全国高等林业院校试用教材

TECHNICAL ENGLISH AND INFORMATION FOR FOREST ENGINEERING

森工科技情报英语

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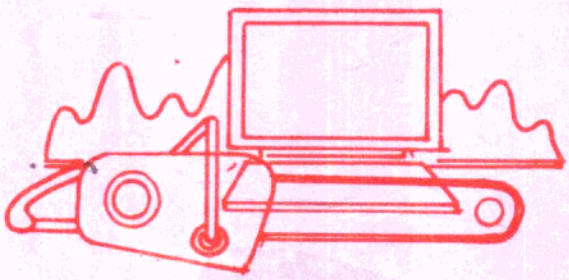

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序

学习外语的目的，最主要的一条是沟通信息、交流情报，为科技发展服务及经济建设服务。对一名科技工作者来说，在当前科学技术迅猛发展、日新月异的今天，掌握普通外语固属必要，但掌握专业情报外语尤为急需。

在大学，专业外语的教学已提到议事日程上了。最早称之为 02 外语，后来提出了在大学四年中外语学习不断线的要求。但是，如何组织专业外语的教学，还是缺乏经验，也缺乏组织措施。当前，一般的作法是，专业外语由各系来组织，由专业课教师担任。这样，专业外语的教学安排常常处于临时性状态，既无固定教师，又无适当教材，更缺乏必要的教学法研究。教学质量是不高的。

要搞好专业外语教学，校、系两级领导要予以重视，真正把它拿到日程上来，把专业外语作为必选课、必修课或选修课，在教学计划中得到反映；其次，要固定（或半固定）专业外语教师，他必须具有一定的专业技术知识，较深厚的外语基础知识以及一定的翻译能力和经验；三是要组织编写教材；四是要制订必要的教学文件如教学大纲等。其中，关键是教师和教材。

这几年出现了诸如《林业英语》之类的教材，包罗了林业各主要专业的一些内容。仅此一点，就不能适应各专业的要求。因此，极有必要由各专业自行组织与编写适应本专业需要的专业外语教材。有鉴于此，森林采运工程专业指导委员会于 1990 年秋作出了编写专业英语教材的决定。通过推选，由东北林业大学王丽杰同志负责编写了这本书。本教材完全符合和满足了本专业的基本要求，是一本较好的专业外语教科书。同时，也觉得这本教材具有如下一些特色：

1. 取材紧紧围绕森林工程专业中有关采运作业、机械设备和道路工程三方面以及这三方面中的工艺技术、规划设计、设备构造和维修、经济管理等内容。因此，内容比较齐全，比较丰富。

2. 尽管这些课文相互独立，但在排列上符合专业技术的认识过程，能使人有一种比较完整地专业概念，或产生一种英语森工专业课的印象。

3. 课文取材于国外教材、说明书与期刊论文等情报资料，前两者行文和用词比较顺畅、浅显和标准化，后者则往往是句长、词新、意深。对这几种文献的学习，使学生更能适应情报交流的需要。

4. 每一课文后都列出术语与生词、短语与辞句、翻译提示与语言注释。这些对学生的学习是方便的和必要的。特别是，每一课文之后还附列了自阅课文、翻译技巧与知识讲座。这对学生独立阅读能力的增强、翻译技能的提高以及学习兴趣的激发都是有极大帮助的。这种课文的结构形式形成了一门真正的教材，不但具有实践性、可读性和查阅性，而且还具有理论性，这种结构形式也有利于自学，适应于已在生产科技战线上工作的工程技术人员的再学习。

5. 教材中附有专业英语与科技情报讲座以阐述专业英语与科技情报的相互关系，并介绍了如何获取国外专业情报的方法及鉴别有效专业情报的标准。这无论是在教学内容上还是在教学方法上都能紧紧扣住加强大学生科技情报意识和掌握国外科技情报技能的培养这一环节。

