



The angle of formation dip has to be considered also.

#### Influence of Dip Angle

In horizontal or nearly horizontal formations the isogeotherms are not appreciably warped, i. e. they are nearly horizontal. The same result obtains when the sediments are vertical or nearly so. The maximum isotherm dip is

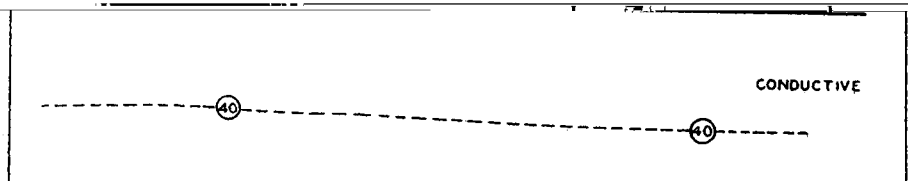


Figure 3-4. Isogeotherms in the vicinity of a heat-resistant monocline.

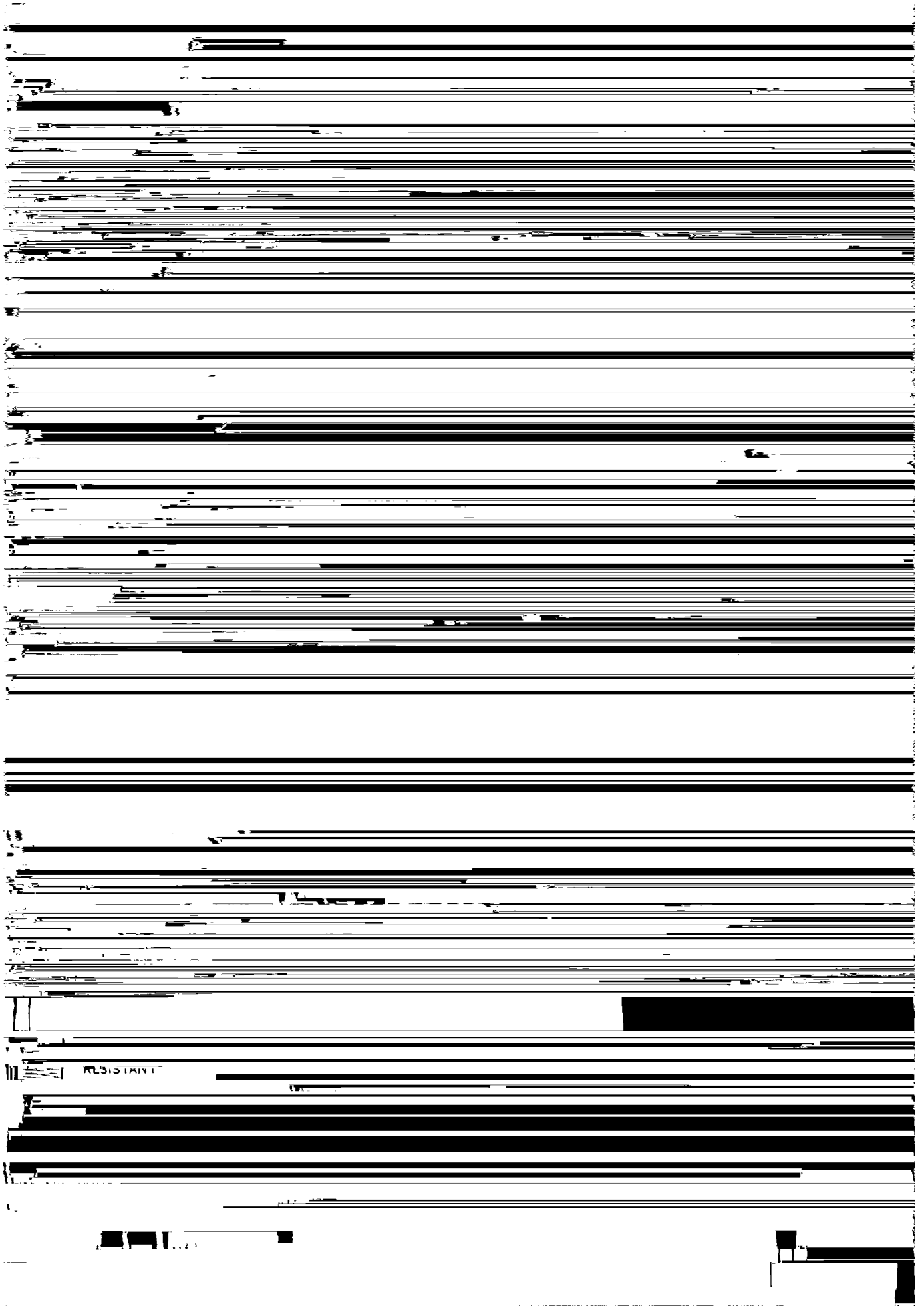


Figure 3-7. Isotherms in an anticline containing resistant layers (scale model data).

