departments is about 500, of whom 5 are women. The examinations take place from December 1 to December 22, are only for those who have studied the entire year, and are oral in all the faculties except that of letters, in which a written examination is added.

The university is a venerable looking building, two stories high, with courts and connecting arched inside galleries from which the different lecture rooms are entered. The faculty room is a magnificent hall with a richly carved wooden ceiling of great age. The walls are hung with large portraits in oil, of the deceased deans and distinguished members of the faculty. As all the lectures of the different departments, with the exception of the medical, are given here, it is an easy matter to find some one or usually several teaching at the same time. Students flit about noiselessly with note books under their arms, going to or coming from lectures. The lectures last one hour. I looked into one of the lecture rooms of the law department and counted 15 students who were paying strict attention to the lecturer and taking extensive notes. The university church is one of the oldest in the city. It contains massive wood carvings, among them the main altar and the pulpit, the latter consisting of two pieces of wood. The floor consists of large flat stones and tiles. The church was founded by Bishop Antonio Correos, whose remains are interred in front of the main altar.

The libraries of the university contain many rare manuscripts relating to the early history of the institutions. The courts are paved with pebbles, the lower galleries with asphalt.

SCHOOL OF MEDICINE.

The Lima Medical School has been, from its very beginning, an organic part of the university. The medical faculty, like all the other faculties, manages its own affairs, and the school has its own buildings, which are situated near the Botanical Garden on a large plot of ground. The anatomy building is separate. It is a large one-story building devoted exclusively to the teaching of anatomy. The bodies are kept in an excellent state of preservation, and the dissections I saw showed care and patience on the part of both student and teacher. The police surgeons make all their postmortem examinations in a separate room in the anatomy building in presence of the students—a most excellent plan, as this practical kind of instruction gives the students an opportunity to become familiar with the technic of postmortem examinations and legal medicine.

The new medical college was completed in 1903, and is one of the finest buildings of its kind I have ever seen. It is two stories high, built of brick and cement. The arched inner galleries lead to the laboratories and lecture rooms, all of which face the large square, open central court or patio. This court will soon be converted into a charming flower garden, the pride of the South American. The architecture is Greek in style, the six columns at the entrance imparting an air of dignity to the building. The tile floors and heavy stone stairs give the interior of the building an appearance of cleanliness and durability. The number of students in attendance at the present time is about 200.

The Faculty of Medicine grants the title of "Physician and Surgeon," and its studies are distributed over a period of six years, during which the following courses are followed: Descriptive anatomy; medical physics; public, private and international hygiene; medical and analytical chemistry; natural and medical history; general anatomy and microscopic technic; chemical and Galenical pharmacy; general and human physiology; general pathology and clinics; pathologic anatomy and bacteriology; therapeutics and materia medica; general surgery; local surgery; medical nosography; ophthalmology and eye clinics; topographical anatomy and operative medicine; gynecology and gynecologic clinics; pediatrics and pediatric clinics; obstetrics and obstetric clinics; legal medicine and toxicology; surgical clinics, men's hospital; surgical clinics, woman's hospital; medical clinics, men's hospital, and medical clinics, woman's hospital.

This same medical faculty educates and graduates apothecaries, dentists and obstetricians. The apothecaries in order to

qualify for graduation must go through the following course of studies, covering a period of three years: Medical physics; analytical chemistry; medical and natural history; microscopic technic; chemical and Galenical pharmacy, and materia medica. They must also have had office and laboratory practice.

The students of dentistry likewise go through a three-year course of study as follows: Anatomy; physiologic anatomy and physiology, with especial reference to the mouth; chemistry as applied to the dentist's art; general ideas of the pathology and therapeutics of the mouth; special operative measures and dental prosthesis. They also must have had office practice, and have attended the laboratory and the amphitheater or practice room.

