Isolation of *nor*-Adrenaline from the Adrenal Gland

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In recent years it has been demonstrated that a factor with the physiological properties of synthetic L-*nor*-adrenaline [1] occurs as a regular constituent of adrenergic nerves [2] and apparently plays an important role as chemical nerve transmitter [3].

With biological and colorimetric tests it has been demonstrated to occur in various organs and tissues [2], adrenal medulla [4–6] and medullary tumors [7]. However, so far *nor*-adrenaline never seems to have been isolated and identified from natural sources [8].

We now wish to report the isolation of L-*nor*-adrenaline from cattle adrenals where it occurs together with L-adrenaline in the approx. proportions 1 : 4. The mixture of these bases was isolated from the crude protein free extract with the aid of ion exchangers [9].

The bases were then separated with counter-current distribution between 0.02 *N* HCl and phenol. After extraction of the phenol with ether pure L-*nor*-adrenaline was isolated as the crystalline base by addition of ammonia.

$C_8H_{11}O_3N$ (169.18)

Calc.	C 56.79	H 6.56	N 8.28
Found	» 56.37, 56.22	» 6.40 6.46	» 7.93

The ultraviolet absorption spectra and the x-ray powder diffraction patterns of the isolated product and of a synthetic specimen were indentical [10].

When compared with the colorimetric method of Euler and Hamberg [11] and in biological tests (cat's blood pressure, hen's rectal caecum) the samples were also found identical.

A full report will be published in Acta Physiol. Scand.

1. Tainter, M. L., Tullar, B. F., and Luduena F. P. *Science* **107** (1948) 39.
2. Euler, U. S. v. *Acta Physiol. Scand.* **16** (1948) 63.
3. Cannon, W. B., and Rosenblueth, A. *Am. J. Physiol.* **104** (1933) 557.
4. Holtz, P., and Schümann, H. J. *Naturwissenschaften* **35** (1948) 159.
5. Bülbring, E., and Burn, J. H. *Nature* **163** (1949) 363.
6. Euler, U. S. v., and Hamberg, U. *Nature* **163** (1949) 642.
7. Holton, P. *Nature* **163** (1949) 217.
8. In a private communication to one of us (U.S. v. E.) Dr. M. L. Tainter has informed us that Dr. B. F. Tullar has isolated L-*nor*-adrenaline from commercial adrenalin preparations.
9. Bergström, S. To be published.
10. We are indebted to Dr. E. Stenhagen for the x-ray diffractions measurements.
11. Euler, U. S. v., and Hamberg, U. *Acta Physiol. Scand.* In press.

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New Books

Encyclopedia of Chemical Technology. Volume 1 : A — Anthrimides. Editors: Raymond E. Kirk and Donald F. Othmer. Assistent editors: Janet D. Scott and Anthony Standen. Interscience, New York 1947. 982 pp. $20 per volume.

The scope of this Encyclopedia is described in the preface: »It is neither a dictionary nor a handbook, nor is it a series of technological monographs ... for the benefit of advanced specialists ... Rather it is designed to present the entire field of chemical technology for profes-

sional chemists and chemical engineers who may wish to know the methods that are employed in a special field, often outside that of their immediate experience. It is intended both for those working in industry and for those in universities and other research institutions.»

The complete work will consist of 10 volumes, each of about 960 pages, and will appear at the rate of 2 or 3 volumes a year. Till now, two volumes have been completed, although only the first has as yet reached the office of this Journal.

In order to avoid excessive splitting up and repetition, an attempt has been made to collect the material under a few rather comprehensive headings, either representing groups of substances or processes; for this reason each volume contains only about 100 articles. The search for a given compound or process is facilitated by a large number of cross references.

In the first volume, the number of authors is almost as large as that of articles, and mots of them are active industrial chemists. The work of collecting and coordinating all these articles must have been quite impressive.

The majority of the articles refer to names of substances or of groups of substances, such as acetic acid, acetylene alcohol (s), alkali metals (where, by the way, the recent discovery of Cs minerals in Sweden is not mentioned), alkaloids, alloys, aluminum, amino, resins and plastics, and ammonia. Such articles generally begin with a short historical introduction and with the most important physical and chemical properties of the substance in question. The technical processes are often elucidated by drawings and flow sheets; I have not, however, been able to find a single photograph. The data on prices and production volumes naturally stress American conditions.

Among the »functional» groups of substances we find abrasives, adhesives, and anesthetics (what, no xylocaine? Don't let that happen in the next edition!); among the processes are absorption, adsorption (with theoretical introduction by P. H. Emmett of the BET team), alkylation, amination by reduction, and ammonolysis.

»Alkali and chlorine» is the heading of a long article treating in addition the production of sodium carbonate. Of stray articles we may mention »analytical chemistry» (where the section on quantitative analysis is written by E. B. Sandell); acid-base systems, acoustical building materials, air conditioning and allergens.

The editors admit without blushing that the nomenclature presents an interesting mixture of such names as are approved by the International Union of Chemistry and such as the IUC does its best to stamp out. This applies to both organic and inorganic names. When the Encyclopedia reaches P, I shall be quite curious to see whether KCl is called muriate of potash or potassium chloride.

This encyclopedia will certainly be found very useful by many chemists in the Scandinavian countries, too. Its usefulness is enhanced by numerous references following most articles.

Lars Gunnar Sillén.