solution of the origin of many, and it certainly, in my judgment, adds great weight to a belief in the doctrine of a traumatic origin for the greatest number. The inquiries of Poncet, based on histological considerations, whilst admitting slightly, in the case of large cartilages, a "cartilage" or "carphophates," strive to establish a distinction between these and those that have once been pedicled or attached, to the effect that the true traumatic ones never show any remains of a hilus or of any pedicle. I am unable myself to add to the value of these observations, but the subject of such a distinction is filled with interest for future verification.

CASE. Long-standing Loose Body in Knee; Operation for Removal; Treatment of Wound by Lister's Dressing; Recovery without Suppuration.—J. L., aged fifty-five, a railway guard, was admitted into hospital on Nov. 10th, 1880, on account of pain and swelling in the right knee. The patient was a strong, healthy-looking man. He stated that he had never injured the joint, nor had he been laid up with gout or rheumatism. For some time the knee had been giving way, feeling less strong, being occasionally swollen, and on and off for twenty years he had been aware of the presence of a movable body, which occasionally absolutely prevented the use of the limb. On examination the joint was seen to be larger than natural, due evidently to an increase in synovial fluid. There was no thickening, and no suppuration, there being no rise in temperature and no constitutional disturbance of any kind. All dressings were discontinued in fourteen days, and he left the hospital, wearing his support, on Dec. 24th. I saw and examined him on the 4th inst. He was well in health, and moving about with a hinged case as guard at a level crossing. The affected knee was but a little larger than its fellow.

Professor Tilden reports—"Weight of the whole nearly 99 grains. It yields 65·3 per cent. of white ash, consisting of carbonate and phosphate of lime. The residue gives a solution of silver nitrate at the bedside. The qualitative albumen was tested by Fehling's solution at the bedside. The series of urinary test papers which, a few months ago, I proposed as substitutes for the bottles of nitric acid and Fehling's solution at the bedside. The qualitative albumen precipitants I then brought forward have been extensively used by the profession, and I must now publicly and collectively thank many correspondents for their interesting and gratifying communications and reports. It was, until lately, so far as I know, only in the case of the sugar which is tested by the qualitative methods which these test papers provide us; and, after that, to have brought forward the qualitative and quantitative testing of sugar by reagents also on paper. But the pressing request of many of my friends urging me to produce the sugar test papers, and the importance of bringing them forward just now—the professional mind being unusually alive to receive impressions of new methods of clinical inquiry in this direction—have induced me to alter the order of the publication of the urinary matter still to be advanced. I therefore now wish to make a few remarks on qualitative sugar testing by means of test papers, and to reserve the quantitative methods for both sugar and albumen for another occasion. When looking round for a good and at the same time convenient test for sugar in the urine, I was particularly struck with a fact relating to indigo; and that was the presence of this intensely blue substance in a colourless state, when associated with glucose or some similar sugar; for in a solution in which indigo is the only dyestuff, it combines with indiglucin, which has a chemical formula only slightly removed from that of glucose; or when the dyer mixes indigo with glucose and dilutes caustic alkali to produce a colourless solution, in which he immerses his fabrics, which acquire a blue colour on exposure to the oxygen of the air. It then appeared to me a reasonable question to ask, Can glucose in the urine be made in some way to discharge the deep blueness of indigo, and thus to tell the

---

1 Read at the Clinical Society of London, May 11th, 1882.
2 See THE LANCET, January 27th and February 1st, 1883.
of its presence? Experiment gave a positive answer: for when indigo was suspended—it did not dissolve—in a weak solution of soda, or in a stronger one of carbonate of soda, a test tube containing the urine, which, when indigo was dropped into the urine, underwent a series of remarkable changes of colour—from blue to green, then to violet, to red, and finally to yellow. I logged to run the liquid containing carbonate of soda, the urine, and indigo, in a fine test-tube of filtering paper as a test tube; because, with carbonate of soda as the alkali, the test papers would have been more durable than with solution of soda. But unfortunately, after deposition of the precipitate the urine was not left in its full purity, for in a work by M. Ménihn a statement to the effect that when the carmine of indigo is heated with carbonate of soda, and a solution of glucose or saccharine urine, the blue colour is converted into a red one, I subsequently found that this was false, a remarkable thing is not due to cooling, but to admitting the oxygen of the air into the liquid; for the varying hues at any moment depend on the presence of the oxygen of the air.
gives no precipitate, but only the distinct green colour just referred to, the indigo test affords a very pronounced and beautiful purplish-red reaction with the second drop of the urine. So far as I can at present decide, though I feel that further experience must be appealed to, normal urine, as a rule, gives a distinct violet tint that is consistent with its ordinary diabetic urine. In the case of albuminous urine it is therefore unnecessary to precipitate the albumen and filter. It is well known where there is much albumen and little sugar—as in this condition—there is not only a much more intense yellow, but also gives no play of colour with uric acid, though the latter can possess the following advantages over Fehling:—1. It will vision some new facts in relation to sugar as a symptom of preservation which has not been compassed by the reagents hitherto employed. May it not bring within our clinical consistent with good health and the larger amount which accurate and very sensitive means of detecting and gauging the normal sugar, and, furthermore, those variations which beautiful purplish-red reaction with the second drop of the i...rule, to practitioners than the discovery of fine gradations, variations of quantity; for these are far more useful, as a...for glucose. Dr. Raife informs me his results were gra...is less liable to fallacy than the others, even though special urines—such as albuminous, purulent, and bloody ones—are not prepared for its operation by the separation of albumen, &c. As yet I have not met with anything in the urine besides glucose which brings out the characteristic play of colours. A good qualitative test should have as one of its working properties the power to easily display the coarser variations of quantity; for these are far more useful, as a rule, to practitioners than the discovery of fine gradations, which are little more than the refinements of the laboratory. This property the test before us possesses, as you will discover after putting it on its trial, and becoming acquainted with its behaviour; for, as with any new instrument, we can only duct, or rather may apprehend from it. This other urine for this purpose should be diluted with water—and still only one drop should be examined as before; or after the development of the complete reaction the fresh addition of a paper, or a portion of a paper may be made, when perhaps the straw-yellow will fail to appear. But each one will doubtless discover his own way to similar results. I have abstained from referring to the claims of picric acid and caseinic potash, introduced by Dr. George Johnson, as compared with those of the test I here bring forward; because both—in the forms in which they are presented—are new, and their respective merits must be decided by facts and observations which can only be gathered from a trustworthy reliance upon, after long and patient inquiry.

P.S.—Since reading this paper I have found that Dr. Raife has lately made some experiments with ordinary indigo as a test for glucose. Dr. Raife informs me his results were gratifying. He has the result of a case in which two drops of the test paper may be found, as I had likewise done, this idea impracticable, and for the time relinquished the matter. He informed me the test, as a liquid, was used in Germany (see Neubauer and Vogel, Syndenham's Society's Transactions), and about thirty years ago grape sugar, he believed, was employed by manufacturers to quantitatively determine samples of indigo. If so, how strikingly one may sketch out the opposite side of the same fact, that he may approach it from the other side; for, instead of estimating indigo by glucose, my proposition is the reverse.