CEHUIZHUANYE YINGYU

21世纪测绘学科高职高专精品规划教材

测绘专业英语

主编　孙清娟　陈　慧

黄河水利出版社

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内容提要

本书以实用为目的，所选文章主要介绍测绘领域的各种测绘方法，力求适合具有高职高专水平的学生阅读，每篇文章后都各有一篇科技英语翻译方法与技巧，使学生在掌握测绘知识的同时，提高阅读和翻译科技英语的水平。书中有两个附录、分别是英语中的句式和测绘专业词汇。

本书适合测绘专业高职高专学生阅读，也可供相关工程技术人员参考。

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前　言

测绘专业英语是很多院校测绘类专业都开设的一门专业方向课，但由于各种原因，大多数高职高专院校选用的仍是本科教材。本科专业英语教材一般阅读篇幅过长、词汇量过大，选用这样的教材既影响教学效果又与高职高专人才培养模式极不相符。在这样的背景下，由黄河水利职业技术学院牵头，我们共同编写了这本适合高职高专层次的测绘专业英语。

本书以实用为目的，共安排了两部分的内容。第一部分选编了22篇测绘科技文章，主要介绍测绘领域的各种测绘技术方法，篇幅较短，难易适中，力求适合具有高职高专水平的学生阅读，且前11篇文章后都各有一篇科技英语翻译方法与技巧，通过学习，可使学生逐步了解英汉语言二者之间得到差异、科技英语的特征，从而掌握典型的科技英语翻译方法，提高科技英语的翻译水平。第二部分是课外阅读材料，篇幅较长，有一定的难度，适合一些对专业英语感兴趣的学生进一步阅读。另外还有两个附录，分别是英语中的句式和测绘领域的专业词汇，目的是为读者提供一个方便的查阅工具。

本书在编写的过程中得到了黄河水利职业技术学院测绘系的大力支持，在此表示衷心的感谢！赵习燕、邹娟茹、王靖、何宽等同志也参加了本书编写工作，全书由孙占晓审稿。尽管编者尽力所为，但由于水平有限，书中难免有不当之处，恳请大家批评指正。谢谢！

编　者

2006年2月

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Part I Text

Lesson One Summary of Definitions

(1) A level surface is a curved surface, every element of which is normal to a plumb line, disregarding local deviations of the plumb line from the vertical with the mean spheroid surface of the earth.

A horizontal plane is a plane tangent to a level surface at a particular point.

A horizontal line is a line tangent to a level surface. In surveying, it is commonly understood that a horizontal line is straight.

A horizontal angle is an angle formed by the intersection of two lines in a horizontal plane.

(2) A vertical line is a line perpendicular to the plane. A plumb line is an example.

(3) A vertical line in the direction toward the center of the earth is to be said in the direction of the nadir. A vertical line in the direction away from the center of the earth and above abservor's head is said to directed toward the zenith.

A vertical plane is a plane in which the vertical line is an element.

A vertical angle is an angle between two intersecting lines in a vertical plane. In surveying, it is commonly understood that one of these lines is horizontal, and a vertical angle to a point is understood to be the angle in a vertical plane between a line to that point and the horizontal plane.

A zenith angle is an angle between two lines in a vertical plane where it is understood that one of the lines is directed toward the zenith. A nadir angle is an angle between two lines in a vertical plane where it is understood that one of the lines is directed toward the nadir.

In plane surveying, distances measured along a level line are termed horizontal distances. The distance between two points is commonly understood to be the horizontal distance from the plumb line through one point to the plumb line through the other. Measured distance may be either horizontal or inclined, but in practically all cases the inclined distances are reduced to equivalent horizontal lengths.

The elevation of a point is its vertical distance above (below) some arbitrarily assumed level surface.

A contour is an imaginary line of constant elevation on the ground surface. The corresponding line on the map is called a contour line.

The vertical distance between two points is termed the difference in elevation. (4) It is the distance between an imaginary level surface containing the high point and another similar

surface containing the low point. The operation of measuring difference in elevation is called leveling.

The gradient of a line is its slope, or rate of ascent (descent).