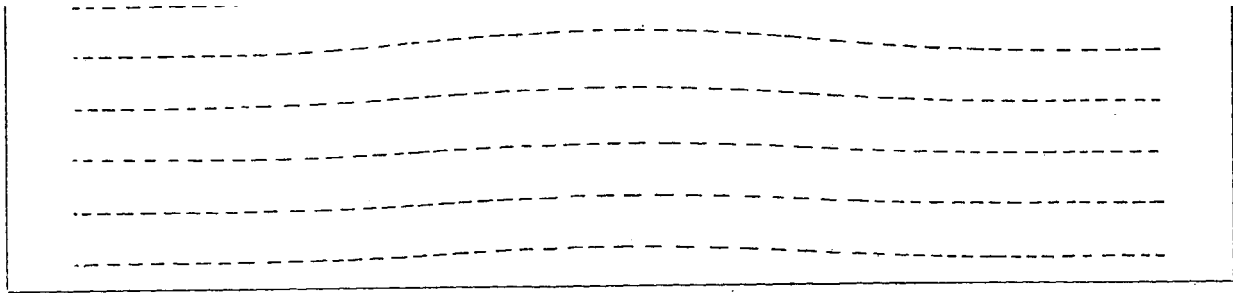


Figure 3-9. Isotherms in the vicinity of a topographic high (estimated).



Figure 3-10. Isotherms in the mountain traversed in Saint-Gothard tunnel (data extrapolated).

After Albert Heim, "Der Mechanismus der Gebirgsbildung," 1878.

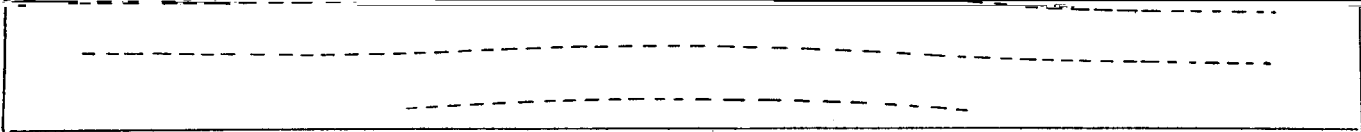


Figure 3-12. Isotherms in the vicinity of a topographic high when the influence of the atmosphere is neglected (scale model data).