Obstetricians must study in the fourth year of their course the following subjects: Anatomy of the pelvis; special physiology; embryology; mechanism of labor; obstetric operations; hygiene of mothers and of the newly born, and obstetric clinics.

In the teaching of medicine much weight is placed on the value of bedside instruction and the attendance at operations. Candidates for the doctorate degree must write a thesis, which, if accepted, is printed, and must be defended by the author in public.

(To be concluded.)

Clinical Notes

THE CUTANEOUS TUBERCULIN REACTION.*

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ST. LOUIS.

Last summer von Pirquet reported that vaccination of tuberculous individuals with old tuberculin gave rise to a typical local reaction. Since then several observers have reported on this reaction, some favorably, others more or less unfavorably.

My series of cases includes infants from 3 months to 4 years of age (55 cases), children at an orphans' home from 5 to 14 years of age (51), persons seen in dispensary and private practice, youngest 9 years, oldest 51 years (32), and twelve cases of advanced lung tuberculosis in men.

For the vaccination, use was made of Koch's old tuberculin, diluted with one-half of 1 per cent. carbolic acid to 25 per cent. The solution kept for a long time, and the carbolic acid did not cause any skin reaction when tried alone. Instead of von Pirquet's special chisel-like vaccination lance, one was made by filing off the point of a blood lance. The following procedure was adopted as giving the best and most uniform results: The skin of the upper arm, in a place free from hairs, is washed with alcohol and allowed to dry. On two places, about three inches apart, is dropped one drop of the solution from a sterilized hypodermic syringe. The skin between the drops is then scarified with the lance by turning it to and fro, and then the scarification is done through the drops. After one or two minutes, the tuberculin is mopped up. No dressing is necessary. If the faintest reaction occurs, it is easily seen by comparing it with the central control spot.

Of the 55 infants only one, an infant of 7 months, reacted. This baby was apparently healthy. It happened that a few facts were known about its mother. She had advanced tuberculosis when the baby was born, and died one month later. The baby was with her all the time. Another child, one that did not react, was born of a tuberculous mother, but was immediately

* Abstract of a paper read before the Section of Internal Medicine of the St. Louis Medical Society, Jan. 11, 1908.

taken from her. One or two other babies were said to have had tuberculous mothers, but there was no definite history obtainable.

Of the 51 children, boys and girls, at the orphans' home, the reaction was positive in 15 cases and negative in 36 cases. There were several groups of brothers and sisters. Some of these groups proved to be interesting. For example, three in one family, 6, 8 and 10 years old, respectively, the youngest and oldest reacted slightly. History not sure, but it is believed that the mother died of tuberculosis. Of two children, 8 and 12 years old, the older reacted slightly; history not known. Of two sisters, 8 and 9 years, the older reacted slightly; history not known. A brother and sister, aged 12 and 15, reacted, the sister more markedly than the brother; no history. Three, two boys and a girl, 7, 9 and 12 years, all reacted. It is known that the mother died of tuberculosis two years ago. The children were then placed in the orphanage. Several groups of brothers and sisters did not react. All these children were unusually healthy and well nourished.

Of the twelve patients with advanced tuberculosis, eleven reacted. One was cachectic, with also a probable carcinoma.

The remaining 32 cases are very interesting. They show that not all adults react to the test. The oldest patient, a woman of 51 years, was quite negative, and the youngest, 9 years old, was also negative. The reaction was positive in 16 cases; negative in 16 cases. One of the most typical reactions occurred in a man, 26 years old, well-nourished and perfectly healthy. He had never had any serious illness. No tuberculosis in his family. He was injected with 1 mg. of Koch's old tuberculin. There was induration and considerable soreness at the site of injection, but no constitutional symptoms were noted. Three days later he was given 5 mg. of O. T. There was marked pain and swelling, with tenderness at the site of injection. Twenty-two hours afterward there was intense headache. There followed within a few hours malaise, rapid pulse and a rise in temperature of 1.2 degrees. One case, male, aged 31, did not react on two separate occasions. There was no local or constitutional reaction to 5 mg. O. T. or to 10 mg. O. T.

