

<<钱学森文集>>

图书基本信息

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## 内容概要

This volume collects the scientific works of Tsien Hsue-shen accomplished during his stay in the United States as a graduate student, scientist and professor and published in the period of 1938-1956, when the aeronautic exploration stepped from low-speed to high-speed regimes and astronautic technology entered its infant stage. In these papers, he addressed and solved a series of key problems in aerodynamics, stability of shells, rocket ballistics and engine analyses, etc., some of which were path-breaking. Starting from 1946, with his strategic wisdom, Tsien Hsue-shen made pioneering contributions to some fields, such as jet propulsion, engineering cybernetics, physical mechanics and engineering sciences, and so on. All these works feature the unique methodology of turning basic theories in natural science into practical tools in tackling complicated engineering problems. It is worth noting that he first advocated the philosophy of engineering sciences, which has been elucidated and illustrated in the volume and proved to be the guideline of innovative industrial development. The collected works might benefit to its extensive readers in getting deeper insight into the academic contributions, scientific thoughts and studying style of Tsien from various viewpoints.

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## 作者简介

钱学森，1911年12月11日出生于上海，是独生子。父亲钱均夫（名家治，后以号行）是浙江杭州一没落丝商第二子，少小就学于当时维新的杭州求是书院，曾到日本学教育和地理、历史。母亲章兰娟是当时杭州富商的女儿。钱学森的外祖父欣赏钱均夫的才华，把自己的女儿许配给他。民国成立后，钱均夫就职北京当时的教育部，钱学森在3岁时随父到了北京，上过蒙养院（幼儿园）、女师大附小、师大附小和师大附中。

在北京师大附中时，对钱学森影响最深的几位老师是：林砺儒、王鹤清、董鲁安（于力），以及几何老师傅种孙、生物老师俞谟（俞君适）、博物老师李士博和美术老师高希舜（后来是著名国画大师）。

林砺儒是校长（当时称主任），他制定了一套以启发学生智力为目标的教学方案。王鹤清是化学老师，他启发了钱学森对科学的兴趣，给他自由到化学实验室做实验的便利。董鲁安是国文老师，在课堂上常常用较长的时间讨论时事，表示厌恶北洋军阀政府，憧憬国民革命军北上（后来他去了解放区）。他的教学使钱学森产生对旧社会腐败的深切不满和对祖国前途、人民命运的无比关心。钱学森一次在图书馆借了一本讲相对论的小册子，书中第一句话提到20世纪有两位大师：一位是自然科学大师爱因斯坦，一位是社会科学大师列宁。钱学森当时对列宁这位大师还不甚了解。傅种孙那时已是师大数学讲师，在中学课堂上把道理讲得很透。钱学森后来认为，在初中三年级听傅老师的几何课，使他第一次得知什么是严谨的科学。钱学森对老师们的教诲感激不尽，他后来说：“我若能为国家为人民做点事，皆与老师教育不可分！”

1929年中学毕业后，钱学森为复兴祖国，决心学工科，考入上海交通大学机械工程系。当时，交通大学专重考试分数，学期终了平均分数算到小数点以后两位，大家都为分数而奋斗。初入交大的钱学森，对这里求知空气不浓而不满，但也不甘落后，非考90分以上不可。在交大，钱学森非常感激两位倡导把严密的科学理论与工程实际结合起来的老师，一位是工程热力学教授陈石英，一位是电机工程教授钟兆琳。

1930年暑假后期，钱学森得了伤寒病，在杭州家里卧病一月余，后因体弱休学一年。在这一年里，他第一次接触到科学的社会主义。钱学森爱好美术，在书店买了一本讲艺术史的书，不曾想这本书是一位匈牙利社会科学家用唯物史观的论点写的。他从未想到对艺术可以进行科学分析，所以对这一理论发生了莫大的兴趣。接着他读了普列汉诺夫的艺术论，布哈林的唯物论等书，又看了一些西洋哲学史，也看了胡适的《中国哲学史大纲》（上册）。读了这么多书，他感到只有唯物史观和辩证唯物主义才是有道理的，唯心主义等没有道理；经济学也是马克思的有道理，而资产阶级经济学那一套理论不能自圆其说。休学期满回到学校，钱学森开始接触到共产党的外围组织，参加过多次小型讨论会，从那里他知道了红军和解放区的存在。小组的领导人乔魁贤，是当时交大数学系的学生，小组还有许邦和、袁轶群和褚应璜。后来，乔魁贤被学校开除；钱学森和小组的联系也逐渐中断，仍埋头读书，每学期平均分数都超过90分，因而得到免交学费的奖励。在交通大学，好友有林津、熊大纪、郑世芬、罗沛霖、茅于恭等。假期在杭州，因与学音乐的表弟李元庆思想相投而常交往，从他那里略闻左翼文艺运动的情况。