New Words and Expressions

1.	level surface	水准面
2.	curved	*adj*. 弯曲的
3.	element	*n*. 元素
4.	normal to	与……垂直，是……的法线
5.	plumb line	铅垂线
6.	disregard	*vt*. 不考虑，不管
7.	deviation	*n*. 偏离，偏差
8.	vertical	*n*. 垂直线　*adj*. 垂直的
9.	mean	*adj*. 平均的
10.	spheroid	*n*. 旋转椭球体
11.	horizontal plane	水平面
12.	tangent to	与……相切
13.	intersection	*n*. 交叉，相交
14.	perpendicular to	与……垂直
15.	nadir	*n*. 天底
16.	zenith	*n*. 天顶
17.	term	*vt*. 称……为……
18.	inclined	*adj*. 倾斜的
19.	in practically	实质上，实际上
20.	equivalent	*adj*. 等价的
21.	elevation	*n*. 高度，海拔
23.	arbitrarily	*adv*. 任意地
24.	assume	*vt*. 假定为……
25.	datum	*n*. 大地水准面
26.	contour	*n*. 轮廓，等高线
27.	corresponding	*adj*. 相应的
28.	difference in elevation	高差
29.	leveling	*n*. 水准测量
30.	gradient	*n*. 倾斜度
31.	slope	*n*. 坡度

Note to the Text

(1)A level surface is a curved surface, every element of which is normal to a plumb line,

disregarding local deviations of the plumb line from the vertical with the mean spheroid surface of the earth.

译文：水准面是弯曲的表面，水准面上的每一个(面)元素都与铅垂线垂直；(这种垂直关系)是假定不考虑某处的铅垂线与地球平均旋转椭球面的垂线间的偏差。

本句被标点符号分为三部分，第三部分“disregarding … earth”作为第二部分的伴随状语，起补充说明的作用。

第二部分“every element of which … plumb line”为定语从句，修饰其前的“surface”。

“deviation … from …”译为“……与……之间的偏差”。

“with … earth”介词短语作定语，修饰“the vertical”，译为“平均旋转椭球体表面的”。

(2)A vertical line is a line perpendicular to the plane. A plumb line is an example.

译文：垂线是垂直于平面的直线，例如铅垂线。

冠词 a 在翻译中可省略，“A plumb line is an example.”为意译。

(3)A vertical line in the direction toward the center of the earth is to be said in the direction of the nadir. A vertical line in the direction away from the center if the earth and above abservor's head is said to directed toward the zenith.

译文：指向球心的垂线为天底方向(的垂线)，远离球心且在观测者上方的垂线为天顶方向(的垂线)。

“toward”意为“朝向”，“away from” 意为“远离”。

“is said to”原意为“据说”，在这里可译为“是……”或“为……”。

(4)It is the distance between an imaginary level surface containing the high point and another similar surface containing the low point.

译文：(高差)是一个包含较高点的水准面与另一个包含较低点的相似水准面之间的距离。

“containing”动名词作定语修饰“level surface”。

“between … and …”意为“……与……之间”。

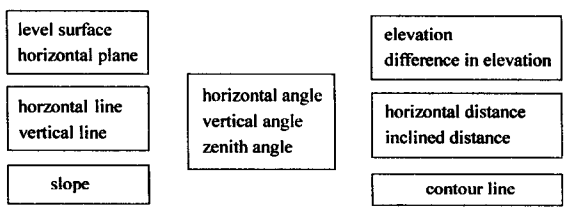
Comprehension Exercises

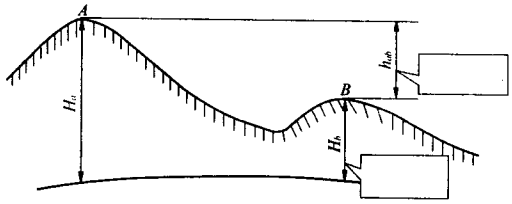
Direction A *Fill in the blanks with the following words according to the figures given.*

Direction B *Please copy every new words and expressions twice to remember them.*

