



Mackinnon

PREFACE.

The following paragraphs from the Preface to the English work, which is here reprinted along with a Chinese translation of it, will sufficiently explain its nature and object.

"The object of the present work is to supply a series of elementary lessons suitable both for school and for home instruction. A more comprehensive and systematic arrangement of subjects has been attempted than any at present existing in the English Language, and a method of graduating the lessons has been adopted which accommodates the series to children of different degrees of advancement.

For the junior pupils a mere outline of simple facts is drawn up in short sentences, the lessons of this series abounding in nouns. For pupils a little more advanced, additional information is embodied in lessons of longer sentences. For pupils of a higher order still, the lessons are amplified, and call for a greater exertion of the reasoning powers.

The first series of lessons, printed in bold type, each of which, including the observation of the te,

GRADUATED READING;

COMPRISING

A CIRCLE OF KNOWLEDGE,
IN 200 LESSONS.

GRADATION 1.

SECOND EDITION. IMPROVED.

智環啟蒙塾課
初步

同治三年活板印刷

香港英華書院從英文譯出

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circumstances of Chinese lads seemed to require, but not to any great extent.

Hong-Kong, 1st December 1856. J. L.

In this, Second Edition the Chinese has been revised, and a few alterations have been made besides in both Texts

31st December 1864. J. L.

acher, will occupy an hour, is intended for children of five or six years old. The second series is adapted to pupils a year older. And for children still further advanced a third series is prepared, each lesson of which, though double the length of the second, will not engage the senior pupils a longer time than the younger ones will have to devote to their lesson. The advantages resulting from such a progressive course of lessons are obvious. The mind of the teacher is employed on one subject only for as many classes as are thus occupied; and the illustrations requisite for one class will be suitable to all."

All who have been engaged in teaching Chinese youth especially where the English language and the ordinary branches of an English education have been included in the scheme of instruction, have continually felt the want of school books, adapted for the peculiar sphere of their labours. The translation of Mr. Bakerr's lessons was undertaken to supply this want, the author having found them better suited for the purpose than any others he had met with. The second and third gradations will (I trust) be similarly published. Alterations and additions have been made in some of the lessons, which the

THE
CIRCLE OF KNOWLEDGE.
GRADATION I.



SECTION I.—INTRODUCTORY.

Lesson 1. *Objects.*

A stone, a book, a tree, a bird, a horse, a pin, a leaf, a chair, a star, a hat, are all *objects*. All things that we can see are *objects*. The chair, the hat, the pin, and the book, were made by man. The stone, the tree, the bird, the leaf, the horse, and the star, were not made by man, but were created by God, and are called created things. The things which are made by man are not *created* things.

智環啟蒙塾課初步



香港英華書院從英文譯出

第一篇小引。

第一課眼所能見之物論。

一團石，一部書，一根樹，一隻雀，一隻馬，一管針，一片葉，一張椅，一粒星，一件帽，此皆眼所能見之物，英語叫做 *objects*。椅，帽，針，書，係人所作，石，樹，雀，葉，馬，星，非人所作，乃上帝所造，叫做受創造之物。人所作者，不叫受創造之物。

智環啟蒙塾課

一

SECTION II.—THE BODY AND ITS PARTS.

Lesson 4. *The Head.*

The body is distinguished into many parts, of which the chief are the head, the trunk, and the limbs. The head is the highest part of the body. It is composed of the skull and the face. The skull includes the crown, the forehead, and the back and sides of the head. It is covered by the hair, and contains and protects the brain. The face is at the front of the head.

Lesson 5. *The Face.*

Our faces are provided with eyebrows, eyes, cheeks, a nose, lips, and a chin. The eyes are to see with; they are provided with eyelids. The nose is to smell with; it has openings on each side, called nostrils. The lips are to talk and to eat with; they are very flexible; and are kept from sinking inwards by the teeth.