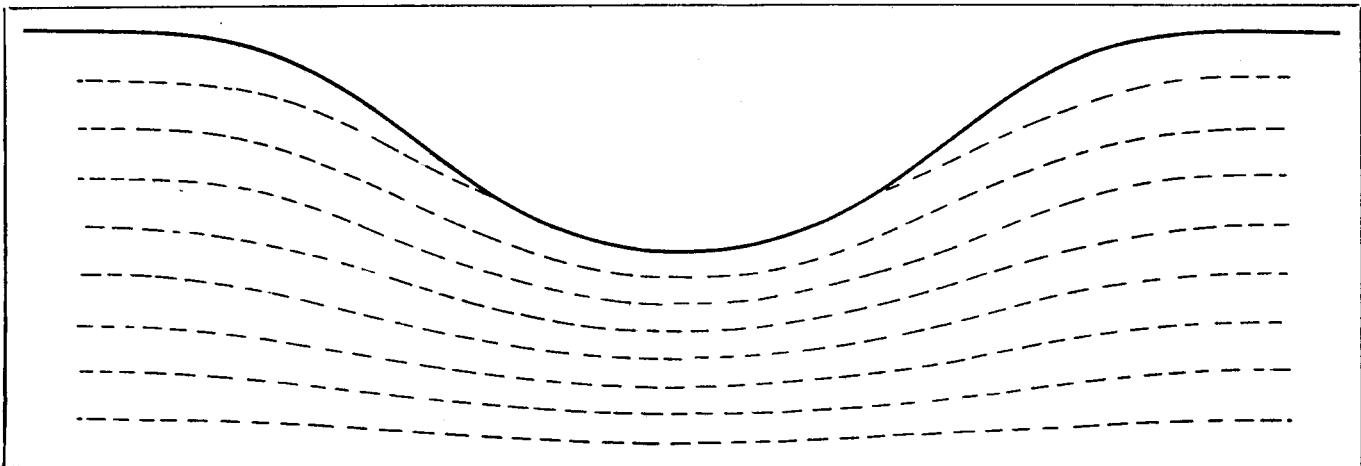
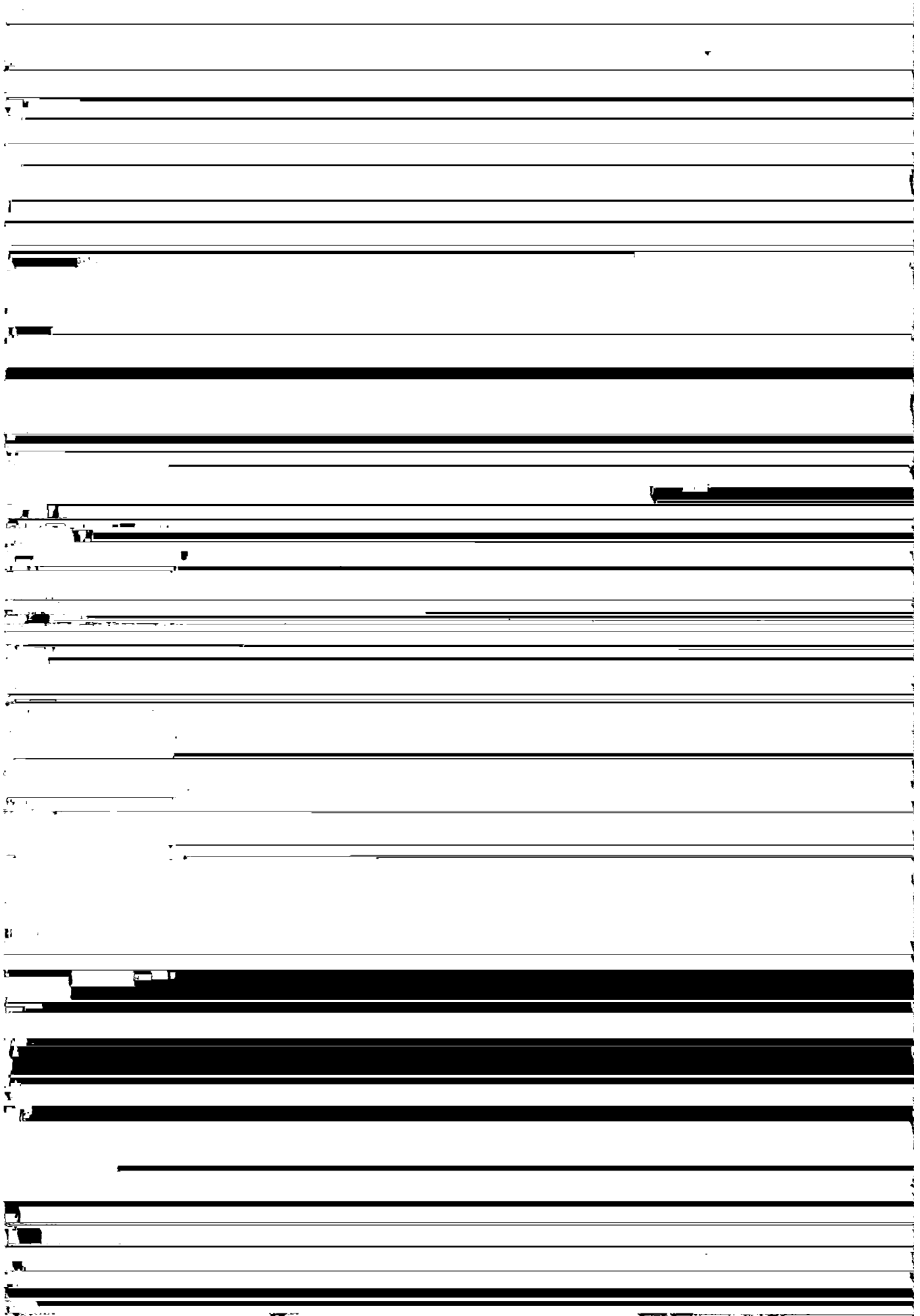


Figure 3-13. Isotherms below a topographic depression (estimated).