Direction C *Please make centences with the words provided in section A.*

Direction D *Please translate the whole text into Chinese.*

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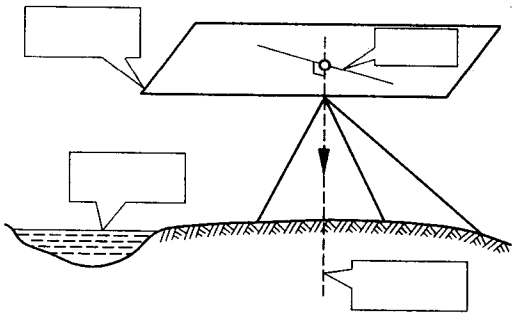

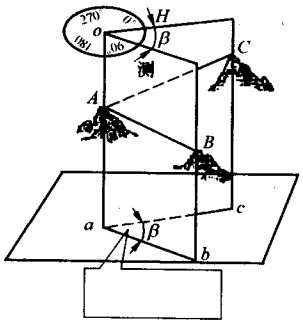
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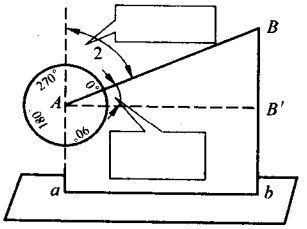
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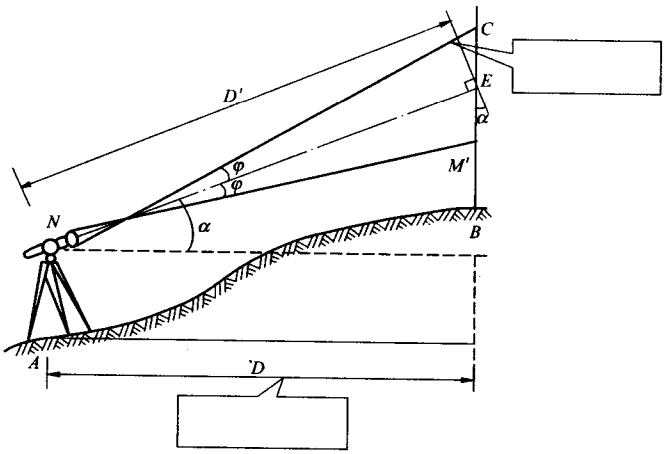
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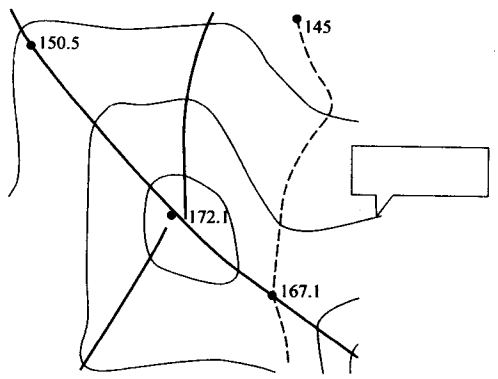
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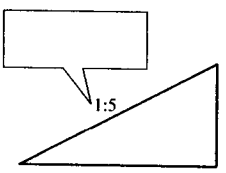
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附 1　科技英语的特征

科技英语(English for Science and Technology)是英语的一种语体，有关自然科学和社会科学的学术著作、论文、研究报告、专利产品的说明等均属此类。科技英语注重科学性、逻辑性、正确性与严密性，在词汇、语法、修饰方面具有自己的特色。因此，从事科技英语翻译时必须了解科技英语的语言结构特点，以便于有意识地选择适当的翻译方法与技巧来处理科技英语文章。

科技英语的语言结构特点主要有以下几点：

1.1　习惯使用复合词与缩略词

例如：

photointerpretation = photo + interpretation(像片解译)

black-body = black + body(黑体)

TP=turning point(转点)

BM=bench mark(水准点)

1.2　大量使用名词化结构

例如：

The ***determination of*** the precise position of many a station spread over a large area, is referred to as control surveying.

确定多个分布在大范围内点的精确位置(的测量)称为控制测量。

The purpose of horizontal control surveys is the ***establishment of*** a network of triangulation stations or traverse stations.

