we shall have the definition given by H. Weber, *loc. cit.* That these postulates 1, 2, 3′, 4′, 5*a* are mutually independent (when $n > 2$) has already been shown in the writer's previous paper (page 300).

It should be noticed, however, that postulates 1, 2, 3′, 4′, 5*b* would not be sufficient to define an *infinite* group, since the system of positive integers, with $a \circ b = a + b$, satisfies them all, and is not a group.

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DETERMINATION OF ALL THE GROUPS OF ORDER p^m, p BEING ANY PRIME, WHICH CONTAIN THE ABELIAN GROUP OF ORDER p^{m-1} AND OF TYPE (1, 1, 1, ⋯).

BY PROFESSOR G. A. MILLER.

(Read before the San Francisco Section of the American Mathematical Society, May 3, 1902.)

LET $t_1, t_2, \cdots, t_{m-1}$ represent a set of independent generators of the abelian group H of type (1, 1, 1, ⋯). It is well known that the order of the group of isomorphisms ϑ of H is $p^{\frac{(m-1)(m-2)}{2}}(p-1)(p^2-1)\cdots(p^{m-1}-1)$. One of its subgroups ϑ_1 of order $p^{\frac{(m-1)(m-2)}{2}}$ is composed of all the operators of ϑ which correspond to the holomorphisms of H in which t_α ($\alpha = 2, 3, \cdots, m-1$) corresponds to itself multiplied by some operator in the group generated by $t_1, t_2, \cdots, t_{\alpha-1}$. The number of conjugates of ϑ_1 under ϑ is clearly equal to the order of ϑ divided by $p^{\frac{(m-1)(m-2)}{2}}(p-1)^{m-1}$. We shall first determine the number of sets of subgroups of ϑ_1 which are conjugate under ϑ. It may be observed that even characteristic subgroups of ϑ_1 may be conjugate under ϑ. For instance, the octic group has a characteristic subgroup of order two and four other subgroups of this order, yet all of these subgroups are conjugate under ϑ when the latter is the simple group of order 168.

All the holomorphisms of H may be obtained by establishing isomorphisms between H and its subgroups and letting the product of two corresponding operators in these isomorphisms correspond to the original operator of H.*

* BULLETIN, vol. 6 (1900), p. 337.