21世纪土建学科专业“十二五”规划新教材

任务引领、项目驱动型新教材

TU MU JIAN ZHU ZHUAN YE YING YU

土木建筑专业英语

曾 升 主编

天津出版传媒集团

天津科学技术出版社

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内容提要

全书内容涉及土木建筑工程各个方面，系统地介绍该专业所包括的基本内容。主要包括土木工程、建筑设计、建筑结构、近代建筑、钢筋混凝土结构、复合结构、空间结构、建筑基础、建筑管理、建筑业工程、结构设计、建筑材料、建筑合同、建筑招标和竞拍、地下空间结构设计、建筑监督和抗震工程等内容。

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前言

《土木建筑专业英语》是通过调研，在理论研究的基础上，并针对当前国内土木建筑类院校缺少适用的专业英语教材的现状编写而成的。全书共分个十七个单元，内容涉及土木建筑工程各个方面，系统地介绍该专业所包括的基本内容。本书选材广泛、内容新颖、针对性强、难度适中，有助于提高读者阅读相关专业的英语书刊和文献的能力，以获取专业信息和掌握学科发展动态。

全书主要包括土木工程、建筑设计、建筑结构、近代建筑、钢筋混凝土结构、复合结构、空间结构、建筑基础、建筑管理、建筑业工程、结构设计、建筑材料、建筑合同、建筑招标和竞拍、地下空间结构设计、建筑监督和抗震工程等内容。每篇文章后附有生词、注释、练习，以便学生及时对知识点进行巩固。全书体系严密完整，侧重技能传授，弱化理论，强化实践内容，将英语语言的学习和专业知识的提高紧密地结合在一起。

本书在编写过程中，编者考虑到学校的教学特点，以简练易懂的语言风格编写，所选文章难易适中，方便学生阅读。在选取文章时，编者参阅了大量的文献资料和已经出版的教材，在此谨向原作者一并表示感谢。

由于编写时间仓促，加之编者水平有限，书中难免存在不足之处，敬请广大读者批评指正！

土建学科专业教材编写委员会

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Text Civil Engineering

Introduction

Engineers have probably contributed more to the shaping of civilization than any other professional group. In every society, the role of engineers is to develop the technological application to meet practical needs. For example, the application of an electrical system is to provide power to a city, a water wheel is to run a mill, an artificial heart is to prolong life, etc. The systems that supply our food, water, fuel, power, transportation network, communication and other conveniences are the products of engineering skill. Despite the essential part engineers play in the above progress and in the well-being of humanity, their exact role is imperfectly understood.

Engineering is the art of converting knowledge into useful practical applications. An engineer is a person, who plays the key role in this process of conversion. Since engineering is the profession which serves people, their environment is an important consideration. Often, there have been difficulties in distinguishing engineers from scientists. It is difficult to determine where the work of the scientist ends and that of the engineer begins.

The basic distinction between the linked professions of science and engineering lies in their goals. Scientists aim to invent while engineers strive to use the inventions effectively to cater to the needs of mankind. ① For example, the German physicist Heinrich Hertz discovered radio waves while Guglielmo Marconi developed wireless telegraphy using radio waves, a feat of engineering. And after the scientific principles of nuclear fission were established, the hard work of creating atomic weapons and useful power plants was accomplished by electrical, chemical and mechanical engineers.

Civil Engineering

Civil engineering is that branch of engineering which aims to provide a comfortable and safe living for the people. Shelter, one of the primary needs of mankind, is provided by civil engineers. The efficient planning of water supply and irrigation systems increases the food production in a country. Shelters, apart from just being shelters, have been constructed by civil engineers to provide a peaceful and comfortable life. The engineering marvels of the world, starting from the pyramids to today's thin shell structures, are the results of the development in civil engineering. Communication lines like roads, railways, bridges, etc. without which development is impossible, are fruits of civil engineers'work.

