and pharmaceutical knowledge than is required for the practice of general medicine and surgery, and that it should, therefore, be classed in the group of pharmacal medicine with pharmacology and pharmacy proper. For this reason it should have greater consideration by colleges of pharmacy giving advanced courses.

The clinical laboratory work can be divided into two classes or grades—that of the clinical laboratory technician, and clinical pathology proper. The latter is divided into three main subdivisions, *i. e.*, pathology, serology and bacteriology, and biological chemistry.

The technician's work is that capable of being readily done by one of limited knowledge and training in the subject. It requires sufficient knowledge to make a technically reliable routine urine examination, general blood counts, staining specimens for bacterial identification, milk examinations, and routine Wassermann serologic work, etc. To this extent every college of pharmacy should qualify its advanced students. In my opinion, every first-class prescription pharmacy should, if favorably located, be equipped for such work.

To the question of your Chairman, "Should this clinical course be given in the regular course at colleges of pharmacy?" I emphatically answer, "It should not." The regular course in pharmacy is to qualify the student to become a reliable and intelligent compounder of medicaments, and a more or less efficient business man. Every subject not germane to this end is detrimental to the interests of pharmacy, as it will detract from the main purpose. It should be given in the advanced courses, when the student has acquired the foundation for his pharmaceutical knowledge and is better qualified to take up the work.

With the rapid extension in the field of clinical pathology, the demand for laboratory examinations is increasing, and many more laboratories are being established, not only in connection with hospitals, but as state and municipal institutions. This is a field which American pharmacy should bestir itself to enter.

A student to become qualified as a clinical pathologist requires a more extensive training than is at present given by colleges of pharmacy, and will require more than a three-year course. It is a branch which can well be made a major subject in universities having both a medical and pharmacal faculty, where a longer course is given to qualify for the doctor in pharmacy degree.

Most physicians, because of their personal limited experience and the crowding of other more immediate needs of medical practice, cannot utilize and fully interpret the results of clinical laboratory examinations. It, therefore, becomes the function of the pathologist to interpret the results and know the clinical value of each test employed. To do this the clinical pathologist, besides being well versed in the chemical, pharmacal and general biological phases of analysis, must have a good knowledge of normal and pathological histology, embryology and anatomy. He must be qualified to do autopsies, and should know many things the physician must know, excepting physical diagnosis and prescribing. To qualify students in higher or advanced pharmacy for this work requires the coöperation of medical and pharmacy schools.

The demand for properly qualified clinical pathologists will, in all probability, considerably exceed the supply in a few years' time. They will, for the most part, be required for hospital laboratories, etc.

Curt P. Wimmer: Pharmacists, at this time, are not trained for the work, and the openings for pharmacists in this line of professional service are not numerous.

Bernard Fantus: In this line of work the pharmacist can and should reclaim some of his lost prestige. There is a wonderful field here for real professional work, and the pharmacist can rightfully claim it, if he will prepare himself for it.

Ivor Griffith: I agree with Dr. Fantus; diagnostic laboratories will become more popular, and physicians are learning to appreciate their value; hospitals and health department laboratories do not garner in all the work.

ALEXANDRIA SENNA CULTIVATED IN INDIA.

BY C. J. ZUFALL.

Recently, importations of an unusual, in fact, apparently unknown form of Alexandria senna leaves were received in New York. At first glance, these leaves seemed to be an admixture of Alexandria senna and India or Tinnevelly senna.

The leaves are unusually large, being 2.5 to 4 cm. in length and the product was practically free from broken leaves and stems. Alexandria senna from the Sudan always contains many broken leaves and stems. Careful examination, however, proved beyond a doubt that the product consisted of the leaves of *Cassia acutifolia*, commonly called Alexandria Senna. The shape, color, odor, taste, texture and character of hairs agree with the description of Alexandria senna, as set forth in the U. S. Pharmacopoeia.

Since these importations came from London, through which port most of the Alexandria and Tinnevelly senna received at the port of New York are sent, the country of origin was not known at first. Eventually it was ascertained that the leaves in question had been grown by a New York drug importer on his plantation in India. This importer undertook the cultivation of Alexandria senna in India some time ago, when that grown in the Sudan, giving way to the cultivation of cotton and foodstuffs, became scarce and expensive. Several tons of the pods of *Cassia acutifolia* were shipped from the Sudan to the plantation in India, where the seeds were removed and planted. The crop was a success, and, as a consequence, both of the species of senna given in the U. S. Pharmacopoeia are now coming into this country from India.[1]

The superiority of the Alexandria senna cultivated in India over that grown in the Sudan, in so far as size and purity are concerned, parallels exactly the improvement in quality which occurred in Tinnevelly senna when its cultivation was introduced in India from Arabia some one hundred and twenty-five years ago. In taste and odor these Indian leaves are equal, if not superior, to the Sudan leaves. The leaves, which are hand picked, have the advantage over the Sudan leaves in being unbroken and practically free from stems and dirt.

Alexandria senna from the Sudan has been adulterated with the leaves of *Cassia obovata*, or dog senna, as well as with Arabian or Mecca senna. This form of adulteration is difficult to detect in the grades known as "broken," "half leaf," or "siftings;" in fact, it is difficult to detect the presence of any foreign leaf in these grades if the adulterant is broken. Any form of adulteration is readily noticed, however, in the cultivated, hand-picked Alexandria senna from India, because it consists almost entirely of whole leaves.

PHARMACOGNOSY LABORATORY,
BUREAU OF CHEMISTRY.

A GOOD PRACTICAL TEST FOR HEAVY METALS IN ACETYL SALICYLIC ACID (ASPIRIN).

BY EDWARD C. MERRILL.

The presence of heavy metals in acetyl salicylic acid (aspirin), even in minute amounts, is one of the most important considerations to be taken into account in connection with the stability and keeping qualities of the finished product. Their catalytic properties are well recognized. The causes of such contamination, developing no doubt from conditions of manufacture, such as type and condition of containers, nature of water supply and other factors, have necessitated the development of certain practical and rapid tests for the presence of these minute but very disturbing elements of contamination.

[1] This information was obtained from Mr. Alfred Joensson.