erable volume of blood, must have been a frequent predisposing cause of relapses. The larger the cord, the greater the diameter of the ring must be; and the compressibility of its veins would readily allow the omentum or bowel to enter the ring, during the maximum of intra-abdominal pressure.

5. The condition assumed by the muscular aponeuroses deserves careful attention. Some of the changes consequent to the constant pressure for years upon the structures external to the inguinal canal and hernia are, that they first of all assume a tumor-like appearance, which may come and go as the hernial contents protrude or recede. Within a variable time the bulging becomes permanent; and should these parts be now examined, the muscular and fibrous portions are found to be thin and overstretched; the muscular tissue more or less fibrous and atrophied, the fibrous elements less resisting; the cremasteric muscle appears like fibrous bands; the external oblique, internal oblique and transversalis muscles adherent together, making it difficult and sometimes impossible to differentiate one from the other, or, indeed, from the sac beneath them with which they also form a strong union; the conjoined tendon is forced inward and backward, while Poupart's ligament is pushed down and outward, and the pillars are found wide apart.

It is interesting to notice the alteration in the surrounding blood vessels. The deep epigastric artery may be almost obliterated, while the accompanying veins and the superficial vessels are enlarged and more numerous than is normal.

All of the above mentioned changes cannot be rectified by any operative procedure; but the abdominal aponeurotic walls can be thickened by overlapping and firmly securing them beneath the cord, while the conjoined tendon and internal pillar on the one hand, and Poupart's ligament and the external pillar on the other, can be approximated. While these different conditions and alterations are fresh in our minds, let us briefly associate with them the shortcomings of the principal operations, that have hitherto found most favor with the profession, in endeavoring to effect a radical cura.

I. Czerny's Operation, or Bank's, as it is called in Great Britain, consists in removing the sac below a ligature, and of suturing the pillars together.

OBJECTIONS.

1. The sac is removed.
2. The infundibuliform process is not obliterated.
3. The tensity of the transversalis fascia is not restored.
4. The enlarged internal ring is not materially lessened.
5. An enlarged spermatic cord is not reduced in size.
6. The abdominal aponeuroses cannot be as firmly secured in front of the cord, without danger, as behind it.
7. Relapses are too frequent.

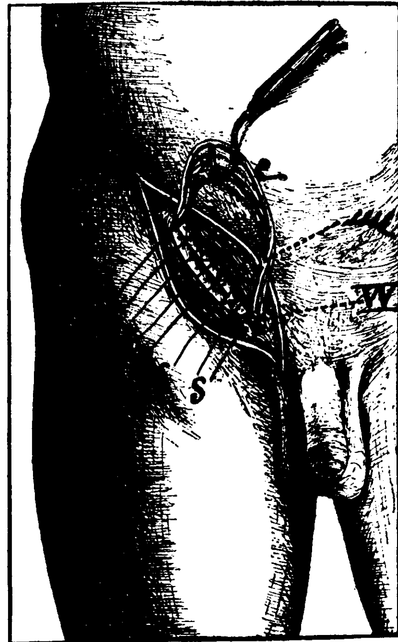

PLATE II.

S.—Sutures closing the canal.
C.—Cord.
W.—Veins excised.
SSSS.—Sutures in transversalis fascia tied.

II. Macewen's Operation in selected, and perhaps in the majority of cases, is probably the best herniotomy for radical cure yet produced. In it the sac is utilized as a tampon to obliterate the infundibuliform process, and the canal is closed by bringing the external structures over the conjoined tendon and overlapping it, thus restoring its valve-like form. This is accomplished by means of one mattress suture of extra