Scope of Civil Engineering

Any discipline of engineering is a vast field with various specializations. The major specializations of civil engineering are listed below:

1. Structural engineering.
2. Geotechnical engineering.
3. Fluid mechanics, hydraulics and hydraulic machines.
4. Transportation engineering.

5. Water supply, sanitary and environmental engineering.

6. Irrigation engineering.

7. Surveying, levelling and remote sensing.

Structural Engineering

Structural engineering is the most important specialization in civil engineering. The construction of a structure needs efficient planning, design and method of construction to serve the purpose fully. Generally there are five major steps in any construction project. These include the following:

1. Positioning and arranging the various parts of the structure into a definite form to achieve best utilization. ②

2. Finding out the magnitude, direction and nature of various forces acting on the structure.

3. Analyzing the structure to know the behavior of the various parts of the structure subjected to the above forces.

4. Designing the structure such that its stability under the action of various loads is ensured.

5. Executing the work with selected construction materials and skilled workers.

Geotechnical Engineering

For the efficient functioning of any structure built on earth, the behavior of soil must be known. Geotechnical engineering gives the basic idea about the soil. This branch also deals with the following aspects:

1. The properties and behavior of soil as a material under "soil mechanics".

2. The various types of foundations for a structure, for a machine, etc. and their suitability. Geotechnical Engineering also deals with the analysis, design and construction of foundation.

Fluid Mechanics, Hydraulics and Hydraulic Machines

Fluid mechanics deals with the properties and behavior of fluids at rest or in motion. The principles of fluid mechanics can be applied to daily life as in the case of the flight of planes, the movement of fish in water, and the circulation of blood in the veins.

The design of hydraulic structures, such as dams and regulators, require the force exerted by water and the behavior of water under pressure.

Machines which utilize the hydraulic energy are called hydraulic machines. For example, turbines use potential energy of water to generate power. Pumps are devices which utilize mechanical energy to lift water. The efficient working of the above machines depends upon the fluid behavior which is dealt with in this discipline.

Transportation Engineering

The development of a nation mainly depends on the communication facilities available. A nation's wealth is measured in terms of the road and railway facilities available. There are three modes of transportation, viz: land, water and air. This specialization deals with the design, construction and execution of the communication routes.

The different branches of transportation engineering include the following: highway engineering deals with the planning and designing of roads, railway engineering deals with the railway tracks, harbor engineering deals with the harbors and airport engineering deals with the airports.

Water Supply, Sanitary and Environmental Engineering

Without food man can survive for days but not without water. The responsibility of providing potable (drinking) water to the public and disposing the waste water safely is that of a civil engineer. The sources of water are precipitation and underground water.

Water supply engineering deals with the location, collection of water, its treatment methods, tests for standard limits and efficient supply of water.

Used water, solid wastes, toxic wastes, etc. cannot be disposed directly since these affect the environment. Hence these have to be treated and tested for the standard limits and then disposed. Sanitary engineering deals with the collection of used water, their treatment methods and effective disposal which safeguards the whole world. The natural and artificial wastes generated and released into the atmosphere have upset the natural equilibrium. Anthropogenic or human-induced pollutants have overloaded the system.

The role of an environmental engineer is to build a bridge between biology and technology by applying all the techniques to the job of cleaning the debris. Environmental engineering deals with the methods of protecting the environment from the deleterious effects of human activity which would result in the improvement of environmental quality for the well being of mankind. ③

Irrigation Engineering

Irrigation may be defined as the process of supplying water by man-made methods for the purpose of land cultivation. Irrigation engineering includes the study and design of works related to the control of river water and the drainage of waterlogged areas. Thus, irrigation engineering deals with the controlling and harnessing of various resources of water, by constructing dams, reservoirs, canals, head works and distribution channels to the cultivable land.

