

duction of a murmur. Dr. Rudolf laid down the following rules to aid in the diagnosis of functional from organic murmurs:

1. They occur in adolescence and young adults.
2. They are more common in males than females.
3. They all occur during ventricular systole.
4. While the pulmonic area is the most common situation for functional murmurs, it is a rare site for organic murmurs (congenital stenosis being the only one found).
5. Functional murmurs are heard in the neck; *e.g.*, bruit de diable.
6. As the general health improves, functional murmurs tend to disappear; organic murmurs, on the other hand, tend to get louder with increasing strength.
7. Functional murmurs are soft, and accompany rather than displace the first sound.
8. They are not so widely propagated as organic murmurs.
9. They vary under certain conditions; *e.g.*, they are louder after exertion, and are especially increased on lying down.
10. The pulmonic second sound is accentuated early, even before the murmur is heard; this is not so in organic pulmonary stenosis.
11. They are accompanied with little signs of dilatation or displacement of the apex.
12. Cardio-respiratory sounds are sometimes mistaken; ask the patient to hold his breath and they will disappear.
13. Signs of failing compensation are rare in functional cases.
14. The patients are not conscious of the existence of the murmur. An analysis of the patients in the surgical wards of the H. S. C. showed that in 60 per cent. functional murmurs were present. An analysis of a number of wards in the Toronto General Hospital and St. Michael's Hospital showed the existence of functional murmurs in 50 per cent. of the patients.
15. Fever gives rise to functional murmurs. They occur in 66 per cent. of scarlet fever cases, and are apt to recur in rheumatic fever. A useful rule in this connection is, "Functional murmurs tend to occur late in fever (*e.g.*, rheumatic fever), while endocardial murmurs appear within the first ten days."
16. Pressure has not much effect as a rule in altering functional murmurs.

Finally, we are all too apt to conclude that there is organic disease when we hear a murmur, and we are too easily soothed into believing the patient organically sound when no murmur can be discovered.