

THE ENGINEER AND GRAIN-SIZE CONTROL IN STEEL

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INTRODUCTION.

The object of this short paper is to invite the attention and arouse the interest of Engineers to a very useful development in steel metallurgy, of recent growth, namely "Grain-size control in steel", which originated in the United States of America and is now actively pursued all over the world particularly in America and the United Kingdom. A voluminous literature has been compiled on the subject by various scientific bodies. It is hoped that this summarised survey on "Grain-size control in steel" will briefly present the essential data on the subject to the Engineers without their having to resort to a comprehensive and detailed study of this field of steel Metallurgy—often a discouraging task to non-metallurgists.

It is further hoped that a study of the data will initiate the applications of the developments in "Controlled grain-size" to various types of Indian steels both by the steel makers and users in this country.

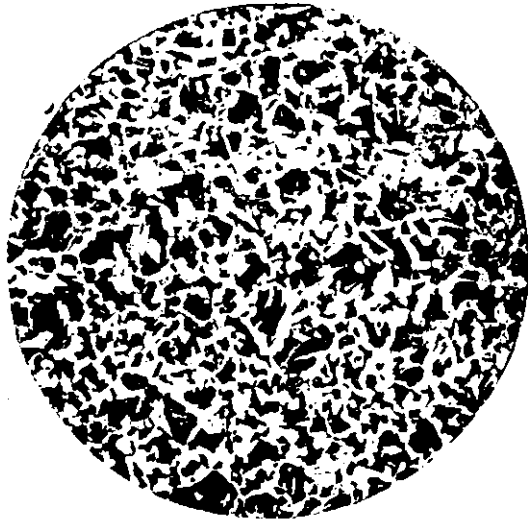


FIG. 1.—Normal structure of low Carbon Steel.

Magnification 100 Dia.

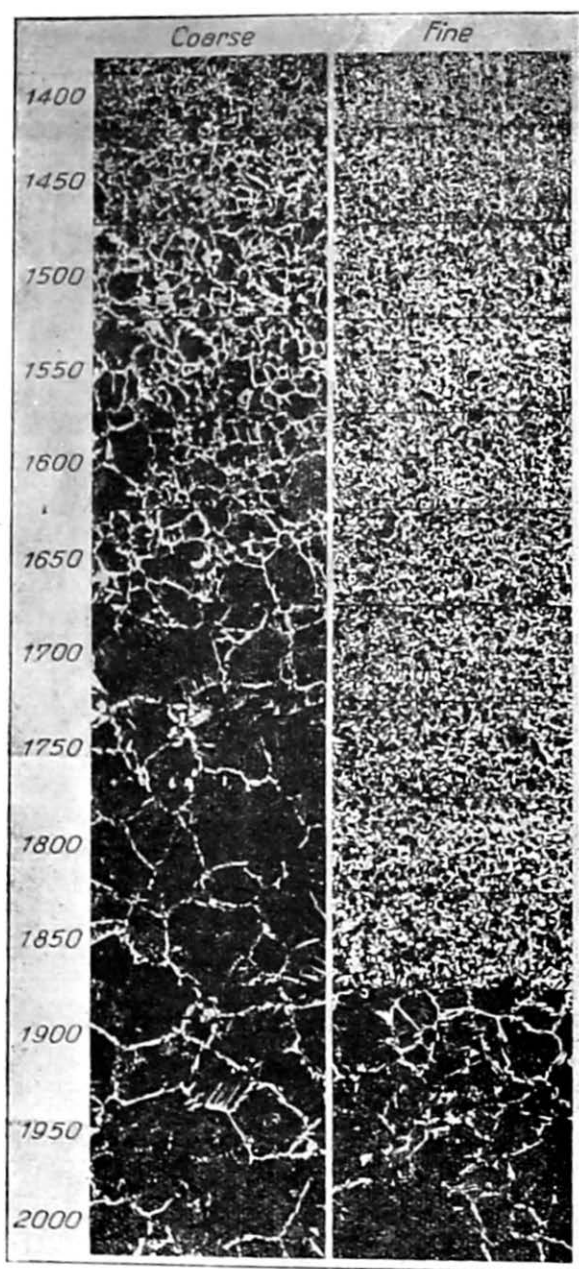


FIG. 2. Composite Micrographs showing the actual grain sizes of the Coarse and Fine-grained types after normalizing at Temperature shown in degrees Fahrenheit. (P. Schane Jr.)

PHOTO MICROGRAPHS SHOWING AUSTENITIC GRAIN SIZE IN STEELS.