Surveying, Levelling and Remote Sensing

Before starting any important civil engineering project, such as the construction of railways, highways, dams and buildings, it becomes necessary to have a detailed survey map showing accurate boundary of the project area. Surveying is defined as an art of collecting data for mapping the relative positions of points on the surface of the earth. Levelling is the process of determining the relative heights of the points on the surface of earth in a vertical plane. ④

The main purpose of the survey work is to prepare the plan of the object to be surveyed. Various instruments are used to measure and collect the necessary information to draw the plan. Remote sensing uses the technique of obtaining the data about an area by taking aerial photographs. The intelligent interpretation gives a clear picture of the terrain.

Functions of Civil Engineer

Civil engineering incorporates activities such as construction of structures like buildings, dams, bridges, roads, railways, hydraulic structures, water supply and sanitary engineering.

Various Functions of a civil engineer are listed below.

1. Investigation The first function of a civil engineer is to collect the necessary data that is required before planning a project.

2. Surveying The objectives of surveying is to prepare maps and plans to locate the various structures of a project on the surface of earth.

3. Planning Depending on the results obtained from investigation and surveying, a civil engineer should prepare the necessary drawing for the project with respect to capacity, size and location of its various components. On the basis of this drawing, a preliminary estimate should be worked out.

4. Design After planning, the safe dimension of the components required is worked out. With this dimension a detailed drawing is prepared for various components and also for the whole structure and a detailed estimate is also calculated.

5. Execution This function deals with the preparation of schedules for construction activities, floating of

tenders, finalization of contracts, supervision of construction work, preparation of bills and maintenance.

6. Research and Development In addition to the above works, a civil engineer has to engage himself in research and development to achieve economy and to improve the efficiency to meet the present and future needs.

NOTES

1. The basic distinction between the linked professions of science and engineering lies in their goals. Scientists aim to invent while engineers strive to use the inventions effectively to cater to the needs of mankind.

译：工程（学）与其相近专业科学之间最根本的区别在于它们的目标不同。科学家致力于发明创新，而工程师则致力于有效利用这些发明创新去为人类服务。

2. Positioning and arranging the various parts of the structure into a definite form to achieve best utilization.

译：安排布置结构的各个部分到特定位置，以达到最佳的使用效果。

3. Environmental engineering deals with the methods of protecting the environment from the deleterious effects of human activity which would result in the improvement of environmental quality for the well being of mankind.

译：环境工程涉及保护环境不受人类活动有害影响的方法，其目的是改善环境质量，以满足人类健康生活的要求。

4. Surveying is defined as an art of collecting data for mapping the relative positions of points on the surface of the earth. Levelling is the process of determining the relative heights of the points on the surface of earth in a vertical plane.

译：测量可以定义为一项收集数据以确定地球表面各点相对位置的技术。水准测量是确定地球表面各点在一个垂直平面上的相对高度的过程。

NEW WORDS AND PHRASES

1. irrigation 灌溉，冲洗
2. specialization 专业化
3. geotechnical engineering 岩土工程
4. fluid mechanics 流体力学
5. hydraulics 水力学
6. transportation engineering 交通工程
7. environmental engineering 环境工程
8. surveying 勘察，测量
9. levelling 水平测量，水准测量
10. potential energy 势能
11. discipline 学科
12. precipitation（雨等）降落，某地区降雨等的量
13. toxic 有毒的
14. equilibrium 平衡，均衡
15. anthropogenic 人为的
16. debris 残渣，垃圾，废弃物；泥石流
17. deleterious 有害的
18. drainage 排水，排水系统

19. waterlogged 水浸的，水涝的
20. interpretation 解释，翻译
21. tender 投标，提出
22. supervision 监督，管理

QUESTIONS

1. How to distinguish engineers from scientists?
2. What are the major specializations of civil engineering?
3. What does geotechnical engineering deal with?
4. As a civil engineer, what should he do during construction?

