ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THIS SOCIETY

The following papers have been submitted to the Secretary and the Associate Secretaries of the Society for presentation at meetings of the Society. They are numbered serially throughout this volume.* Cross-references to them in the reports of the meetings will give the number of this volume, the number of this issue, and the serial number of the abstract.

1. Professor Clifford Bell: *On triangles in- and circumscribed to two cubic curves.*

This paper deals with two cubic curves so related that one curve passes through the vertices of a given triangle while the other is tangent to each of the sides of this same triangle. A study is made of the set of equations whose solutions give the triangles in- and circumscribed to the two given curves. Special cases are considered when the cubic degenerates. (Received November 8, 1930.)

2. Professor E. T. Bell: *All recurring series having multiplicative periodicity.*

In a note in the Proceedings of the National Academy of Sciences (November, 1930), the author determined all recurring series having additive periodicity. In this note, to appear later in the Proceedings, the like is done, by a precisely similar argument, for multiplicative periodicity. (Received November 6, 1930.)

3. Professor E. T. Bell: *Modular interpolation.*

In the theoryof power residues,also somewhere in arithmetic,it is frequently necessary to construct $f(x)$ such that $f(x)\equiv r_i$ mod m when $x\equiv a_i$ mod m, $(i=1, \cdots, t)$, the m, r_i, a_i being given integers. Simple forms of $f(x)$ are given in this problem and its obvious generalizations. (Received November 6, 1930.)

4. Professor E. T. Bell: *Singular relations between certain arithmetical functions.*

Let $a_1, \cdots, a_r$ be numerical constants not all zero, and let $f_1(t), \cdots, f_r(t)$ be r distinct arithmetical functions of t. Then, if and only if $a_1f_1(t)+\cdots+a_rf_r(t)=0$ has only a finite number of integer solutions $t>0$, the relation $a_1f_1(t)+\cdots+a_rf_r(t)=0$ is here defined to be singular for $f_1(t), \cdots, f_r(t)$. A complete set of singular relations is determined for the functions giving the

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* See pp. 1–2 and p. 45 of the January, 1930, issue.