der. He made an uneventful recovery, and was about in two weeks, but he dribbled continuously. Dec. 18, 1903, at a secondary operation done to discover the cause of the leakage, the stenosed bladder outlet was found to be rigid and gaping. A median incision was made through the sclerosed tissue to the base of the bladder, and the fibrous ring, which contained many small nodules of prostatic glandular tissue set into it like pearls in a circle, was removed. He leaked from the meatus more or less for a year, but gradually obtained control, is said to have no residual urine, is well and works hard every day.

CASE 8.—C. B., aged 60 years, patient of Dr. Joseph Kurtz, had a litholapaxy done Oct. 6, 1903, for a calculus which had invalidated him for a year. Confinement for two days. At work in two weeks. October, 1904, same operation, same condition. Rectal examination showed only moderate prostatic enlargement. Cystoscopy revealed intraurethral and intravesical obstructive nodes and contracture of the bladder neck. Vesical capacity, 150 c.c.; residuum, 50 c.c. A cutting operation was proposed and refused.

June 8, 1905, a perineal prostatectomy was done at his request, by Young's method. The prostate was small, fibroid, with the urethral surface studded with small nodules, and every millimeter of the mucous membrane was adherent to the prostatic capsule and came away with the prostatic substance with provoking ease. The contracture had a very hardened opening. The prostatic tissue could not be separated from this sclerosed mass, so it was hemisected in the median line on the urethral floor to the bladder base, and then both halves were removed with rongeurs. A large calculus was removed from a pocket in the vault of the bladder over the pubic arch and a smaller one from a pocket in the floor. For three months he had very little control. He leaked from a small fistula in the perineum, which I never have been able to close permanently, and which communicates with the left lateral cut in the prostatic capsule. Gradually his condition has improved, until he has entire nocturnal control, and his bladder will hold to 150 c.c. of urine in the day time, which he passes in full stream, but when he gets very tired there is, sometimes a little leakage. With a straight urethroscope and a retrograde cystoscope one can see a small tumor of glandular tissue growing into the upper left hand segment of the vesical outlet, and this, in my opinion, if removed, would result in perfect control.

CASE 9.—J. L., aged 75 years, a helpless invalid, referred to me by the superintendent of the Good Samaritan Hospital, Aug. 7, 1905, had previously undergone two perineal operations for prostatic obstruction. After the first operation he still had total retention; after the second he leaked continuously, and in addition suffered from a widespread neuritis and cystospasm. A few drops of urine were expelled with great tenesmus at intervals of from two to five minutes. Under spinal anesthesia he was cystoscoped, and a small node was seen projecting into the urethra from the upper surface on the left side. This was removed suprapubically with a rongeur. The wound healed in sixteen days. On the twenty-fourth day he could retain urine from two to three hours, and eventually made a very good recovery, being able to control his bladder perfectly.

CASE 10.—N. B., 73 years old, patient of Dr. Mott, was operated on by me for enlarged prostate, by Bottini's method, in 1899, from which relief of retention followed, lasting four years. Feb. 2, 1905, a perineal prostatectomy was done. The prostate would not strip from its capsule, and had to be removed with rongeurs. After this operation there was only partial vesical control, best at night. During the day not more than 45 c.c. of urine could be retained, and this was expelled in a feeble stream. May 20, 1905, on cystoscopic examination, using the Schlagintweit retrograde cystoscope, a small round nodule could plainly be seen hanging from the superior wall of the vesical opening of the urethra. There was also considerable edema of the bladder neck, and four minute calculi were discovered lying in a pocket just in front of the intraurethral fold. Oct. 5, 1905, sectio alta was done under spinal anesthesia. The prostatic nodule was removed with a rongeur, and the calculi taken away. It was found that the scar

tissue had formed a shelf over about an inch of the posterior urethra, and so puckered and deformed the opening from the bladder as to leave a small triangular slit that did not close at all. The shelf was cut through to the floor of the urethra and the adhesions broken up. A large catheter was introduced through the urethra and the suprapubic wound closed. Healing was complete on the tenth day. Improvement was immediate. He was soon able to control his bladder perfectly at night, and the increase of ability to retain urine during the day was marked. With the aid of a rubber urinal, to guard against sudden excitement or inability to find a place to relieve himself at the time when urination became imperative, he was able in 1906 to make a long European tour, and now has both nocturnal and diurnal control, except when very tired, when he will sometimes moisten a small pad worn to protect the clothing.