FIG. 10. Coarse grained tyre steel etched
in Sodium Picrate.
X 100



FIG. 11. Extremely coarse grained tyre steel
etched in Nital.
X 100

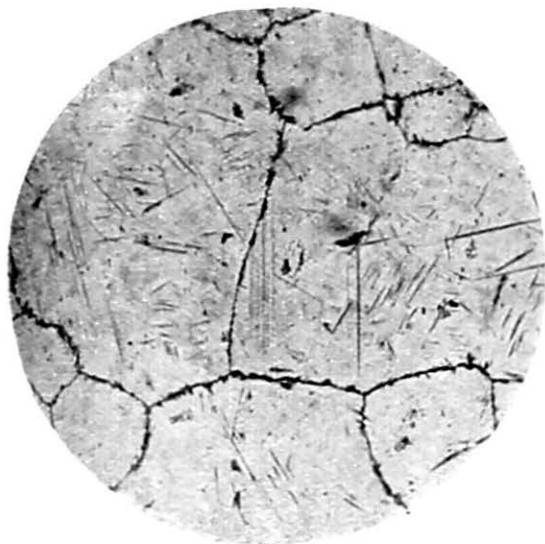


FIG. 12. Coarse grained tyre steel etched
in Sodium Picrate.
X 100

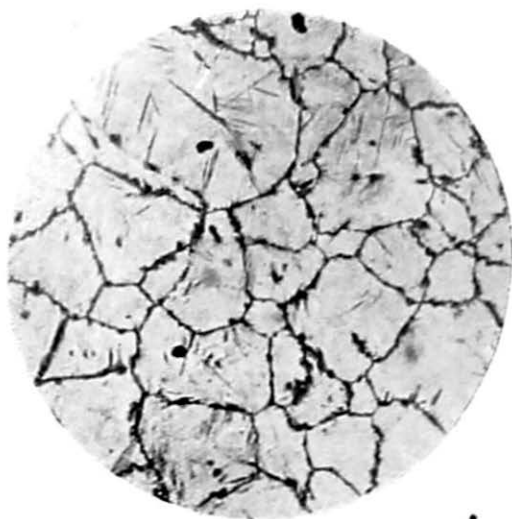


FIG. 13. Fine grained tyre steel etched in
Sodium Picrate.
X 100

PHOTO MICROGRAPHS SHOWING AUSTENITIC GRAIN SIZE IN STEELS.

