The proof of Theorem 10.3 is similar, but with obvious modifications.

## REFERENCES

1. Tibor Radó, *On convex functions*, Trans. Amer. Math. Soc. vol. 37 (1935) pp. 266–285.
2. H. B. Dwight, *Tables of integrals and other mathematical data*, Macmillan, 1934.
3. G. Pólya and G. Szegö, *Aufgaben und Lehrsätze aus der Analysis*, vol. 2, Berlin, Springer, 1925.
4. G. H. Hardy, J. E. Littlewood, and G. Pólya, *Inequalities*, Cambridge, 1934.

EMMANUEL MISSIONARY COLLEGE

---

# A SIMPLE SUFFICIENT CONDITION THAT A METHOD OF SUMMABILITY BE STRONGER THAN CONVERGENCE

RALPH PALMER AGNEW

1. **Introduction.** A matrix $a_{nk}$ of real or complex constants determines a transformation

$$\sigma_n = \sum_{k=1}^{\infty} a_{nk}s_k \tag{1}$$

and a method $A$ of summability by means of which a given sequence $s_1, s_2, \cdots$ is summable to $\sigma$ if the series in (1) converge and define numbers $\sigma_1, \sigma_2, \cdots$ such that $\sigma_n \to \sigma$ as $n \to \infty$. If a sequence $s_n$ is summable $A$, we say that $A\{s_n\}$ exists and that $s_n$ belongs to the summability field of $A$. If $s_n$ is summable $A$ to $\sigma$, we say that $A\{s_n\} = \sigma$. The method $A$ is regular if $A\{s_n\} = \lim s_n$ whenever $\lim s_n$ exists.

Toeplitz [1911] (reference in bibliography at end of this paper) proved that $A$ is regular if and only if the three conditions

$$\sum_{k=1}^{\infty} | a_{nk} | \leqq M, \qquad n = 1, 2, 3, \cdots, \tag{2}$$

$$\lim_{n\to\infty} a_{nk} = 0, \qquad k = 1, 2, 3, \cdots, \tag{3}$$

$$\lim_{n\to\infty} \sum_{k=1}^{\infty} a_{nk} = 1 \tag{4}$$

Presented to the Society, November 24, 1945; received by the editors September 8, 1945.