1151-20-187   **J.D. Phillips***, Deptartment of Mathematics, Northern Michigan University, Marquette, MI 49855. *Here's a Scoop: Quasigroups and Loops for Theorists of Groups.* Preliminary report.

Quasigroups are "nonassociative groups." More precisely, and in the formal language of universal algebra, a *quasigroup* is a set together with three binary operations $\cdot, \backslash$ and $/$ satisfying the following identities: $x\backslash(x \cdot y) = x \cdot (x\backslash y) = y$, and $(x/y) \cdot y = (x \cdot y)/y = x$. A *loop* is a quasigroup with a 2-sided neutral element: $x \cdot e = e \cdot x = x$.

The theory of quasigroups (and loops) is intimately related to the theory of certain groups associated with quasigroups (the various multiplication groups of the quasigroup). This explains the rich history of involvement by some of the world's most eminent group theorists in developing the theory of quasigroups.

Quasigroups also naturally lend themselves to the full spectrum of techniques available to the universal algebraist, especially the powerful tools and techniques of computational mathematics. They are thus natural vehicles for the group theorist wishing to use computational mathematics in his or her investigations.

In this talk, we will outline some of the many different ways in which group theorists can contribute to the development of quasigroup and loop theory. We assume no knowledge beyond elementary group theory. (Received August 18, 2019)