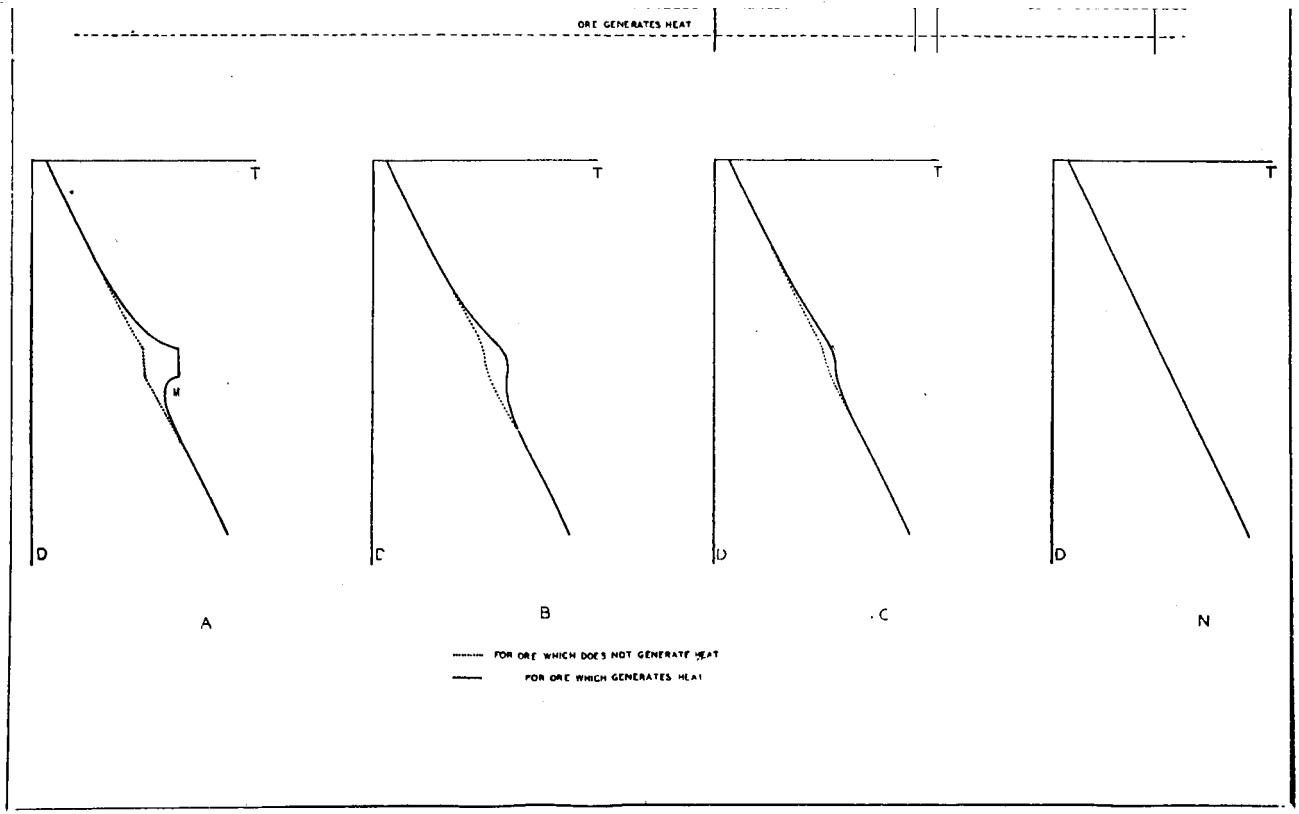
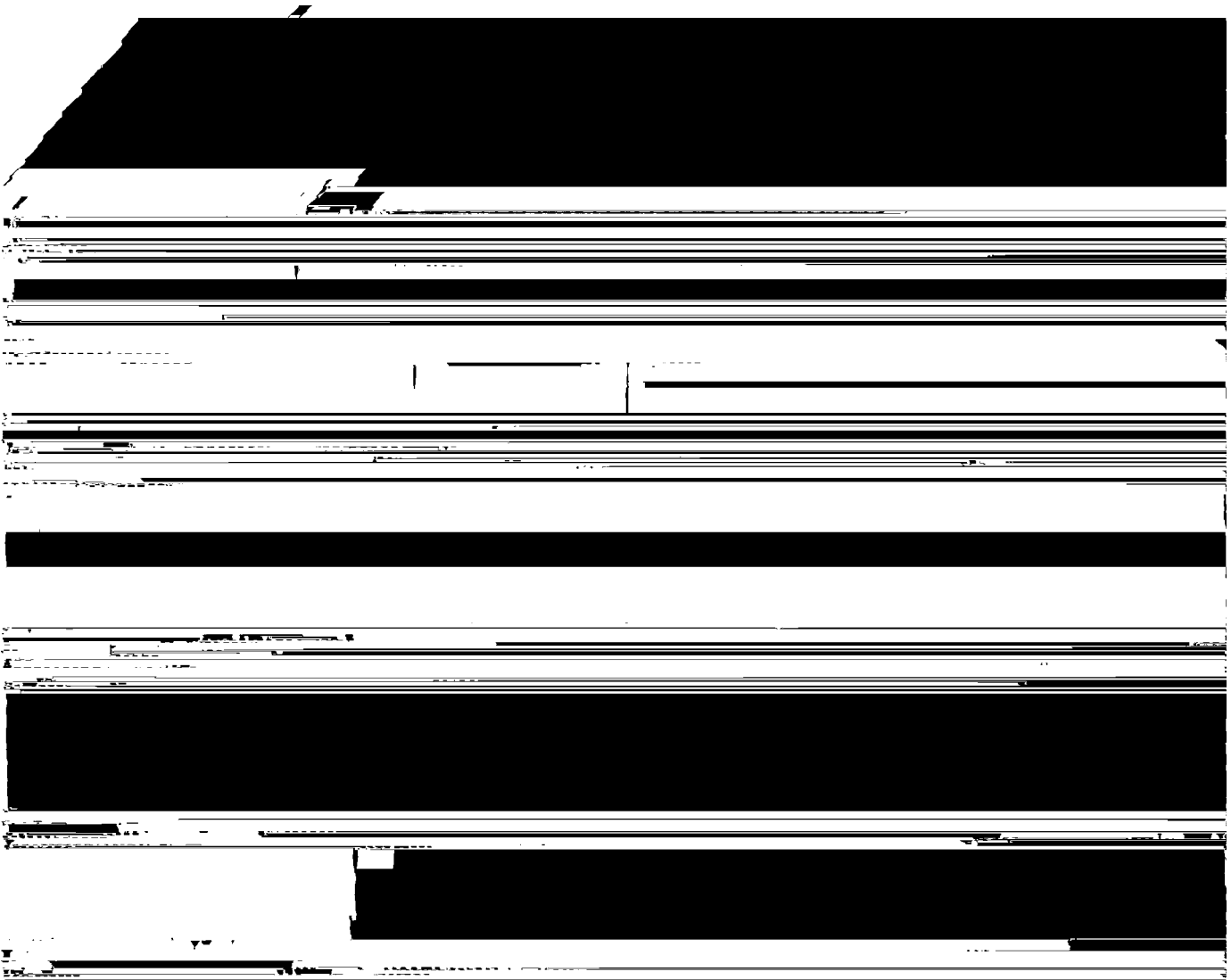