## 书籍目录

Boundary Layer in Compressible Fluids  
Supersonic Flow over an Inclined Body of Revolution  
Problems in Motion of Compressible Fluids and Reaction Propulsion  
Flight Analysis of a Sounding Rocket with Special Reference to  
Propulsion by Suc  
Two-Dimensional Subsonic Flow of Compressible Fluids Ittsue-shen"  
The Buckling of Spherical Shells by External Pressure  
The Influence of Curvature on the Buckling Characteristics of  
Structures  
A Method for Predicting the Compressibility Burble  
The Buckling of Thin Cylindrical Shells under Axial Compression  
Buckling of a Column with Non-Linear Lateral Supports  
A Theory for the Buckling of Thin Shells  
Heat Conduction across a Partially Insulated Wall  
On the Design of the Contraction Cone for a Wind Tunnel  
Symmetrical Joukowski Airfoils in Shear Flow  
The "Limiting Line" in Mixed Subsonic and Supersonic Flow of  
Compressible Fluids  
Loss in Compressor or Turbine due to Twisted Blades  
Lifting-Line Theory for a Wing in Non-uniform Flow  
Atomic Energy  
Two-Dimensional Irrotational Mixed Subsonic and Supersonic Flow of  
a Compressible  
Superaerodynamics, Mechanics of Rarefied Gases Hsue-shen Tsien  
Propagation of Plane Sound Waves in Rarefied Gases  
Similarity Laws of Hypersonic Flows  
One-Dimensional Flows of a Gas Characterized by van der Waals  
Equation of State  
Flow Conditions near the Intersection of a Shock Wave with Solid  
Boundary  
Lower Buckling Load'in the Non-Linear Buckling Theory for Thin  
Shells  
Rockets and Other Thermal Jets Using Nuclear Energy  
Engineering and Engineering Sciences  
On Two-Dimensional Non-steady Motion of a Slender Body in a  
Compressible Fluid  
Wimt-Tunnel Testing Problems in Superaerodynamics Hsue-shen Tsien  
Airfoils in Slightly Supersonic Flow Hsue-shen Tsien and Judson R.  
Baron  
Interaction between Parallel Streams of Subsonic and Supersonic  
Velocities  
Research in Rocket and Jet Propulsion  
A Generalization of Alfrey's Theorem for Visco-elastic Media  
Instruction and Research at the Daniel and Florence Guggenheim Jet  
Propulsion

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Influence of Flame Front on the Flow Field  
Optimum Thrust Programming for a Sounding Rocket  
The Emission of Radiation from Diatomic Gases. III. Numerical  
Emissivity Calculations for Carbon Monoxide for Low Optical  
Densities at 300 K and  
Atmospheric Pressure  
The Transfer Functions of Rocket Nozzles  
A Similarity Law for Stressing Rapidly Heated Thin-Walled Cylinders  
On the Determination of Rotational Line Half-Widths of Diatomic  
Molecules  
Automatic Navigation of a Long Range Rocket Vehicle  
A Method for Comparing the Performance of Power Plants for Vertical  
Flight  
Servo-Stabilization of Combustion in Rocket Motors  
Physical Mechanics, A New Field in Engineering Science  
The Properties of Pure Liquids  
Similarity Laws for Stressing Heated Wings  
Take-Off from Satellite Orbit  
Analysis of Peak-Holding Optimizing Control  
The Poincaré-Lighthill-Kuo Method  
Thermodynamic Properties of Gas at High Temperatures and Pressures  
Thermonuclear Power Plants  
钱学森生平简介  
后记  
出版说明

## 章节摘录

版权页：插图：In the field of applied elasticity, one of the most perplexing problems is the prediction of the buckling load, or rather the failing load of a thin-walled structure with either simple or double curvature. Everyone who has contact with this subject will notice the gap between theory and experimental results. The designer, however, has to proceed with his work regardless of whether or not the theory of elasticity can give him the correct solution of his problem. Hence, in this case he has to resort to empirical relations determined by experimental methods. But such an empirical approach to a complex subject without solid physical basis has its definite limitations. Therefore, a correct picture of the interactions of the different factors which determine the failing load and the mechanism of the failing process will be always useful to the designer. In this paper the authors do not present a new theory, but certain considerations which they believe bring out the crucial point of the subject. In Section I, a comparison is made between the buckling of one dimensional and two dimensional structures with and without curvature. Section II contains a critical examination of the discrepancies between the classical buckling theory of cylindrical shells and the experimental evidence together with a description of various investigations which have been made to reveal the true character of the mechanism of failure. In Section III, the buckling phenomena observed in the laboratory for different structures are discussed from the point of view developed in the previous sections.

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编辑推荐

《钱学森文集(英文版):海外学术文献(1938 ~ 1956)》：科学是老老实实的学问，要发扬严肃认真、一丝不苟的优良学风和勇于创新的精神。

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