希望通过这门教材的编写、出版和使用，使本专业学生在英语学习和情报技能掌握上取得一个飞跃，并希望以这本教材为良好开端，促进《森林工程专业俄语》、《森林工程专业日语》教材的编写出版。

森林采运工程专业
指 导 委 员 会　主任委员　史济彦

1992 年 5 月

编 者 语

《森工科技情报英语》是专门为森林工程专业编写的教材．其目的是使该专业的学生在学完基础英语后能进一步加强他们掌握专业科技英语的技能．

本书共收集了专业中不同范围的课文 20 课，技术生词约 900 个，短语约 250 个．为锻炼学生独立阅读和翻译能力，本书结合课文的内容选配了 22 篇阅读材料．为提高学生的翻译技能和培养学生的情报意识，根据课文的教学内容与翻译实践知识相结合的要求，还编写了 18 篇翻译知识讲座和 2 篇情报知识讲座，并在课文后附翻译提示及语言注释供教师教学与学生自学参考．

本书参编人员为王丽杰和张来仁．王丽杰任主编，负责编写 1—11 课和 15—20 课；张来仁负责编写 12—14 课．

本书在编写过程承蒙史济彦教授审改，受到张德义教授、范忠诚副教授的指导，并请王俭同志协助画图，在此表示衷心感谢．

本书编写是一种尝试，在内容上和形式上还有待进一步完善和提高，错误和不当之处在所难免，请读者不吝指正．

编 者

1992 年 5 月

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Lesson One

Text

Logging and Silviculture

A major consideration in logging planning is the type of cut required. This is not an operating variable and should be known to the persons responsible for operations. However, it is important to understand the relationship between the type of cut and the logging method used.

Basically, there are two types of cutting recognized by loggers, although a forester could easily enumerate others. A logger either cuts all the timber on a tract (a clearcut) or he takes only selected trees (a partial cut or selective cut). Also falling into the selective cut category is salvage logging, which refers to salvaging timber damaged by wind, insects, or ice. Of course, such a project could easily turn into a full harvest situation.

In general, clearcut operations are the most economical in terms of logging, but they are not always the most economical in terms of forest management objectives. Clearcutting in the Northwest, however, creates the best seedbed conditions for natural reforestation and on slopes of more than 30 to 35 percent generally causes less soil movement.

The management philosophies of the wood industry are changing. The old attitude, which gave greatest consideration to harvesting timber and manufacturing wood products, is no longer primary. It is now understood that the key to the increased growth necessary to provide tomorrow's demand lies not simply in harvesting more trees, but in growing more trees.

It is estimated that 59 percent of all commercial forest land is capable of increased growth. Public and private agencies are spending millions of dollars per year on forest management programs that include insect and disease protection, pruning, fertilization, planting, and genetics. Private industry has been exceptionally progressive in this type of program, and as a result, some of the best-managed lands are industry lands. There is likewise an opportunity for increasing timber supplies on public lands, but the programs will require sizable investments.

As was pointed out,some intensive management programs are already in effect and have proven fruitful. Tree improvement programs have resulted in more and better seed-

lings selected from superior trees. Seed orchards established from these seedlings will provide industry with genetically superior trees that will be more resistant to certain diseases, have better growth characteristics, grow to merchantable size in a shorter period of time, be of better quality, and substantially increase forest yield.

Another silvicultural practice is having a dramatic effect on growth characteristics of timber. In recent years, fertilization has grown out of the experimental stage, and the results are extremely encouraging.

During the period from 1969 to 1974, well over 100 000 acres of timber-land were programmed for fertilization in the United States and Canada. Private industry is applying thousands of tons of fertilizer annually to commercial forests of the United States and Canada, wherever the yield returns support the investments. The results are faster growth, a revitalization of stagnant areas, and more uniform stands. Most important, the industry is able to grow more timber on less land to meet future demand.