Reading: Careers in Civil Engineering

Engineering is a profession, which means that an engineer must have a specialized university education. Many government jurisdictions also have licensing procedures which require engineering graduates to pass an examination, similar to the bar examination for a lawyer, before they can actively start on their careers.

In the university, mathematics, physics, and chemistry are heavily emphasized throughout the engineering curriculum, particularly in the first two or three years. Mathematics is very important in all branches of engineering, so it is greatly stressed. Today, mathematics is included in statistics, which deals with gathering, classifying, and using numerical data, or pieces of information. An important aspect of statistical mathematics is probability, which deals with what may happen when there are different factors, or variable, that can change the results of a problem. Before the construction of a bridge is undertaken, for example, a statistical study is made of the amount of traffic the bridge will be expected to handle. In the design of the bridge, variable such as water pressure on the foundations, impact, the effects of different wind forces, and many other factors must be considered.

Because a great deal of calculations are involved in solving these problems, computer programming is now included in almost all engineering curricula. Computers, of course, can solve many problems involving calculations with greater speed and accuracy than a human being can. But computers are useless unless they are given clear and accurate instructions and information—in other words, a good program.

In spite of the heavy emphasis on technical subjects in the engineering curriculum, a current trend is to require students to take courses in the social sciences and the language arts. The relationship between engineering and society is getting closer; it is sufficient, therefore, to say again that the work performed by an engineer affects society in many different and important ways that he or she should be aware of. An engineer also needs a sufficient command of language to be able to prepare reports that are clear and, in many cases, persuasive. An engineer engaged in research need to be able to write up his or her finding for scientific publications.

In the last two years, an engineering program includes subjects within the student's field of specialization. For the student who is preparing to become a civil engineer, these specialized courses may deal with such subjects as geodetic surveying, soil mechanics, or hydraulics.

Active recruiting for engineers often begins before the student's last year in the university. Many different corporations and government agencies have competed for the services of engineers in recent years. In the science-oriented society of today, people who have technical training are, of course, in demand. Young engineers may choose to go into environmental or sanitary engineering, for example, where environmental concerns have created many openings; or they may choose construction firms that specialize in highway work; or they may

prefer to work with one of the government agencies that deal with water resources. Indeed, the choice is large and varied.

When the young engineer has finally started actual practice, the theoretical knowledge acquired in the university must be applied. He or she will probably be assigned at the beginning to work with a team of engineers. Thus, on-the-job training can be acquitted that will demonstrate his or her ability to translate theory into practice to the supervisors.

The civil engineer may work in research, design, construction supervision, maintenance, or even in sales or management. Each of these areas involves different duties, different emphases, and different uses of the engineer's knowledge and experience.

Research is one of the most important aspects of scientific and engineering practice. A researcher usually works as a member of a team with other scientists and engineers. He or she is often employed in a laboratory that is financed by government or industry. Areas of research concerned with civil engineering included soil mechanics and soil stabilization techniques, and also the development and testing of new structural materials.

Civil engineering projects are almost unique; that is, each has its own problems and design features. Therefore, careful study is given to each project even before design work begins. The study includes a survey both of topographical and subsoil feature of the proposed site. It also includes a consideration of possible alternatives, such as a concrete gravity dam or an earth-fill embankment dam. The economic factors involved in each of the possible alternatives must also be weighed. Today, a study usually includes a consideration of the environmental impact of the project. Many engineers, usually working as a team that includes surveyors, specialists in soil mechanics, and experts in design and construction, are involved in making these feasibility studies.

Many civil engineers, among them the top people in the field, work in design. As we have seen, civil engineers work on many different kinds of structures, so it is normal practice for an engineer to specialize in just one kind. In designing buildings, engineers often work as consultants to architectural or construction firms. Dams, bridges, water supply systems, and other large projects ordinarily employ several engineers whose work is coordinated by a systems engineer who is in charge of the entire project. In many cases, engineers from other disciplines are involved. In a dam project, for example, electrical and mechanical engineers work on the design of powerhouse and its equipment. In other cases, civil engineers are assigned to work on a project in another field; in the space program, for instance, civil engineers were necessary in the design and construction of such structures as launching pads and rocket storage facilities.

