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THE ALGEBRAIC NUMBERS AND DIVISION¹

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As to what should most appropriately be the character of an address delivered on an occasion such as the present I am not quite certain. Whether it were better that one should be somewhat general and discursive in his remarks or whether he would be justified in offering a considerable amount of highly specialized and technical material I hardly know. Possibly a critical or historical survey of some subject would be more in place, or again under circumstances it might perhaps be permitted to the speaker to discuss some phase or aspect of a special field which would afford opportunity to present, among others, results obtained by himself or to develop methods employed in his investigations.

On this occasion I shall venture to say a little about a subject in which I have had a special interest, but in which results obtained are of some years' standing, since with the routine of teaching, executive activities in various connections and a vast amount of organizing work have, in recent years, combined to prevent productive effort and have interfered with the formulation for publication of results already there.

What I have to say will consist largely in statements. There will be no attempt to give proofs. These will be available elsewhere. A certain amount of recapitulation of more or less familiar facts will be necessary in order to establish connectivity, and as a preliminary to the later statements. The net result, I trust, will be found to contain an element of novelty.

An integer can be represented as a product of powers of primes, the exponents being positive integers. A rational fraction can be represented as a product of powers of primes, the exponents being positive or negative integers. The exponent of a given prime in the representation of a rational number as a product of powers of primes we call the order number of the rational number for the prime in question. We say that 0 is the order number of a rational number for a prime which does not appear explicitly in the representation of the number as a product of powers of primes. One rational number we say is divisible by another when the quotient of the first number by the second is integral, otherwise

¹ Address of the retiring vice-president and chairman of Section A—Mathematics—American Association for the Advancement of Science, Kansas City, Mo., December, 1925.

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