Figure 3-15. Isotherms and depth-temperature graphs in the vicinity of ore deposits.

is comparatively dry—the temperature difference  $T_g - T_A$  is, on the average, greater than in the other petroliferous provinces.

#### Conclusion

The temperature data presented in the foregoing discussions refer to relatively simple conditions. Actual formations are usually more complex and present a combination of many of the individual factors investigated here. The temperature distribution for these more complex cases can generally be estimated reasonably well by superposition.

It is appreciated that many other phases of the problem have also been oversimplified, especially quantitatively. This was unavoidable in an elementary treatment of the problem of the ground temperature.

#### REFERENCES

- <sup>1</sup> Hubert Guyod, "Electrical Well Logging, Part 5," The Oil Weekly, September 4, 1944.
- <sup>2</sup> A.P.I., Production Bulletin No. 205.

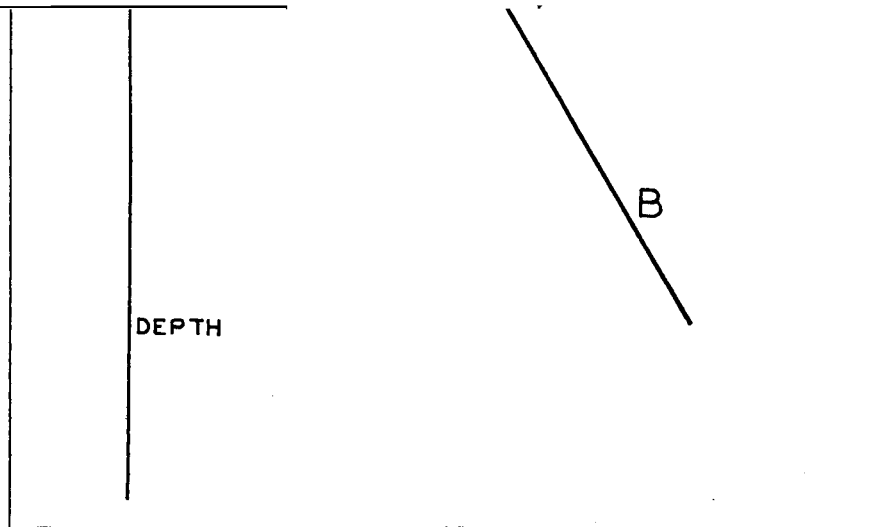


Figure 3-17. Temperature near the surface of the ground.