Construction is a complicated process on almost all engineering projects. It involves scheduling the work and utilizing the equipment and materials so that cost is kept as low as possible. Safety factors must also be taken into account, since construction can be very dangerous. Many civil engineers therefore specialize in the construction phrase.

Much of the work of civil engineers is carried on outdoors, often in rugged and difficult terrain or under dangerous conditions. Surveying is an outdoor occupation, for example, and dams are often built in wild river valleys or gorges. Bridges, tunnels, and skyscrapers under construction can also be dangerous places to work. In addition, the work must also process under all kinds of weather conditions. The prospective civil engineer should be aware of the physical demands that will be made on him or her.

Words and Phrases

jurisdiction	[ˌdʒəris'dikʃən] *n.* 权限，管辖权
bar	[ba:] *n.* 法庭，律师的职业
curriculum	[kə'rikjuləm] *n.* 课程，学习计划
statistic	[stə'tistik] *adj.* 统计学的；*n.* 统计表
persuasive	[pə'sweisiv] *adj.* 亦有说服力的；*n.* 动因，诱因
recruit	[ri'kru:t] *v.* 补充，招收
science-orient	注重科学的
specialize	['speʃəlaiz] *v.* 专门研究，使专业化
geodetic	[ˌdʒi:ə'detik] *n.* 大地测量学
acquit	[ə'kwit] *v.* 尽职，赦免
topographical	[ˌtɔpə'græfikəl] *adj.* 地形学的
powerhouse	*n.* 动力室，发电厂
rugged	[rʌgid] *adj.* 崎岖的，艰难的
terrain	['terein] *n.* 地域，地带
gorge	[gɔ:dʒ] *n.* 峡谷
skyscraper	['skaiskreipə] *n.* 摩天楼
prospective	[prəs'pektiv] *adj.* 将来的，未来的

Exercises

Ⅰ. Decide whether the following statements are true (T) or false (F).

(　　) 1. Doing experiment to achieve the properties of soils and rocks is environmental engineer's work.

(　　) 2. A structural engineer must calculate loads, and then select structural system.

(　　) 3. A civil engineer need not work in research and management, they should grasp knowledge learned from lessons.

(　　) 4. Steel concrete and carbon fiber are traditional materials.

(　　) 5. Most preliminary designs begin with the strength and stability criteria.

Ⅱ. Translate the following passages from English into Chinese.

The architect has now chosen his structural system and his materials of construction. He has accounted for load propagation through his structural system and the effects of that propagation on the material. Thus he can provide enough material. In other words, members of proper size-for all elements of his structure to ensure that the internal stresses developed are less than those permissible for the material in question.

Grammar：专业英语的特点（Ⅰ）——文体特点

Characteristics of English for Professional Purpose Ⅰ—Style Characteristics

专业英语是建立在一定的基础英语和专业知识之上，但并非有了这两者，就能掌握好专业英语，做好专业英语的翻译工作。就英汉两种语言而言，它们既有共同点又各具特点。要想把专业英语准确、完整地表达出来，使不同的语言交流更流畅、更方便，需要了解专业英语的特点。本篇介绍专业英语的文体特点。

（1）专业英语归属于科技英语文体，由于科技英语的主要目的是表述科学发现和科学事实，侧重科

学推理，这就使得科技英语中以客观陈述为主，被动语态使用较多，尽量使用第三人称叙述，第一人称和第二人称使用较少，以避免造成主观臆断的印象。

【例1】While a current is flowing through a wire, the latter is being heated.

电流流过导线时，导线就发热。

【例2】Before any civil engineering project can be designed, a survey at site must be made.