Technical Terms and New Words

1.logging 森林采运，木材采运，采运作业，伐区作业
2.silviculture 森林培育(学)，造林学，营林
3.type of cut 采伐方式
4.variable 因素
5.logger 采运工作者，伐木工人
6.forester 林业工作者，林业技术员
7.enumerate 列举，举出
8.tract = felling (cutting)area 伐区，森林地带，一片森林
9.clearcut = clear felling 皆伐
10.a partial cut 部分采伐
11.selective cut 择伐
12.category 类
13.salvage logging 拯救伐
14.salvage cutting 抚育伐
15.a full harvest 皆伐
16.forest management 森林经营
17.seedbed 苗床
18.natural reforestation 天然更新
19. slope 坡度
20.soil movement 土壤流失
21.wood industry 木材工业
22.growth 生长(量)
23.estimate 估计
24.commercial 有价值的，商业的
25.agency 社团
26.program 纲领，计划
27.pruning 修枝
28. fertilization 施肥
29.genetics 遗传育种
30.sizeable 大量的
31.investment 投资
32.tree improvement programs 林木改良计划
33.seedling 苗木
34.superior tree 优良树种
35.seed orchard 种子园
36.genetically 遗传性
37.merchantable 可销售的，有销路的
38.forest yield 森林产量，森林收获量
39.silvicultural practice 营林措施
40.revitalization 复活

41.stagnant 萧条　　42.stand 林分

Phrases and Expressions

1.responsible for 负责
2.falling into…category 属…类
3.refer to 涉及，参照，关于
4.of course 当然
5.turn into 变成
6.in terms of logging 根据，用…（术语），采伐观点
7.in terms of forest management objectives 林业经营角度
8.be no longer 不再
9.it is now understood 现已认识到
10.lie not in…, but in… 不是…，而是…
11.as a result 结果，因此
12.as was pointed out 正如上面指出的
13.be already in effect 已收到效果
14.result in 导致，引起
15.provide… with 给…提供，以…装备，把…供给
16.resistant to 对…阻止(抵抗)
17.in a shorter period of time 在短期内
18.effect on 对…影响
19.grow out of 由…产生
20.in recent years 近年来
21.during the period 在…期间
22.well over 100 000 acres 十万英亩以上

翻译提示及语言注释

1.This is not an operating variable and should be known to the persons responsible for operations.句中的"responsible for operations"是形容词短语在句中做定语修饰"the persons"。翻译全句时需增加连词"虽然…但"进行引伸，其译文效果更好些。译文是：

"这虽然不是一种作业因素，但对负责作业的人是应该知道的。"

2.Basically, there are two types of cutting recognized by loggers, although a forester could easily enumerate others.此句由"although"引出一个让步状语从句，全句有两种翻译方法，一种是先译主句，后译从句，另一种是先译从句，后译主句。即：

(1)"采运工作者认为基本上有两种采伐方式，而林业技术人员可轻易地举出许多种。"

(2)"虽然林业技术人员可以轻易地举出许多采伐方式，但采运工作者认为基本上只有两种。"

在第二种译文中，从句中指明"others"代表"采伐方式"，而将主句中的"type of cutting"省略了。

3.A logger either cuts all the timber on a tract (a clear cut) or he takes only selected trees. 句中"a logger"原指一个伐木工，但是根据伐木作业技术推理，伐木作业不固定指一个人，故应在译文表达上把原文"a logger"译成"他们"更会较好地表达原意。

4.The old attitude, which gave greatest consideration to harvesting timber and manufacturing wood products, is no longer primary.全句译文是：

"过去那种认为采伐木材和加工木材产品是最重要的老眼光，现在已不再是头等重要的。"

此译文采用增词"最重要的、过去、现在"以示强调原文所要阐述的内容和观点。

5.Public and private agencies are spending millions of dollars per year on forest management programs that include insect and disease protection, pruning, fertilization, planting, and genetics. 句中"that"引出定语从句修饰"forest management programs"，这个定语从句可以单译并用括号来表示文中注释部分。例如:

