$(a_1)_r, \cdots, (a_{t-1})_r$ (and $\mathfrak{a}$) are determined uniquely up to similarity. Then the Krull-Remak-Schmidt theorem, applied now to $\mathfrak{N}_0/\mathfrak{M}$, shows that $(a_t)_r$ is also determined uniquely up to similarity.

REMARK. The above uniqueness theorem is unsatisfactory, since two diagonal forms (of the same type) with diagonal elements $a_1, a_2, \cdots$ and $a_1', a_2', \cdots$ are in general not equivalent (associate) even if $a_1, a_2, \cdots$ and $a_1', a_2', \cdots$ are similar in pairs. But if, moreover, a_1 (therefore also a_1') is a unit, then they are equivalent.*

THE INSTITUTE FOR ADVANCED STUDY

ON A MIXED BOUNDARY CONDITION FOR HARMONIC FUNCTIONS

HILLEL PORITSKY

In two recent notes in this Bulletin† (referred to below as I, II) I considered the boundary conditions

$$\frac{\partial u}{\partial n} + au = 0, \qquad a = \text{const.}, \tag{1}$$

for harmonic functions, investigating in particular the "reflection" of singularities across a plane at which (1) obtains and indicating several applications of the results.

Dr. A. Weinstein has kindly called my attention to an application of (1) that I have overlooked, namely, to the problem of gravity surface waves of liquids. Under the assumption of small irrotational motion, the velocity potential ϕ satisfies along the free boundary the condition‡

$$\frac{\partial^2\phi}{\partial t^2} + g\frac{\partial \phi}{\partial n} = 0. \tag{2}$$

For simple harmonic motions with time entering as $e^{i\sigma t}$, this reduces to (1) with

$$a = -\sigma^2/g.\S \tag{3}$$

Again, equation (1) may be applied, for two-dimensional motions, to the flow function ψ which is the conjugate harmonic to ϕ by assuming

* Fitting, loc. cit.

† I, this Bulletin, vol. 43 (1936), p. 873; II, this Bulletin, vol. 44 (1938), p. 443.

‡ Lamb, *Hydrodynamics*, Cambridge, 1924, p. 342.

§ Lamb, loc. cit., p. 342.