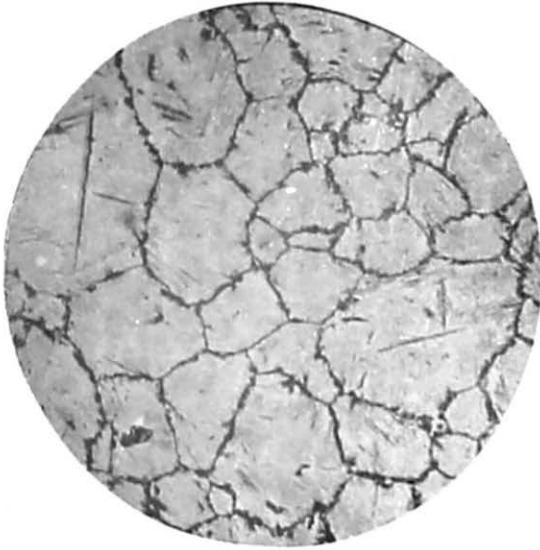


FIG. 14. Fine grained tyre steel etched in Sodium Picrate.
X 100

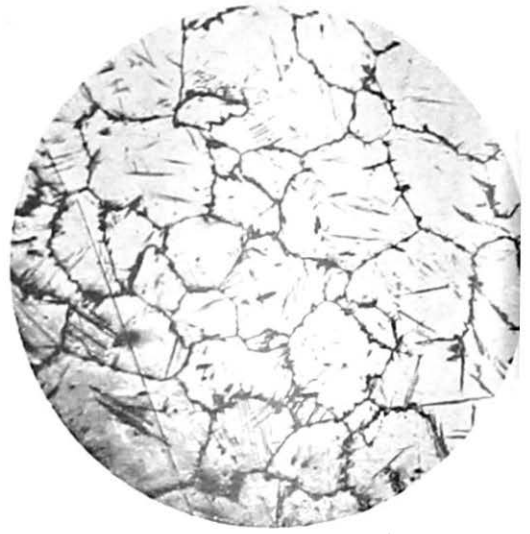


FIG. 15. Fine grained tyre steel etched Sodium Picrate.
X 100

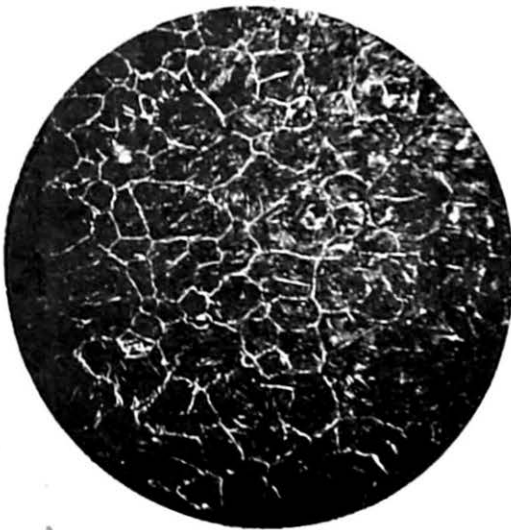


FIG. 16. Fine grained tyre steel etched in Nital.
X 100

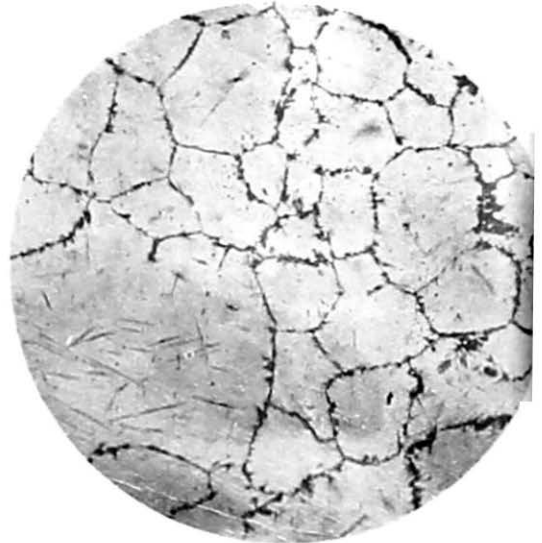


FIG. 17. Duplexed grained tyre steel etched in Sodium Picrate.
X 100

PHOTO MICROGRAPHS SHOWING AUSTENITIC GRAIN SIZE IN STEELS.

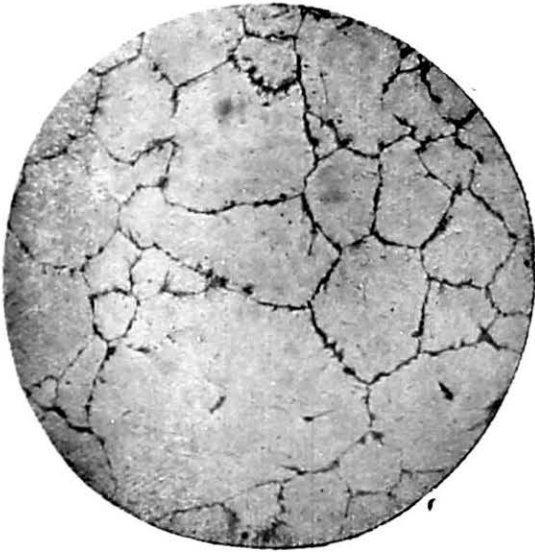


FIG. 18. Tyre steel showing Duplexed grained structure etched in Sodium Picrate.

X 100

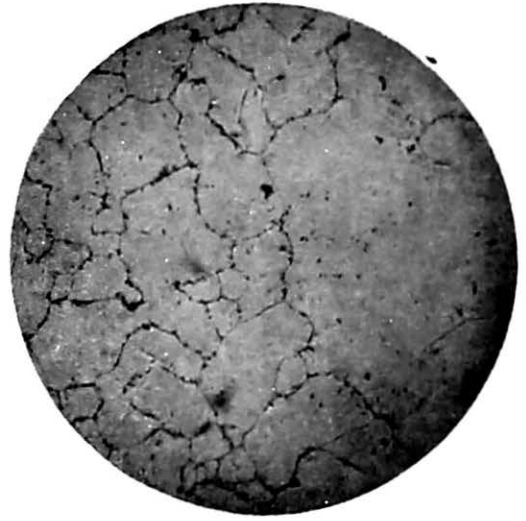


FIG. 19. Axle steel showing Duplexed grained structure etched in Sodium Picrate.

X 100



FIG. 20. Fine grained Axle steel etched in Sodium Picrate.

X 100



FIG. 21. Coarse grained Axle steel etched in Sodium Picrate.

X-100

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