"公有林和私有林社团每年要拿出几百万美元用于森林管理计划(包括病虫害防治、修枝、施肥、植树造材和遗传育种)。"

6.Private industry has been exceptionally progressive in this type of program, and as a result, some of the best-managed lands are industry lands.全句可译为:

"私有工业在这方面进步特别快，结果，一些管理最好的林地成为工业用地了。"

从译文中可以看出对句中的"in this type of program"采用了意译法译成"在这方面"。句中的系词"are"转意引伸翻译成"成为"。

7.Seed orchards established from these seedlings will provide industry with genetically superior trees that will be more resistant to certain diseases, have better growth characteristics, grow to merchantable size in a shorter period of time, be of better quality, and substantially increase forest yield. 此句是一个复合长句。句中由"that"引出的定语从句特别长，应采用分译法。全句应译为:

"由这些苗木建立的种子园将向森工部门提供遗传性优良的树种，它们对某些病害的抵抗力较强，具有较好的生长特性，成材期短，其材质较好，从而将显著地提高森林的产量。"

8.…wherever the yield returns support the investments. 这句可采用增词引伸法，可译为:

"无论在哪里，所生产的利润足以收回其投资。"

专业英语翻译要求及标准

——翻译知识之一

专业翻译就是用语言或文字表达原文作者的种种观念与技术见解。为此，必须很好地掌握如下三种语言以作为英语专业翻译的基本要求。

1.原文语言，即英语。其目的在于正确理解原文的精神实质。没有对原文的正确理解，根本谈不上对原文的正确表达。

2.本族语言，即汉语。其目的在于正确表达原文精神实质。虽然对原文内容有了正确的理解，但没有恰到好处的汉语表达形式，也是无济于事的。

3.本专业知识和技术语言。其目的是使专业译文表达得更好，更接近反映出专业技术实质。

翻译的基本标准有三点，即译文忠实于原文、专业技术内容完整及其表达准确和汉语通顺流畅。

忠实于原文就是掌握原作的思想内容，要求译者必须确切理解掌握英语原文的内容，不允许丝毫曲解，任意增删。

由于科技文献具有逻辑性强、结构严谨、术语繁多以及事物论述等特点，因而要求译文的专业技术内容必须完整与准确；做到概念清楚、条理分明、逻辑性强、专业术语应用准确、定义与结论无误、文字通顺等。

在基本标准的基础上，如能达到译文文字简洁、语言精炼与用词优美，也就达到了翻译的最高标准。

现举本课文的句子为例，试比较哪种译语符合科技汉语的翻译标准。

例 1.Also falling into the selective cut category is salvage logging, which refers to salvaging timber damaged by wind, insects or ice.

译文①"也属于择伐这一类的是指被风害，虫害或冰冻所损害的林木的拯救伐。"

译文②"拯救伐，是指对被风害、虫害或冰冻所损害的林木的采伐，也属于择伐这一类。"

译文③"对风害木、虫害木或冰冻木进行采伐的所谓拯救伐，也属于择伐这一类。"

通过比较不难看出，译文①的效果远不如译文②和译文③。其主要问题是没有跳出原文结构的框子而进行死译，结果使译文的内容表达比较含糊，译语不通顺。而译文②、译文③则运用了科技汉语表达习惯，语言简洁，译出了原文的实质。特别是译文③的译法更符合汉语，译语更简洁明了。

例 2.Clearcutting in the Northwest, however, creates the best seedbed conditions for natural reforestation and on slopes of more than 30 to 35 percent generally causes less soil movement.

