

It has to be kept in mind that just as in exophthalmic goitre, so here there may be characteristic heart troubles. We owe to Kraus the most recent study of the goitre heart. While he denies the relationship between the ordinary and exophthalmic goitre, he nevertheless points out very clearly that in the cardio-vascular disturbance of ordinary goitre, tachycardia is the most important symptom. According to him, the symptoms have two stages of intensity: 1st, increased action, more rapid pulse, with or without palpitation, the rate varying between 90 and 120, and occasionally becoming as rapid as 140 per minute. With this increase there is also a stronger beat of the heart, a heaving apex beat, a visible pulse, particularly in the carotids; in the radials this is large and rather soft and of a dirotic character. The second group of cases of greater intensity occurs in long standing conditions or after repeated exacerbations, and now one has every evidence of dilatation of the heart, especially of the left side. Such cases at post mortem show sometimes no special hypertrophy of the organ, but in others there is a true hypertrophy. This, according to Kraus, is relatively frequent, and has associated with it a degeneration of the myocardium. Kraus' observations are based upon a long continued study of 15 cases of the disease; he calls attention to certain observations of Cyon, which show that removal of the thyroid gland leads to conditions in the organism which stimulate directly the nerve system and especially affect the sympathetic ganglia and the accelerator fibres of the heart. On the other hand, iodothylin stimulates more the regulator or inhibitory apparatus of the heart and vessels. In the goitre heart, according to Kraus, one notices both these occurrences, namely, increased rapidity of the pulse and strengthening of the heart beat, and he concludes that in goitrous patients there is, through some disturbance of the gland, the simultaneous increased stimulation both of the accelerator and of the inhibitory nerve fibres of the heart, and that mere increase in thyroid secretion will not explain these.

But clearly the tachycardia and other vascular disturbances generally absent, or when present transient and of a moderate degree, seen in cases of ordinary goitre, are not merely those of pressure, and herein they correspond with the similar though more extensive changes seen in exophthalmic goitre.

Further, it has to be kept in mind that there may be a certain amount of exophthalmos in a case of ordinary goitre. Sometimes it is unilateral, and this unilateral development is perhaps best explicable by presupposing some pressure upon the sympathetic on that side. It is, however, doubtful whether exophthalmos is to be ascribed merely to irritation of the sympathetic nerves. Indeed, Askanazy's most inter-