A woman, aged 32, not only did not react to the skin test, but also to the ophthalmic test. Tuberculosis was suspected in her case. Three and later 5 milligrams O. T. caused no local or constitutional reaction and no change in the lung signs.

Six of the positive cases were well persons. Two brothers, 15 and 18 years old, were undersized, pale, with long narrow thoraxes and stooping shoulders. Both parents died of tuberculosis nine and two years ago. Three young men, physicians, healthy, with good family history, reacted strongly. The sixth was a very tall, thin, narrow-chested boy of 19 years, family history good. He was always tired, could not concentrate his mind and was subject to fainting spells.

Eight positive cases included suspected early tuberculosis, diagnosed early tuberculosis, and one healed case.

I am impressed with the negative value of the test. Some apparently perfectly healthy persons reacted. The test is not a sign of active tuberculosis at any rate. von Pirquet found that if there is only a caseated gland or a calcified nodule at an apex, that the reaction followed vaccination. Cachectic cases, cases of miliary tuberculosis and lethal cases of tuberculous meningitis are said not to react to the test.

The following conclusions seem justified:

1. The cutaneous tuberculin reaction of von Pirquet is a perfectly harmless procedure.
2. All adults do not react to the vaccination.
3. It is of value in the so-called pretuberculous stage.
4. No reaction precludes tuberculosis in an active form so far as we can be sure of the results of any one test.
5. A positive reaction does not always mean active tuberculosis. It may mean a healed lesion somewhere in the body, but it calls attention to the possibility of later tuberculosis. It also draws attention to the probable tuberculous nature of the case, and a more careful examination of the patient will sometimes reveal the previously overlooked lesion.

METATARSALGIA.

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In looking over the literature I can find but one operation recommended for the relief of metatarsalgia—the excision of the head of the metatarsal as advised by Morton. Various palliative measures have been used with some success.

Several theories have been offered to explain the etiology. Whitman's explanation of lateral pressure by tight shoes on the depressed transverse arch is no doubt the correct one. In the two cases reported the depression of the arch was caused by pressure of the shoe against the second toe joint, forcing the first phalanx downward against the metatarsal bone. The factors which may tend to hold the first phalanx in this undesirable position are: 1, Displacement of the toe upward by hallux valgus; 2, hammer toe; 3, contracted tendons; 4, jamming backward of the toe by a short shoe. Hence the shoe which causes metatarsalgia is the one which squeezes laterally and at the same time presses downward on the second toe joint. With the increasing use of the modern rational-shaped shoe metatarsalgia, along with hallux valgus, ought in the next generation to become an orthopedic anachronism.

The two following cases illustrate my observations:

CASE 1.—A heavily built woman, aged 43, complained of pain in the second right metatarsal.

History.—The patient had an attack of rheumatism four years ago. The feet were swollen and when this swelling went down the second and third toes were left displaced at their bases.

Physical Examination.—There was marked hallux valgus, also a slight degree of flatfoot. The second toe was displaced upward and almost lay on the outwardly displaced great toe. When the shoe was on, the second joint of this toe caught the brunt of the dorsal pressure of shoe in this region. This pressure was transmitted through the first phalanx to the metatarsal, causing depression of the arch. On the sole of the foot was a callus where the metatarsal pressed.

Operation.—Amputation of second toe at first joint. At operation it was noted that the first phalanx articulated, not with the head of the metatarsal, but with its dorsal surface.

Result.—Metatarsal pain never reappeared after operation (seven months ago). The patient was so pleased that she returned for hallux valgus operation which she had previously refused.

CASE 2.—Man, aged 26, tall, slender and athletic, complained of pain at head of fourth metatarsal, left foot.

History.—Pain was first observed suddenly while the patient was playing tennis two years ago. It intermittently annoyed