译文①"在西北部的皆伐仍为自然更新创造了最好的一种苗床条件和在超过30%—35%的坡度一般引起较少的土壤流失。"

译文②"然而，在西北部，皆伐为天然更新创造了最好的一种苗床条件，并且在坡度为30%—35%以上的坡地上引起的土壤流失一般也较少。"

通过两种译文比较感到，译文①没有表达出原文作者想要表达的内容实质，其主要问题是对词汇意义理解肤浅和对语法分析有误，导致译文概念不清。与此相反，译文②的翻译特点是依靠原文语法意义并对原文的词汇意义和原文的内在含义都加深推敲和理解，然后跳出原文框子进行了卓有成效的表达。

例 3.In recent years fertilization has grown out of the experimental stage, and the results are extremely encouraging. 若以字面意思翻译，则全句译为：

"在近些年来，化肥已进行了试验阶段，其结果是相当鼓舞的。"

此句译文内容表达虽无错，但总感到语言与用词不尽优美。若进行修辞，译成下面译文，其表达效果会更好些。如：

"近年来进行了许多次施肥试验，结果是十分令人满意的。"

译文要吸引更多的读者，首先就应该讲行话，并在不违背原意的情况下允许有一定

的灵活性。注意文字修饰，使之语言简洁、精炼、优美。

Reading Materials

The Considerations of the Logging and Silvicultural Planning

The concept of the subject of logging planning varies with the responsibilities of the individual concerned. From the viewpoint of the logging manager, logging planning involves the acquisition of timber to log, the markets for the logs, the selection of equipment and recruiting of labor, and, most importantly, financing the operation. When management decisions on these matters have been made, he is concerned with planning the organization of the operation, with production scheduling and with budgeting expenditure and income.

To the logging superintendent, foreman, or other production supervisor, logging planning is scheduling the interdependent activities of felling and bucking, skidding or yarding, loading and trucking, and the day-to-day distribution of machines and assignment of men. The servicing of machines and the action to be taken in emergencies such as mechanical breakdowns, accidents, and changes in the weather must also be planned.

Forestry considerations may include the prescribed silvicultural system; the percentage of the stand to be cut in partial cuts or the maximum size of clear-cut settings; and the applicable state forest practice laws. Such laws require the leaving of a minimum volume per acre of trees under a specified diameter where partial cutting is done. State forest practice laws may require leaving seed blocks where clear-cutting is practiced, unless the land owner obligates himself to seed or plant the logged area. Protection consideration may include fire protection, soil and water resource protection, and protecting the residual stand or the uncut settings from damage. Where clear-cutting by staggered settings is practiced, the protection of the uncut settings from windthrow by providing windfirm setting boundaries is of paramount importance. Logging planning in multiple-use forests subject to heavy recreational usage requires consideration of public safety and aesthetics. Public relations considerations may necessitate special attention to protection of fishing streams from siltation and debris, preserving potential camping and picnic sites along streams, and leaving uncut forest strips to screen logged areas from the view of recreationists.

In states where forest land can be logged only under a permit from the state forester, a logging plan map must accompany the application for a permit. The map shows the location of tract, together with the legal description, the existing and proposed roads, the areas to be cut, the cutting system, and the regeneration measures proposed. The permit

system helps to secure compliance with the forest practice laws, informs the state fire wardens where logging operations are being conducted, and enables the state forester to halt operations during periods of extreme fire danger by withdrawing the permit.

The detailed logging plan for industrial forest lands in the western regions is usually made by the company logging engineer. He works under the supervision of the logging manager or superintendent, who establishes the policies governing the planning. The final plan is subject to his approval. In other regions the industrial forest logging plan is made by the company forester or forest engineer. The logging plan for small tracts may be made by the land owner, by the logging operator, or by a consulting forester. The logging plan for public lands is made by timber sale foresters of the agency managing the forest. The logging plan is made a part of the timber sale contract.

Technical Terms and New Words

1.acquisition 收获
2.recruiting 招工
3.production scheduling 生产程序
4.mechanical breakdown 机械故障
5.setting 集材区，伐区
6.aesthetic 美学
7.siltation 淤积
8.debris 采伐剩余物
9.wind firm 抗风的
10.staggered setting 隔带采伐
11.strip 采伐带，带状地
12.warden 护林员

Lesson Two

Text

Harvesting System Objectives

As we have said harvesting is a subsystem of a large dominant system. However, for the sake of simplicity, in this book harvesting will be regarded as a system. The major functions that make up the harvesting system will be called components. It is no easy task to define the objectives and conditions of a harvesting system. An explanation of logging and its objectives depends largely on who is asked.