在设计任何土木工程项目之前，必须进行现场测量。

（2）经常使用长句，长句一般都是含有几个复杂关系的复合句，要正确理解和翻译长句，就需要进行语法分析，搞清楚句子的中心内容和各层次之间的关系，采用合适的翻译方法准确地表达原文。

【例3】Manufacturing processes may be classified as unit production with small quantities being made and mass production with large number of identical parts being produced.

制造方法可分为单件小批量生产和大批量生产两类：单件小批量生产是生产少量的机件，大批量生产则是生产大量相同的零件。

【例4】There is enough of a difference here to indicate that one must look at the foreman's job in terms of what his situation is, whom he has to motivate and what opportunities he has to do —before deciding what sort of supervisor training is best for him.

这里的差别足以证明：在决定何种管理训练对工长最有用之前，人们必须从工长所面临的情况，即他需要促动什么人和他有哪些进行促动的机会等方面先对他的工作进行一番考察。

（3）非人称的语气和客观的态度，常使用 It... 结构。

【例5】It is easier to make changes in design and to correct errors during construction (and at less expense) if welding is used.

若采用焊接，则在施工阶段更容易（以更少的费用）修改设计或改正错误。

（4）大量使用非限定性动词，如不定式、动名词、现在分词和过去分词。如：

【例6】The total weight being less, it is possible to build much taller buildings.

由于总重量减轻，才有可能建造更高的楼房。

【例7】The demands for sophisticated analysis, coupled with some serious limitations on computational capability, led to a host of special techniques for solving a corresponding set of special problems.

因为对精细分析的要求，但又受到计算能力的某些严重限制，由此产生了许多特殊方法以解决相应的一组特殊问题。

（5）较多地使用祈使语气和公式化表达方式。

【例8】Suppose that $P=0$ at $x=y$.

假定当 $x=y$ 时，$P=0$。

（6）对于一个复杂的概念，为了使之表述清楚，结构紧凑，逻辑严密，往往使用省略句和条件语句。如：

【例9】If not well managed, the procedure for construction may be more expensive.

如果管理不善，这一施工方法还可能更昂贵。

【例10】The huge investment in the infrastructure will be erased quickly if proper maintenance and rehabilitation procedures are enforced and funded.

如果合理的养护和修复计划得以资助并实施，就可迅速取消用于基础建设的巨大投资。

Unit 2 Urban Design

Text Is Urban Design a Discipline?

For me, urban design lacks a penumbra of scholarship, theory and principles, a set of generally recognized working methods, an institutional setting, and a mass of practitioners. These constitute a 'discipline'. Lacking them, urban designers tend to borrow precepts, methods, and concepts from architecture, but late in the game. They borrow theoretical hand-me-downs architecture's old clothes— 'the most recent from Post Modernism, before that from the Athens Charter. They also borrow models from the European city. In any case, the ethos of the American city, with its strengths and its weakness, is seldom the basis for the promulgating of public sector urban design recommendations.'

I do not read much planning these days, but when I scan the urban design coverage in planning journals, it seems to be limited to the New Urbanism—what would Gans say?

The urban research and design Venturi and I have done seems of interest today to young architects and students from schools of architecture in the United States and Europe, including some from Harvard. They study our urban ideas, particularly those on Las Vegas. And architecture students and academics involved in urban communication and urban mapping turn to our work and thought on symbolism and on urban systems as patterns. But we do not hear from urban designers.

In my opinion, few great philosophical formulations on urban design, as I define it, have been made by urban designers since the writings of Crane, and to the extent urban design theory has been developed; it has been from a base in architecture. An example is Rem Koolhaas's work, including some at Harvard, that follows in the footsteps of our Las Vegas research, documenting the Strip twenty-five years later but also applying similar research methods to African urbanism—from Las Vegas to Lagos.