CASE 11.—N. K., aged 89 years, had difficult urination for ten years; retention three years ago. Suprapubic operation for stone and removal of some prostatic obstruction, without relief. A perineal prostatectomy was done two years ago, and following this there was leakage and cystospasm. Cystoscopic examination revealed a large stone and a flap on the left side of the bladder neck, containing a nodule of prostatic tissue.

April 14 a sectio alta was done and I removed a large, granular, phosphatic calculus, $5\frac{1}{2}$ cm. long, $7\frac{3}{4}$ cm. in circumference. A large nodule was found obstructing the urethra on the roof and upper left side of the vesical opening, and smaller growths sprang from the flap on the left of the bladder neck. These were all removed. At the end of five weeks he had entire control of his urine, excepting when over fatigued from working in a stooping position.

Clinical Notes

THE NATURE OF THE POISONOUS ELEMENT OF PROTEINS THAT IS CONCERNED IN THE REACTION OF HYPER- SENSITIZATION.*

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There are several isolated facts and observations that seem to connect the aromatic radicals of the protein molecules with the toxic properties that seem to be common to all proteins, and on which seems to depend the property of inciting various reactions in whatever animal organism a protein may be injected. In the first place comes the fundamental fact that aromatic compounds are usually toxic, from the simple phenol to the highest molecular compounds containing an aromatic nucleus.

Again, the toxic and bactericidal properties of the products of protein disintegration are largely ascribed to aromatic compounds. Obermayer and Pick have found that the remarkable character of specificity of protein seems to depend in some way on the aromatic radicals of the protein molecule, as shown by the following observation: The precipitin that is produced by injecting any given protein into an animal is more or less closely specific for the protein that was the cause of its formation; but if before being used for immunization the protein has been first saturated with iodine, diazo groups, or other substances that combine with the benzene rings of the protein molecule, then the precipitin that will be produced by such an altered protein will not be specific for the protein injected, but will react with

* A preliminary note from the Department of Pathology of the University of Chicago.

almost any sort of protein. For example, the serum of an animal immunized against bovine serum will produce precipitins that react only with bovine serum and not at all with any other proteins; but if bovine serum is first saturated with iodine before being used for immunization, the serum of the injected animal will react not only with bovine serum but also with horse serum, human serum, milk, or any other of a large list of different protein containing fluids. Of similar import is Fleischmann's observation that tryptic digestion of serum likewise causes the serum to be capable of producing only non-specific precipitins; for in tryptic digestion it is the tyrosin and tryptophan radicals that are first split out of the protein molecule. Vaughan and his pupils have been able to split proteins of various sorts into toxic and non-toxic portions, and at the recent meeting of the Association for the Advancement of Science, Dr. Vaughan stated that the toxic portion of the protein molecule contains the aromatic radicals, and that gelatin, which is notoriously poor in aromatic radicals, does not yield a toxic portion.

The connection between the facts mentioned above and the remarkable phenomenon of hypersensitization or anaphylaxis, seems apparent, and it was thought that if these observations and deductions are correct, then the toxic effect of a second dose of a protein injected into an animal that has been sensitized by a previous injection of the same sort of protein given two weeks or more previously, may be dependent on the aromatic radicals of the proteins. To test this hypothesis several attempts have been made, with various modifications of dosage, to obtain sensitization of guinea-pigs to gelatin, which contains in the way of aromatic radicals only a small quantity of phenyl alanin, no tryptophan, and most minute or no traces of tyrosin. In no case has sensitization been obtained, although, so far as the literature shows, every other form of protein that has yet been investigated will sensitize guinea-pigs. These results are in agreement with Vaughan's finding that no toxic group can be split out of the gelatin molecule, and indicate that the toxic substance concerned in the anaphylaxis reaction in some way depends on the aromatic radicals of the proteins, just as the specificity of the precipitin reaction seems to be due to these same radicals. As Anderson and Rosenau¹ have suggested in their valuable studies, this reaction of anaphylaxis seems to be fundamentally related to many of the vital principles of infection and immunity, and if further studies that are under way can establish what the gelatin experiments indicate, that this reaction depends on certain specific groups of the protein molecule, an interesting line of research into the chemistry of these reactions will be opened.

