ideal to be a certain collection of square matrices over a ring R, which is closed under two operations. It is possible to develop a theory of prime matrix ideals having essentially the properties of prime ideals of a ring. The main theorem states that given a prime matrix ideal $\mathscr{P}$ of a ring R there exists a field K and a homomorphism $R \to K$ such that $\mathscr{P}$ is precisely the class of matrices mapped to singular matrices under the homomorphism $R \to K$. The field K is obtained by "localizing" R at the "multiplicatively closed" set Σ consisting of all square matrices in the complement of $\mathscr{P}$.

This theorem is used to give a necessary and sufficient criterion for the embeddability of a ring into a skew field.

Chapter 8 is devoted to special properties of (noncommutative) P.I.D., for example, the diagonal reduction of matrices. In particular, every finitely generated module M over a P.I.D. R is a direct sum of cyclic modules:

$$M = R/e_1R \oplus \cdots \oplus R/e_rR \oplus {}^{m-r}R$$

where e_i is a total divisor of e_{i+1} for $i = 1, \ldots, r - 1$ and this condition determines the e_i's up to similarity. (That e is a *total divisor* of e' means that there exists an element c of R such that $cR = Rc$ and e divides c and c divides e'.)

The results are applied to characterize the invariant elements of the skew polynomial ring $R = k[t; S, D]$ with automorphism S and S-derivation D, and also to investigate certain algebraic extensions of skew fields.

A. CZERNIAKIEWICZ

Stabilité Structurelle et Morphogénèse, Essai d'une Théorie Générale des Modèles, by René Thom. Benjamin, New York, 1971. 384 pp. $20.

René Thom has written a provocative book. It contains much of interest to mathematicians and has already had a significant impact upon mathematics, but *Stabilité Structurelle et Morphogénèse* is not a work of mathematics. Because Thom is a mathematician, it is tempting to apply mathematical standards to the work. This is certainly a mistake since Thom has made no pretense of having tried to meet these standards. He even ends the book with a plea for the freedom to write vaguely and intuitively without being ostracized by the mathematical community for doing so. Instead of insisting that Thom's style conform to prevailing norms, we should applaud him for sharing his wonderful imagination with us.

The book touches upon an enormous spectrum of material from developmental biology to optics to linguistics as well as mathematics. I can