For example, a forester asked to define logging would probably describe it as the principal forestry operation——the critical end result of many years' labor. The men who operate the sawmill or pulpmill would tend to describe logging as a supply function. For them, the logs represent a raw material input. A logger, in all likelihood, would simply say he is in the business of moving wood——a transportation function.

These examples represent three frames of reference and, therefore, three different descriptions of what logging is. In a manner of speaking all three are correct. In this book, however, the frame of reference is basically that of the logger. However, the overall description developed in this book is necessarily a bit more elaborate than simply "moving the wood".

No matter what sort of logging system referred to, the process always involves log transportation——the movement of trees, logs, or segments of logs from one point to another. By means of various modes of power, the trees, logs, or whatever are dragged, hauled, or carried out of the woods and across the roads and byways to some end concentration point. Thus, two of the first objectives of any logging system are to prepare the trees for transportation and to transport them to the proper conversion facility. How the trees are prepared and transported will depend on the facility or market for which they are intended. Of course, there are other important objectives, such as moving the wood at least cost, maintaining a safe environment for the workmen, and maintaining a good working relationship with public and private agencies.

The actual work of logging involves an aggregation of man–machine components These components function together to achieve the transportation objective. Within the logging system there are only four major components. They are cutting, skidding or yard-

ing, loading, and log transportation. Unloading might be defined as either a component of the logging system or a part of an interfacing system. At any rate, unloading has a direct impact on the log transportation component. Each logging system component can be further reduced to elements that better describe its function. In Fig.1 the various components and their elements are described.

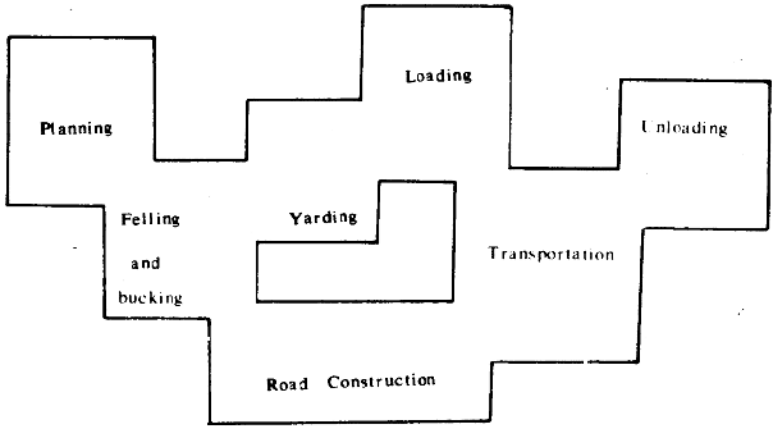

Fig.1 The Components of the Harvesting System

Technical Terms and New words

1.harvesting 采伐，采运
2.subsystem 子系统
3.dominant 主要的
4.function 功能，工作
5.components 工序，工作环节
6.explanation 解释
7.saw mill 制材厂
8.pulpmill 纸浆厂
9.a raw material 原料
10.business 职业
11.elaborate 详细描述
12.process 过程
13.log transportation 木材运输
14.drag 拖曳
15.haul 运
16.byways 支岔线
17.prepare the trees 伐倒木加工
18.conversion facility 加工厂
19.facility 设备
20.market 市场
21.the workmen 工人
22.a safe environment 安全环境
23.public and private agencies 公司社团
24.aggregation 一系列
25.man–machine 人机
26.interfacing system 衔接系统
27.cutting 伐木
28.skidding 集材
29.yarding 集材
30.loading 装车
31.unloading 卸车
32.element 环节