水平控制测量的目的是**建立**三角测量网或导线测量网。

1.3　频繁使用非谓语动词

例如：

It is very useful to indicate locations, horizontal distances and generally ***finding one's way about***.

它在在定位、计算平距和通常情况下的**导航**方面是非常有用的。

This positioning is accomplished through the use of coded information, essentially clever timing signals ***transmitted by the satellites***.

这种定位是通过使用**卫星传播**的编码信息，实质上是灵敏的定时信号来完成的。

1.4　广泛使用被动语态

例如：

No definite limit ***is assigned*** for the area up to which a survey may be treated as plane.

在测量中，对于多大的测区可以做平面对待并没有**作出**明确的限制。

The more general case occurs when the two points ***to be compared*** are in such situations as they are far apart or there are some obstacles to them.

更多地会出现这种情况：所要**比较(高差)的**两点相距很远或有障碍物的(影响)。

1.5 经常使用后置定语

例如：

Basically, the difference between the reading ***obtained from sight to two targets*** constitutes a horiaontal angle.

一般来说，**照准两个目标进行的**读数之差(形成的角度)是水平角。

Modern theodolites have optical systems with which the user may obtain both horizontal and vertical angles through an eyepiece ***located near the telescope***.

现代经纬仪具有光学系统，利用光学系统用户可通过**固定在望远镜附近的**目镜同时获取水平角和垂直角。

1.6 经常出现长、难句

例如：

In the broad context, photogrammetry is defined by the American Society of Photogrammetry as the art, science, and technology of obtaining reliable information about physical objects and the environment through processes of recording, measuring and intepreting photographic images and patterns of radiant energy or other phenomena.

美国摄影测量学会从广义上将摄影测量定义为：通过对辐射能或其他现象的摄影影像和图形进行记录、测量和解译的过程，获得有关地面实物和周围环境的可靠资料的艺术、科学和技术。

Surveying is the art making such measurements of the relative position of points on the surface of earth that, on drawing them to scale, natural and artificial features may be exhibited in their correct horizontal or vertical relationships.

测量学是一门测量地球表面各点的相对位置，然后以一定的比例尺表示地球上自然和人工地物间准确的水平和垂直关系的学科。

Lesson Two Introduction to Surveying

(1)Surveying is the art making such measurements of the relative position of points on the surface of earth that, on drawing them to scale, natural and artificial features may be exhibited in their correct horizontal or vertical relationships.

Less comprehensively, the term "Surveying", may be limited to operations directed to the representation of ground features in plan. Methods whereby relative difference of elevation are ascertained are distinguished as "leveling", the results is shown either as vertical section or by conventional symbols on a plan.

A plan is projection upon a horizontal surface, in which all linears and angular quantities used must be horizontal dimensions. (2) It is impossible to give a complete representation of distances following the undulation of the ground other than by a scale model. Now a horizontal surface is normal to the direction of gravity as indicated by a plumb line, but on account of the form of the earth, (3) the directions of plumb lines suspended at different points in a survey are not precisely parallel, and the horizontal plane at one point does not precisely coincide with that through any other point. This situation is not because of the irregular shape of the Earth's physical surface, but the almost regular curvature of a level surface which is necessarily perpendicular to the vertical everywhere.

In surveys of small extent, the effect of curvature is quite negligible, and it is justifiable to assume that a level surface of the earth is a horizontal plane within the area covered. Surveying methods based on this supposition are comprised under the head of plane surveying. The assumption becomes invalid in the accurate survey of an area of such extent that it forms an appreciable part of the Earth's surface. Allowance must then be made for the effect of curvature, and the operations belong to geodetic surveying.

(4) No definite limit is assigned for the area up to which a survey may be treated as plane, since the degree of accuracy required forms the controlling factor. The sum of the interior angles of a geometrical figure on the surface of the Earth differs from that of the corresponding plane figure only to the extent of one second for about every 200 square km(76sq. miles) of area. So that, unless extreme accuracy is required, plane surveying is applicable to area of some thousands of square kilometers.

