The Danger of Dogmatism in Scientific Fields

Nothing can be more helpful to the coming generations of physicians than a wholesome realization of the futility and occasional danger of dogmatism in their fields of endeavor. The development of a reasonably critical attitude of mind may not be compatible with the inertia of intellectual contentment; it is usually far easier to accept the traditional statement and act in accordance with it than it is to modify one's performance in the light of diligent inquiry. Nevertheless, it requires a mind open to radical changes for participation in that which is designated as progress. New discoveries and constructive thinking lead to evolution of knowledge and revolutionary practices. Advancement in professional fields means the abandonment of much that is old and the avoidance of unpromising avenues. Since practice, in medicine, is often based on dogmatic pronouncements, it is likely to fail in its objects when the premises become unstable.

For generations it has been assumed that patients with chronic interstitial nephritis must be poisoned by their own wastes. It was a further natural, though by no means logical, assumption to conclude that urea is the offending toxic agent; hence urea production must be decreased and its elimination increased. But, as Folin\(^1\) has remarked, the enormous quantities of urea which can accumulate before the uremic patient finally dies indicate clearly that urea is not toxic, a fact also suggested by the extraordinary urea content found normally in the blood of certain species. The textbooks and other dogmatizers have hailed suprarenal secretion as the effective agent in controlling blood pressure; yet Hoskins\(^2\) has shown clearly that the evidence as a whole militates against the supposition that blood pressure is ordinarily maintained by the stimulating influence of small quantities of epinephrin continuously secreted.

Cholesterol, being a conspicuous and easily recognized component of the bile, both under normal conditions and in the form of biliary concretions, has furnished the theme for unending speculation which has all too often been accepted by the uncritical as fact. It is suggested by various writers that cholesterol results from secretion of the biliary tract epithelium, from liver parenchyma degeneration, from red cell disintegration, from general tissue wear and tear, from food cholesterol, and from the suprarenals and other glands of internal secretion. Nobody, Whipple\(^3\) naively adds, has as yet suggested that cholesterol is derived from the wear and tear of the cerebral cortex under the stress of environmental conditions.

In recent years the microchemistry of the blood has furnished numerous data to arouse the interest of the physician. Too often, however, he has stretched the significance of the findings beyond the limits of dependable deduction. Thus, Ambard’s coefficient and similar mathematical expressions have been endowed with a reality soon to be shattered by subsequent developments. Folin\(^1\) has admitted that for the present the question of the ammonia content of the blood can have no bearing on any clinical problems; while Behre and Benedict’s\(^4\) studies of creatinin in the blood have raised doubt as to the very existence of this much estimated constituent.\(^5\) At any rate, the foregoing illustrations should suffice to indicate the desirability of keeping an open mind in science and its applications.

\[^{1}\] Folin, Otto: Nonprotein Nitrogen of Blood in Health and Disease, Physiol. Rev. 2:460 (July) 1922.
\[^{2}\] Hoskins, R. G.: The Relation of the Adrenals to the Circulation, Physiol. Rev. 2:343 (July) 1922.
\[^{3}\] Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. 2:440 (July) 1922.

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