We have so far obtained a large number of curves (over 50) with small doses, giving a blood sugar minimum at about 60 minutes. Due to the small number of points these curves are not conclusive. Twelve curves of 90 minute duration are satisfactory and 9 curves of 120 minutes or more all show good agreement with calculated values.

Curve II is plotted from data of Collens and Grayzel[3] obtained on human diabetics after 1/20 unit of insulin per kilo is given intravenously. It will be seen that this also gives quite an acceptable linear relation between the logarithm of blood sugar and time. The conclusions which the authors draw from their observations, namely that on the basis of absolute values of change in blood sugar the action of insulin in the diabetic is more marked than in the normal would be considerably modified if the principles laid down by Scott and Dotti were given consideration.

8164 P

Chest Leads in Normal Children.*

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Chest leads in the electrocardiogram are now used for research purposes and often for the diagnosis of coronary artery thrombosis and rheumatic fever. Chest leads of normal adults have been published[1, 2] but as yet no control records of children are available.

Seventy-one normal children, from 2 to 15 years of age, 36 males and 35 females, were electrocardiographed. Seven anterior chest positions were studied and form the basis of this report. Position 1 was 2 cm. to right of midsternal line; position 2 was over the midsternum; 3, was 2 cm. to left of midsternum; 4, —4 cm. to left; 5, —6 cm. to left; 6, —8 cm.; and position 7, —10 cm. to left of midsternum.

The chest electrode was placed over the 4th intercostal space in

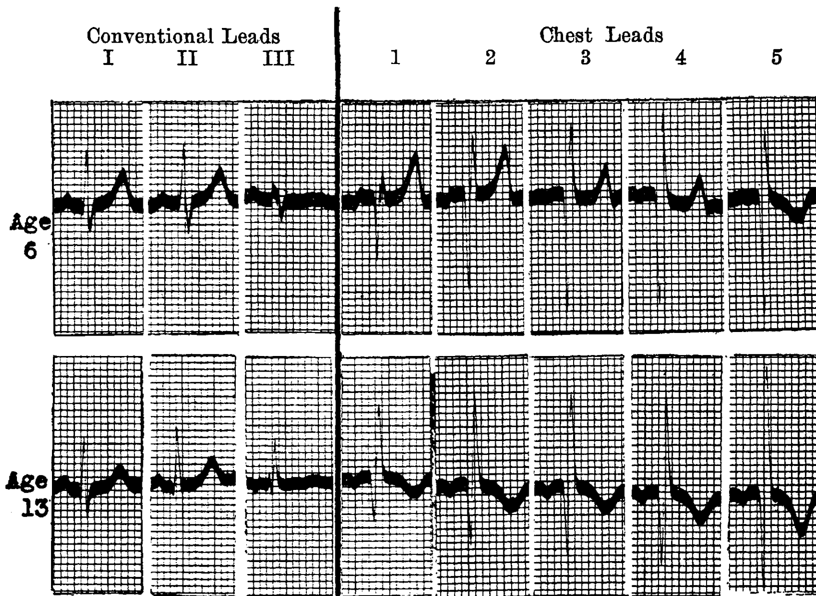
3 Collens, W. J., and Grayzel, H. G., PROC. SOC. EXP. BIOL. AND MED., 1931, **28**, 487.

*This investigation was made possible by grants from Gov. Herbert H. Lehman, Mrs. Charles and Mr. Frank Altschul.

1 Katz, L. N., and Kissin, M., *Am. Heart J.*, 1933, **8**, 595.

2 Master, A. M., *Am. Heart J.*, 1934, **9**, 511.

the younger children and over the 5th space in older children, corresponding to the position of the apical impulse. All children were in the reclining position. The anterior electrode[2] was a glass funnel 1 in. in diameter, in which coils of copper wire in a saline moistened pad made contact with the skin. The second or inactive electrode was applied to the left leg. This procedure[2] has been outlined before.



Position I, II, III, conventional leads.
Position 1, right of sternum; 2, over sternum; 3, left of sternum; 4, within the apex; 5, at the apex.

The "average limits" hold for 90% of the cases except for the height of the P-waves, where the averages occurred in 75%.

P-Waves. The height varied between —1 and +½ mm. but the wave was often absent. Negative P-waves predominated in all positions. Positive P-waves were more common at the apex than at the sternum. *The P-Q Interval.* The average duration was 0.10-0.14 second. *The Q-wave* was never absent. It increased in size from sternum toward the apex. The average amplitude was 2 to 22 mm.; the extreme limits were 1 to 33 mm.

R-Wave. The average limits were 2 to 22 mm. There was a tendency to decrease in size from sternum to apex, beyond which it was occasionally absent. Extremes of ½ to 40 mm. were observed. *Notching and slurring* of the QRS-waves were not abnormal and

may occur in any position. *An initial upward deflection* of the QRS occurred only at or outside the apex, never over the sternum. *The QRS duration* measured 0.06-0.08 second. *R-T transition interval.* No elevation or depression over 1 mm. was found in any position. Elevation is common over the sternum but may occur at the apex; the reverse is true of depression. *T-Waves.* A positive or diphasic T-wave occurred in 30% of the cases at the apex and in 60% within the apex. This is in distinct contrast to the findings in adults in whom a positive T-wave is definitely abnormal. Upright T-waves were most frequent over the sternum, decreased progressively toward the apex and disappeared completely outside the apex. With increasing age there was a tendency for the T-wave to be inverted at the apex, *i. e.,* it became the adult type. (See Fig. 1.) The extreme limits for size were —6 and +8 mm.

Conclusion. Positive T-waves at, or within the apex, which are abnormal findings in adults, are normal in children.

8165 P

Action of Gonadotropic Hormone from Pregnant Mare's Serum on Ovaries of Rhesus Monkeys.*

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Since the demonstration of Cole and Hart[1] that the blood serum of pregnant mares contains large amounts of gonadotropic hormone, this hormone has been the subject of much investigation. Although the recent work of Catchpole and Lyons[2] indicates a placental origin of the hormone, it has been found to have biological effects similar to those found in the pituitary gland and to differ markedly from the chorionic hormone of human pregnancy. Thus the experiments of Evans, *et al.,*[3] have shown that the hormone of the pregnant mare is able to cause a marked enlargement of the ovaries of hypophysectomized rats, and it has been found to possess a pronounced stim-

* We wish to thank August Kongsted, President of the "Løvens kemiske Fabrik," Copenhagen, not only for the hormone preparations but also for supplying the monkeys for this experiment.

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1 Cole, H. H., and Hart, G. H., *Am. J. Physiol.,* 1930, **93**, 57.

2 Catchpole, H. R., and Lyons, W. R., *Am. J. Anat.,* 1934, **55**, 167.

3 Evans, H. M., Meyer, K., and Simpson, M. E., *Mem. Univ. Calif.,* 1933, **11**.