New Words and Expressions

1. scale — *n.*比例，比例尺
2. artificial — *adj.*人工的
3. exhibit — *vt.*展示，显示
4. horizontal — *adj.*水平的
5. vertical — *adj.*竖直的，铅直的

6.	Less comprehensively	狭义地
7.	plan	*n.*平面图
8.	term	*n.*词，术语
9.	whereby	*conj.*如何
10.	feature	*n.*特征，地物
11.	ascertain	*vt.*确定
12.	geodetic surveying	大地测量学
13.	be distinguished as	作为……
14.	conventional symbol	图例
15.	projection	*n.*投影
16.	linear	*adj.*直线的
17.	angular	*adj.*角度的
18.	quantity	*n.*(数学)量，值
19.	dimension	*n.*尺寸，大小
20.	undulation	*n.*起伏
21.	gravity	*n.*重力
22.	on account of	由于
23.	suspend	*vt.*悬挂，停留
24.	parallel	*adj.*平行的
25.	coincide with	和……吻合
26.	situation	*n.*情况，形势
27.	curvature	*n.*弯曲
28.	necessarily	*adv.*必须地，必要地
29.	perpendicular	*adj.*垂直的，直角的
30.	of……extent	在……的范围内
31.	negligible	*adj.*可忽略的
32.	justifiable	*adj.*认为是合理的
33.	supposition	*n.*假想，假设
34.	under the head of	在……的前提下，以……为首
35.	appreciable	*adj.*相当大的，可观的
36.	assign	*vt.*指定，决定
37.	interior angle	内角
38.	geometric figure	几何图形
39.	corresponding	*adj.*相应的

Note to the Text

(1)Surveying is the art making such measurements of the relative position of points on the surface of earth that, on drawing them to scale, natural and artificial features may be

exhibited in their correct horizontal or vertical relationships.

译文：测量学是一门测量地球表面各点的相对位置，然后以一定的比例尺表示地球上自然和人工地物间准确的水平和垂直关系的学科。

这是一个复合句，主干部分是“Surveying is the art”。

“making … earth”为动名词短语作“art”的后置定语；“art”可转译为“学科”；“such … that”意为“如此……以致于”，其后是同位语从句，对“art”作进一步解释，也带有前因后果的意思；“on drawing”含有“一……就”的意思；“them”指代“natural and artificial features”；“in …”介词短语作状语，译为“以……的形式”。

(2)It is impossible to give a complete representation of distances following the undulation of the ground other than by a scale model.

译文：除了利用比例模型之外，无法完全表示出沿着地面起伏的距离。

这是一个主语从句，“it”是形式主语，而真正的主语是“give … model”。

“following …”动名词短语作定语，修饰“distances”；“other than”意为“除……之外”；“by”作介词，表示“利用，通过”。

(3)the directions of plumb lines suspended at different points in a survey are not precisely parallel, and the horizontal plane at one pointdoes not precisely coincide with that through any other point.

译文：测量中各点处的铅垂线方向不是精确地平行，而且在一点处的水平面与通过其余各点的水平面也不精确重合。

“suspended at different points”为过去分词短语作定语，修饰“plumb lines”；“suspend”的词义较抽象，可译为“位于”；“coincide with”译为“与……吻合”而不是“与……巧合”；“that”指代“he horizontal plane”。

(4)No definite limit is assigned for the area up to which a survey may be treated as plane, since the degree of accuracy required forms the controlling factor.

译文：既然所要求的准确度取决于控制要素，所以在测量中，对于多大的测区可以做平面对待并没有作出明确的规定。

本句分为两部分：第一部分是一个被动句，翻译时可将句子主动化，并且可将“No”一词进行否定后移至“assign”处；“up to which … plane”是一个定语从句，“up to”介词与连接词“which”搭配共同修饰“area”，表示“所能达到的面积”；第二部分，“since”作为连接词，意为“既然”，该部分在翻译时可提至第一部分之前；“required”过去分词作定语，修饰“the degree of accuracy”。

Comprehension Exercises

Direction A *Judge True or False.*

1. Surveying refers to the description of relative position of points on the surface of earth. ( )

2. We can detemine relative difference of elevation between two points by leveling.( )

3. The distance between two points on a plan may be inclined. ( )