

## CONTINUITIES

In an address on certain developments in astronomy presented by Dr. W. W. Morgan<sup>1</sup> on the occasion in March 1960 of the dedication of a new observatory—the Kitt Peak National Observatory near Tucson, Arizona—the speaker indulged in some philosophizing which may be of interest to students of leprosy. Speaking first of developments in nineteenth century science, he said:

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<sup>1</sup>MORGAN, W. W. Some vistas of astronomical discoveries. *Science* **132** (1960) 73-75.

A perceptive observer . . . emphasized a basic development in 19th-century science—the recognition of *continuities*—and he has pointed out the two giant figures in this development, Charles Darwin and Sigmund Freud.

[Darwin] removed, dispelled, the concept of discrete categories for living forms and showed that organic connections, relationships, exist everywhere, and that man himself could no longer be considered a completely detached phenomenon.

Freud showed that in the case of the mind itself such absolutes as conscious-unconscious and sane-insane have to be abandoned, and that, in the case of these apparent opposites, a continuous sequence of phenomena has to be considered. In addition, developed and archaic qualities exist simultaneously in the same human mind.

The speaker extended this concept from general biology and psychology and applied it to astronomy. One paragraph is quoted.

The “either-or” approach grows progressively more inadequate to describe the newly discovered shadings and relationships between phenomena. The concept [in astronomy] of “giant” and “dwarf” stars, with its great importance in the historical development of stellar astronomy, has had to be modified successively by the introduction of subdividing categories—subgiants, supergiants, subdwarfs—and, finally, by the recognition of continuities.

This exposition of the principles of continuity has implications which may well be borne in mind by those of us who are interested in classification of the forms of leprosy. There are those who want, at least for practical purposes, to put all leprosy cases definitely into one or another of a very few classes, perhaps only two. Under some circumstances better discernment may be impossible, and it may be necessary to accede to such demands—but only for practical reasons and not for the understanding of leprosy. Then there are those who seem to take it that the groups of the “official,” congress-accepted classification are well fixed and separate; and some hold that a case of “polar” type (tuberculoid or lepromatous) should be fixed and unchangeable, and would change the name of variant cases that depart from their concept of the polar forms.

There is, however, more or less frequent mention of the “spectrum” principle, referring to various shades or degrees of deviation from, or variations of, the established forms. This idea applies most frequently to cases intermediate between the early, simple, indeterminate macule and on the one hand the frank tuberculoid lesion or on the other hand the lepromatous condition; or, more often than may be realized, between established tuberculoid and borderline, and perhaps on to pseudo- or even true lepromatous. It may be of interest to consider these phenomena as constituting another manifestation of a general principle, called “continuity” by other scientists. The term “continuum” is suggested as preferable to “spectrum.”—H. W. W.