ABSTRACTS OF PAPERS

SUBMITTED FOR PRESENTATION TO THE 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.

94. Professor G. C. Evans: *Equilibrium problems for potentials of positive and negative mass.*

The problem of equilibrium potentials for positive and negative masses and a power of the distance less than one involves considerations which do not enter in typical calculus of variations investigations. That the general problem is not illusory is evidenced by the existence of a minimum energy distribution in the case of concentric spherical shells of positive and negative mass, respectively, whose total amounts differ by unity. Both masses and radii are variable. (Received January 12, 1937.)

95. Mr. A. N. Milgram: *The generalized Mullikin theorem.*

It is known that, in the plane, the sum of a countable number of closed sets, no one of which separates the plane and whose mutual intersections are vacuous, has a connected complement. This is however seen to be a particular case of the following theorem which is demonstrated in this paper: The sum of a countable number of closed sets, no one of which separates R^n (that is, euclidean n-space) and for which the intersection of any pair is of dimension at most $n-3$, has a connected complement in R^n. The proof is based upon two other theorems. If F is a closed set of dimension at most $n-r-2$, and C^{r+1} an algebraic complex in R^n such that $\dot{C}^{r+1}$ is contained in R^n-F, then for $\epsilon>0$ there exists a complex C_1^{r+1} contained in $S\ (\epsilon, C^{r+1})\times(R^n-F)$ for which $\dot{C}^{r+1}=\dot{C}_1^{r+1}$. It is next demonstrated that if Γ^1 is the simple closed curve $axbya$, and $\dot{C}^2=\Gamma^1$, while F is a closed set for which $C^2-F=M_1+M_2$ where M_1 and M_2 are mutually separated and $M_1\supset a$, $M_2\supset b$, then F contains a connected set having a non-vacuous intersection with the arcs axb and ayb. (Received January 12, 1937.)

96. Professor R. P. Agnew: *Comparisons of products of methods of summability.*

In terms of two methods A and B of summability with matrices (a_{nk}) and (b_{nk}), two types of products are defined. A sequence $\{s_n\}$ is summable to L by the *iteration product* AB if $V_n\rightarrow L$ where $U_n=\sum_{p=1}^{\infty}\sum_{k=1}^{\infty}a_{np}b_{pk}s_k$; and is summable to L by the *composition product* $A\cdot B$ if $V_n\rightarrow L$ where $V_n=\sum_{k=1}^{\infty}\sum_{p=1}^{\infty}a_{np}b_{pk}s_k$. Relative inclusion, equivalence, and consistency of