-gray to brown, fine- to medium-grained, well- to poorly-foliated, muscovite schist and muscovite-biotite schist; predominant minerals are muscovite, sericite, biotite, and quartz; accessory minerals include biotite, sillimanite, garnet, tourmaline, magnetite, and graphite. Unit contains minor amounts of biotite schist, phyllite, mica gneiss, hornblende gneiss, and feldspathic quartzite; occupies wide zone extending northward from North-central Franklin County to the North Carolina-Virginia State Line; gradual increase in the gneissic component from east to west within the unit.

Mgs Mixed gneiss and schist: Heterogeneous unit of light- to dark-colored, fine- to coarse-grained, massive to well-foliated and layered gneiss and schist. Includes both biotite- and muscovite-feldspar gneiss, quartzitic gneiss, hornblende gneiss, muscovite and biotite schist, and sericite-chlorite phyllite; calcareous gneiss occurs locally in Northwestern Person County. Biotite- and muscovite-feldspar gneiss are commonly porphyroblastic. Predominant minerals are quartz and feldspar with varying amounts of hornblende, muscovite, sericite, biotite, garnet,and epidote. Pegmatite dikes are present locally. A potassium-argon age determination of 259 $\pm$ 10 M.Y. has been obtained for formation of the gneiss near Henderson in Vance County (Kulp and Eckelmann, 1961).

Msg Mixed schist, siltstone, and gneiss: A heterogeneous unit of well-foliated, interbedded fine- to medium-grained muscovite schist, muscovite-sericite schist, fine grained metasiltstone, and rare augen gneiss and amphibolite; composed predominantly of muscovite, sericite, fine-grained quartz, and feldspar; occurs in

a band extending from norteastern Franklin County northward through eastern Warren County.

ss Muscovite-garnet-staurolite schist: Silver-gray, well-foliated, very fine-grained muscovite schist and phyllite; contains euhedral megacrysts of garnet, staurolite, and biotite. Kyanite is present locally; well-developed crenulation cleavage overprints the schistosity. Forms a relatively narrow distinctive unit traceable from northeastern Franklin County northward through Warren County to the North Carolina-Virginia State line.

qt Quartzite: Pale-gray, fine-grained, massive, feldspathic quartzite; consists predominantly of quartz but contains feldspar, muscovite, biotite, sericite, epidote, and magnetite. Fine banding in the rock is produced by graded bedding and compositional differences in adjacent fine beds. Fine secondary quartz pegmatite veins are present along bedding planes. Found in northeastern Warren County.

sb Siliceous breccia: Buff to pink to white, very fine-grained to aphanitic massive quartz and quartz breccia zones; contains minor muscovite and sericite; comb structure present along fractures which are parallel to strike of the zones; small irregular vugs lined with quartz crystals present locally; angular fragments in the breccia range up to two centimeter; zones vary from a few feet up to 70 meters in width.

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