Book Reviews

Memoirs of a Second Generation

Pioneers in Neuroendocrinology II. JOSEPH MEITES, BERNARD T. DONOVAN, and SAMUEL M. MCCANN, Eds. Plenum, New York, 1978. viii, 422 pp., illus. $32.50. Perspectives in Neuroendocrine Research, vol. 2.

The idea that the brains of higher organisms produce hormones has had a long and difficult gestation. Whether or not blood-borne hypothalamic neurohumors specifically control the secretion of anterior pituitary hormones was the subject of a celebrated debate in the 1950's between two British endocrinologists, Geoffrey W. Harris and Solly Zuckerman. The ascendancy of the Harris forces led to the growth of a new field, neuroendocrinology, whose veterans have a sense of common enterprise springing in part from an embattled past. Yet the same developments contributing to the present blossoming of neuroendocrinology may be precipitating its disappearance as a separate subdiscipline and its incorporation into diverse branches of neurobehavioral science and endocrinology.

This second volume of scientific miniautobiographies by "second generation" neuroendocrinologists will provide entertaining reading for initiates and should also prove instructive to others interested in the human side of the scientific endeavor. It will probably be more widely read than the first volume, and not only because in the interim the field has achieved Nobel status, with its concomitant publicity and prestige. The research described here is often more directly relevant to present-day neuroendocrinology, and subjects missing from the first volume, like behavioral endocrinology, are included. Furthermore, the sometimes tedious personal historical material is more often relieved by flashes of humor, though I would have preferred more of the "gossip" to be related to major issues. For instance, how did the Hungarians, alone among their East European colleagues, manage to develop an outstanding tradition of neuroendocrine research despite the Stalinist attempts at repression? The matter is only hinted at in Endröczi's chapter.

The long prologue to the isolation and characterization of three hypothalamic "hormones" deserves a place in the annals of the study of scientists' behavior. It is unnecessary to recount here the events racily described by Nicholas Wade in *Science* last spring, but the chapters by Nobelists Guillemin and Schally document the general accuracy of Wade's conclusions. The two men won "the race to Stockholm" by practicing the hard discipline of dogged perseverance in the face of slow progress and by refusing to be side-tracked by intellectually more "interesting" biological problems, which led them to the characterization of the elusive brain hormones ahead of initially competing laboratories. Any semblance of cooperation between the two groups heavily funded to do essentially the same thing was abandoned. The need for recognition inevitably led to the implicit downgrading of the competitor's contributions, a sin of omission particularly noticeable in Guillemin's writing.

This little piece of history presents a hard lesson for naïve graduate students who believe that scientific eminence is positively correlated with the disinterested pursuit of knowledge for its own sake. It also illustrates an important question for the administrator of research funds: Is progress advanced or retarded by this kind of expensive competition? A less obvious part of the cost is the clogging of the channels of scientific publication with premature, repetitive, or interim reports. I recall a National Institutes of Health study section meeting where one of the protagonists almost lost a grant for having too long a publication list.

The ubiquitous influence of personality in the pursuit of scientific achievement presents another face in the reopening of the seemingly defunct debate between Zuckerman and the late Geoffrey Harris (here represented by his student and co-worker Donovan). Zuckerman reappears in this volume, astonishingly still wearing his cloak of disbelief regarding the most cherished tenets of neuroendocrinology. He makes the important and frequently ignored point that the exclusive role of the portal vessels as conduits for the minute-to-minute regulatory action of specific hypothalamic agents on specific anterior pituitary hormones remains to be proven. But to use the lack of absolute proof of absolute specificity to suggest that most of neuroendocrinology is unnecessary "fuss" is to throw the baby out with the bath water. And to progress from this to condemning the experiments of a generation of neuroendocrinologists as "irrelevant," "unsophisticated," and showing "lamentably inadequate controls" and "little thought to the logic of design" is to substitute hubris for constructive criticism.

Understandably in a collection oriented to origins, the book does not stress innovative developments in the field. Surprisingly, such a recounting might well have supported some of Zuckerman's arguments. None of the three characterized hypophysiotropic factors is very specific in action: TRF releases prolactin, LRF releases FSH, and somatostatin suppresses just about everything in sight.

Within the brain, none of these factors is limited to the classic "hypophysiotropic" area; and somatostatin is also widely distributed in the gastrointestinal tract. These neurohumors, as well as the new endogenous opiates, which are also related to the anterior pituitary, apparently have brain-mediated behavioral effects. This and the increasing acceptance of dopamine as the hypothalamic prolactin-inhibiting factor seriously threaten the traditional sharp distinction between neurohumor and neurotransmitter. Furthermore, there are still frequent references in the literature to "retrograde" flow in the portal system and to the role of cerebrospinal fluid in hypothalamic-pituitary communication. These many questionings of neuroendocrine dogma are, however, indications not of a moribund but of a vigorous science.

Much of the conceptual basis proposed by Harris and his American colleagues may indeed be abandoned, and the mission of neuroendocrinology may be taken over by other branches of science. Yet the value of the collective contributions to biology and medicine of the neuroendocrine "pioneers," some of whose prospections and retrospections are presented in this volume, is now beyond question.

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