When it comes to discipline building, there could be a new construction team available to urban design-architecture's new scholars. Architectural education in the past twenty years has seen the enormous growth of Ph. D., as academic streams have been introduced to parallel the traditional professional programs. In my experience, they have added depth to the field—build the discipline—enormously. How many will turn their attention to urban design? There are signs of this interest developing among academic architects in Europe. Energetic dissertation writers could help from a discipline of urban design.

What of the Future?

Not many of the prognostications of the 1956 conference have held up well, and mine may be no better. Perhaps it is wiser to discuss prerequisite attitudes rather than likely or hoped-for situations. A good stance for the future might be to see urban design as:

- a particularly broad and interdisciplinary subject area;
- working at scales from the street corner to the region and beyond;
- having many project durations, both shorter and longer than those of architecture;
- encompassing multiple decision makers, and designers, and multiple cultures, and requiring an understanding of the decision processes and the group values they purvey;

• creating multiple connections—physically and across disciplines;

• offering complex vocabularies, different from those of architecture, for describing urban form. These vocabularies, culled from the definitions of Crane, Lynch, ourselves, and others, define and aggregate urban form in various ways related to both scale and subject matter;

• entailing understanding of the urban polity and the many roles available for urban designers within it;

• and involving fights about anything from equity to iconography—amicable fights, we hope. ①

Urban design must help mediate between the needs of users of buildings and of people in the wider community. The outside spaces of the building are not merely there for looks, and the inside spaces are not the business of its owners alone. The adjudication between inside and outside is the concern of everyone, and more than aesthetics is at stake; the individual and the community must resolve some aspects of their sometimes conflicting needs through urban design. ②

How we should train people for this complex profession was much on the minds of the original conference conveners and has been a thread through this essay. Despite my criticisms of the Penn urban design program, I still think that the best way to train urban designers is to set them within a strong architecture program but then hold them in "creative and even painful tension… (with) a skeptical critical, social sciences-based department of urban planning."

I believe Crane's Harvard-learned pedagogy and his studio methods, and ours developed from his, are good for keeping focus on the design accepts of urban design. They also keep designers from neglecting the broad societal content that will be important to them in practice and that should be central to developing the urban design discipline. ③ I have in mind perhaps a dozen studios that could be fun and entail the inspired research that grips students while bringing up the issues I have described. Some are based on urban prototypes. I have seen recently in other cultures, for example, the Li long house type and the scholars' gardens in Shanghai. But I would also like to make an analytic and design study of the abandoned industrial system of buildings and sites that follow major rail lines throughout Philadelphia, or a regional study of "brownfields" in Pennsylvania and New Jersey, to see what ideas could be developed for the use of each from its social, economic, cultural, and environmental contexts.

These studios should give aspiring designers the opportunity to top up their box of loves—as I once filled mine in Las Vegas. There are many ways to foster loves. Perhaps a box of brownfield loves would be part Pandora's Box, but the problems that arise can be turned to good and beauty. As Mumford put it in 1956, "Begin with the intimate body of the community as something that has to be preserved at all costs; and then find its equivalent modern form in a sufficiently economical fashion to be available to the shopkeepers and others." For Mumford, the solution should be evolved from its own (modest) reality, and, to add my part, drawing strength, utility, and beauty from that reality is our job. The more difficult the problem is, the greater the chance for (true) beauty.

NOTES

1. … and involving fights about anything from equity to iconography—amicable fights, we hope.

译：城市规划这门学科同时也包含一些争论，这些争论围绕着学科中科学的理性因素与艺术的感性因素展开，当然，我们希望这类争论是和谐友好的，并且能够得到一个合理的结果。

2. The adjudication between inside and outside is the concern of everyone, and more than aesthetics is at stake; the individual and the community must resolve some aspects of their sometimes conflicting needs through urban design.

译：对于建筑内部功能和外在形式之间的判断，孰轻孰重，是我们每一个人应该关注的，而不仅仅是艺术形式方面的问题；个体和团体也必须通过城市规划解决他们在需求方面的某些冲突。