FULMINATING PELVIC-ABDOMINAL EDEMA SIMULATING RUPTURED TUBAL PREGNANCY.

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The similarity of the symptoms to those of ruptured tubal pregnancy in two cases of fulminating pelvic-abdominal edema which came under my observation led me to search the literature for analogous cases. Extensive research and careful study of cases revealed only two cases of fulminating pelvic-abdominal edema in

which a diagnosis of ruptured tubal pregnancy had been made. In one of these the diagnosis of retro-uterine hematocele was changed to salpingitis with suppurative ovaritis before operation was decided on. For purposes of comparison it might be well to give a brief history of these cases before citing my own:

JOCET'S CASE.—The first case was reported by Jocet in 1897. It occurred in a woman aged 28, who had been married eight years; no children. There was a history of having experienced on two different occasions severe pelvic-abdominal pain accompanied by accumulation of fluid in the right iliac fossa, which presented the characteristics of hematocele. These tumors terminated in resolution and the patient was entirely well during the intervals. She had a third attack in September, 1907, which was again diagnosed by another physician as hematocele and, in the light of the previous history, treated expectantly. Her condition improved, but on November 23 she was suddenly attacked by violent abdominal pains and almost incessant vomiting, accompanied by pallor, anxious facies, dry and flaccid skin. At the time of examination, chill; abdomen slightly tympanitic. A large fluctuating mass in the right iliac fossa extended within a hand's breadth of the crural arch. Right lateral cul-de-sac presented a tumefaction which appeared continuous with that of the iliac fossa. Bouilly positively excluded hematocele and diagnosed the condition as salpingitis, with suppurative ovaritis or inflamed cystic ovary. Operation November 25. Incision in right postero-lateral cul-de-sac was followed by a discharge of a large quantity of perfectly limpid fluid. A fluctuating cyst could now be palpated in the abdomen and Bouilly, believing this to be an ovarian cyst which had given rise to the peritoneal phenomena, performed laparotomy and exposed a large gelatiniform, encysted peritoneal mass in the iliac fossa, filled with a clear fluid. Underneath the peritoneal edema was a whitish-pink layer which formed the wall of the true sac. This was punctured and a considerable quantity of fetid pus evacuated. The pus sac was found to be the greatly distended suppurative ovary; it was separated from adhesions and enucleated. Recovery uneventful.

LEGUEU'S CASE.—The second case was observed by Legueu in 1901. Female, aged 21, was admitted to Hospital Hotel Dieu, May 16, 1901. Menstruation began at age of 16 and had always been regular. She aborted in May, 1900, and complained of pelvic disturbances since then. About fifteen days preceding date of admission to hospital, after regular and normal menstruation, she was suddenly attacked by violent pelvic pain accompanied by syncope, extreme pallor, cold extremities, etc. The abdomen was enlarged. Pain diminished somewhat, but the abdomen remained distended, hard and painful to pressure. Vaginal examination disclosed a fluctuating mass in the posterior cul-de-sac. A diagnosis of retro-uterine hematocele was made. On opening the abdomen a quantity of yellow, serous fluid escaped. It was found that a serous exudate had developed around the right adnexa. This contained 500 grams of fluid and extended from the cul-de-sac of Douglas below to a wall of its own above, formed of a fibrinous network of tissue. The adnexa were removed and the roof of the serous cavity allowed to remain. Recovery was accompanied by slight postoperative suppuration. The serous fluid was examined and found to contain leucocytes and degenerated peritoneal epithelial cell.

BRIGGS' CASES.—I will now report my own observations:

CASE 1.—Mrs. G.,¹ came to my office complaining of malaise and pelvic pain. Her menstruation had been normal. By a pelvic examination I discovered only a slight and obscure fulness about the left adnexa. The uterus was normal in size and consistency. Neither the history nor the local condition suggested ectopic pregnancy. Two days later the patient again came to my office. Her face was pale, anxious, pinched; her pulse 120, small and weak; temperature 100 F. The pelvis was completely filled with a fluctuating mass. Notwithstanding the early history I made a diagnosis of ruptured tubal pregnancy. On opening the abdomen I found the pelvis en-

1. Jour. Infect. Dis., 1908, v, 85.

1. Case reported to the Occidental Medical Times, Author give date—with a series of twenty-one ectopic pregnancies.