

BOOK REVIEW

Darstellende Geometrie. By Wolfgang Haack. Sammlung Göschen Volume 142 and 143. Walter de Gruyter & Co., Berlin, 1954. Vol. I, 110 pp., 117 figures, DM 2.40; Vol. II, 129 pp., 86 figures, DM 2.40.

In the reviewer's country before the World War II, all the students in sciences except those in medicine had rather strict training on descriptive geometry before entering universities. After the War change was made and the teaching hours on descriptive geometry were drastically cut down to find the results unsatisfactory. Now the teaching hours are restored to the prewar level. The training on descriptive geometry is apt to be neglected in the so-called "liberal education", but its importance is realized by the bitter experience.

The "Darstellende Geometrie" by Prof. Dr. Wolfgang Haack reviewed here will be completed by three volumes according to the author's announcement. The first and second volumes have appeared by now. They make the hundred and forty-second and -third books in the "Sammlung Göschen", which issued the similar textbooks on descriptive geometry by Prof. Dr. R. Hauszner and the present author jointly.

One of the characteristics of this new book by Dr. Haack is that comparatively little analytic geometry is used in explanation. This is to be justified in the reviewer's country, because descriptive geometry is taught before the students are trained in analytic geometry of three dimensions.

The first volume of this book begins with an introduction in which the author describes the history of descriptive geometry and emphasizes the close relation between descriptive geometry as a pure science and as a practical one. The students in civil engineering will find Chapter IV of Vol. II to be interesting. The ex-

planations and drawings for illustration throughout this book are clear and concise. Exercises are not given as themselves, but they are included in the explanations. We hope that Sammlung Göschen would issue an independent exercise book on descriptive geometry. It would help students greatly in mastering the various devices in descriptive geometry.

The following are the titles of contents:

Volume I.

Chapter I. The Most Important Methods of Representation. 1. Central projection. / 2. Parallel projection. / 3. Orthogonal projection. / 4. Top and front views of simple bodies. / 5. The applications of various methods of representation. Kavalier perspective. / 6. Kavalier perspective of a cylinder. / 7. Axonometric representation.

Chapter II. Points, Straight Lines and Planes. 8. The four quadrants. Median plane. / 9. Straight lines; straight line segments. / 10. Monge's method of rabattement. / 11. Rabattement of supporting triangle. / 12. Representation of planes by their traces. / 13. Straight lines and points on a plane which is given by its traces. / 14. Plane given by three points on it. / 15. True shape of the figure on a plane.

Chapter III. "Construction of intersection of planes and straight lines. 16. The intersection of a plane and a straight line. / 17. The intersection of two planes. / 18. A straight line perpendicular to a plane. / 19. The angle between two planes. / 20. The angle between a straight line and a plane; the shortest distance between two straight lines. / 21. Introduction of auxiliary views.

Chapter IV. A Body whose boundary surfaces are planar.

22. Section of a beam by a plane. /
23. Section of a pyramid by a plane. /
24. Intersection of two beams. / 25.
Intersection of a pyramid and a prism.

Chapter V. Affinity.

26. Affinity; invariant pair of right
angles. / 27. An ellipse as affine
image of a circle. / 28. Construction
of ellipse.

Volume II.

Chapter I. Cylinder, Cone and Sphere.

1. Projections of cylinder in arbitrary
position. / 2. Cavalier perspective of
circle and cylinder. / 3. Section of
a circular cylinder by a plane. / 4.
Sphere: Cavalier perspective, Section
by plane and straight line. / 5. Top
and front views of a cone; Cavalier
perspective of a cone. / 6. Intersection
of a cone and a straight line. / 7.
Conic sections; ellipse, parabola and
hyperbola. / 8. An ellipse as conic
section. / 9. Elliptic section of a
cone by a plane. / 10. Hyperbolic
section of a cone by a plane. / 11.
Section of a hexagonal prism by a
coaxial cone.

Chapter II. Intersection of cylin- ders, spheres and cones.

12. Conic section as lines of inter-
section. / 13. Herrmann's arrangement
of cones in treating conic sections. /
14. Construction of intersection by
method of auxiliary sphere. / 15. The
three kinds of lines of intersection.
/ 16. Intersection of cone and sphere.
/ 17. Further examples of intersection.
/ 18. Cylinder and sphere.

Chapter III. Surfaces of revolution
and helical surfaces. / 19. Intersection
of a torus and a plane. / 20. Inter-
section of a torus and a cylinder. /
21. Intersection of a torus and a cone.
/ 22. Screw line. / 23. Screw surfaces.
/ 24. Screws.

Chapter IV. Top view with figures
of height on it (Kotierte Projektion).
25. Fundamental notions, measure and
niveau plane. / 26. Representation of
straight line and plane. / 27. Funda-
mental problem about straight line
and plane. / 28. A cone with constant
slope (Böschungskegel). / 29. Slopes
of terrace on an inclined plane. /
30. Estimation of volume of earth. /
31. Topographical surfaces. 32. Ele-
mentary method of construction of
topographical surfaces. 33. Surfaces
with constant slopes (Böschungsflächen).
/ 34. Path through a given hilly land.

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Technology.)