

Our pharmacy textbooks offer a number of experiments that should not be overlooked and when the U. S. P. and N. F. are used, there are numerous ways of incorporating mathematics with the laboratory work without detracting from the phase of dispensing or compounding, yet making the experiment more practical.

PHARMACEUTICAL ARITHMETIC AS A SEPARATE COURSE.

BY RALPH L. CALVERT.*

A course in pharmacy includes many subjects which are more or less closely related to each other, and in most of these subjects a fundamental knowledge of ordinary arithmetical calculation is essential. Therefore, it would seem necessary for the pharmacy student to have had a thorough understanding of simple arithmetical processes in grammar and high school prior to his entrance in the pharmacy school.

The difficulty, which we as teachers find in the failure of some students—a group representing probably one-fourth of the class—to grasp the principles of pharmaceutical arithmetic, lies in the fact that they have not been properly trained in the grammar and high schools. The only way we can expect to make them understand their work in this subject is to place them in a separate class and present the material in a different way. Otherwise, the better students in the class become uneasy, bored, and their interest and enthusiasm soon begin to fade.

The writer has noticed over a period of ten years that those students who make poor grades in chemistry or physics also make poor grades in pharmaceutical arithmetic.¹ As a matter of fact all those subjects which require arithmetical procedure in one way or another invariably tabulate the same when comparisons are made.

We must realize that many of our students matriculate without any previous practical experience and that many of those who have had some experience in a drug store lack the kind of experience which was once received before the advent of the soda fountain, the jewelry, sporting goods or sundry departments.

We must also realize that the pharmacy student has more subjects to study in our colleges to-day than he had a few years ago and while the school hours are longer yet the relationship of the college to the drug store is not proportionately the same to-day as it was some years ago. Therefore, different teaching methods of approach and attack must be used if we expect the student to benefit by our enlarged and better course.

It would seem quite necessary that the pharmacy student should have at least one hour of instruction in pharmaceutical arithmetic each week during his entire freshman year, and at least one hour a week for one semester during his senior year. With the inauguration of the four-year course it seems the proper procedure would be to have one hour a week for the entire freshman year and the same for the senior year. Surely, if we expect our pharmacy graduates to be good pharmacists, the one thing in which they should be well grounded should be that of being able to make necessary calculations correctly and with dispatch.

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¹ See reports of Fairchild Scholarship Committee.—E. G. E.

If the facts presented are true and if the hypotheses are highly probable, then how can we present pharmaceutical arithmetic in the best way if not as a separate subject? We teach physiology as a separate subject and then materia medica later as a separate subject. We teach botany first as a separate subject and then later pharmacognosy as a separate subject.

Pharmacognosy is no longer taught as secondary to materia medica and we would not think of teaching chemistry under the caption of pharmacy.

Pharmaceutical arithmetic is a subject in itself, the application of which is necessary in the study of many other subjects included in the course of Pharmacy. Not one of us would want to entrust the filling of our prescriptions to a student who had made a grade of "90" in pharmacy, but who only had a grade of "60" in arithmetic. Therefore it would seem that a thorough understanding of one is as important and necessary as the other.



Allegorical interpretation of the Art of the Apothecary, 1619, by Peter Candid, eminent artist of his period (1548-1626)—from *Illustrated Kalender—Deutschen Apotheker, Verein.*



Carl Wilhelm Scheele, Swedish Pharmacist, memorialized by his many important discoveries.

SERVICE, CONFIDENCE, INDUSTRY, OBSERVATION, PATIENCE, PERSEVERANCE
MARKED THE LIFE OF CARL WILHELM SCHEELE.

The trust of Scheele's neighbors "was a sincere tribute to the pharmacist—for it was solely as a pharmacist that these people knew him. They did not recognize that he was a man destined to become a world figure in science. Nor was such fame sought by Carl Scheele; his life was devoted to pharmacy and service to his community.

"In his spare time, the moments when there were no prescriptions to fill, when there was no one waiting at the counter to seek his advice, and when the shop lights had been put out for the night, he worked to satisfy his own insatiable curiosity concerning the properties of the materials with which he dealt."—*From a radio address, October 11th, by Howard W. Haggard, M.D.*