第二篇 身體論

第四課 頭論

身有百體其最大者乃頭大身及四肢頭居身頂有殼有面頂額後枕及兩旁皆屬殼外有髮蓋內有腦漿藉殼遮護頭之前乃面

第五課 面論

面之部位乃眉目頰鼻唇頰眼用以看有蓋可以開閉鼻用以嗅內有兩孔曰鼻孔唇用以言及食甚是活動有牙阻之不至倒入

Lesson 2. *Creatures and Beings.*

All created things are *creatures*. The stone, the leaf, the horse, the bird, the tree, and the star, are all *creatures*. Some *creatures* have life, and others have not. Those which have life, as the horse, the bird, and the tree, are called *beings*. Those which have not life, as the star and the stone, are only called *things*, not *beings*.

Lesson 3. *Human Beings.*

Mankind are called *human beings*. Human beings have both bodies and souls. Their bodies grow; a child is bigger than an infant, and a man is bigger than a child. Their souls are made to understand, to reason, and to love. Mankind know what is right and what is wrong, and they are accountable to God for their actions.

第二課 受造之物及生物論
凡受創造之物英話名爲 *creatures* 如石葉馬雀樹星皆然受造之物或有生或無生有生者如馬雀樹之類名曰生物英話叫做 *beings* 無生者如星石之類止名物非生物英話叫做 *things* 非 *beings*

第三課 人類論

人類英話叫做 *mankind* 有身體亦有靈魂身體自小至大童子大於嬰兒成人大於童子靈魂會曉會想會愛人類知別是非所行之事皆必受上帝審判

Lesson 8. *The Lower Limbs.*

The lower limbs are the thighs, the legs, the feet, and the toes. The thighs are joined to the trunk, the legs to the thighs, the feet to the legs, and the toes to the feet. We have two thighs, two legs, two feet, and ten toes. The back of the foot is the heel, the upper part of the foot is the instep, the under part is the sole

Lesson 9. *The Joints.*

The parts of the body move on joints. The chief joints are at the shoulders, the elbows, the wrists, the hips, the knees, and the ankles. The fingers and the toes have numerous smaller joints. The back-bone is a pillar of bones and joints, and is very flexible. The head moves on the first and second joints of the spine.

第八課。下肢論。

身之下肢有腿有脛有足有趾。腿與大身相連。脛與腿相連。足與脛相連。趾與足相連。各人有兩腿。兩脛。兩足。十趾。足後乃踴。足上曰背。足下曰版。

第九課。骨節論。

人身之部位皆活動。其活動處乃骨節。如肩頭。手肘。手頸。髀較。膝頭。脚眼。皆有節。乃身內之至大節也。手指足趾。骨節甚多。脊骨能屈能伸。乃骨節相連成一柱也。頭所動處。乃脊骨上兩節也。

Lesson 6. *The Trunk.*

The largest part of the body is the trunk. The parts of the trunk are the shoulders, the chest, the ribs, the belly, and the back. The upper part of the trunk is the chest. The sides of the chest are the ribs. The ribs are joined to the spine, and to the breast-bone. Inside the chest are the heart and lungs. The lower part is the belly.

Lesson 7. *The Upper Limbs.*

The upper limbs are the arms, the hands, and the fingers. The arms are fixed to the trunk at the shoulders; the hands to the arms, at the wrists; and the fingers to the hands, at the knuckles. We have two arms, two hands, and ten fingers. The inner part of the hand is the palm; the closed hand is called the fist.

第六課。大身論。

人身之至大處曰大身。其部位即肩。腔。脅。腹。背。大身之上部乃腔。腔之兩邊乃脅。脅骨與腔背二骨相連。腔內有心與肺。其下部乃腹。

第七課。上肢論。

身之上肢有臂。有手。及手指。臂在肩處。與大身相連。手在手頸處。與臂相連。手指在手節處。與手相連。各人有兩臂。兩手。十指。手內曰掌。捲手曰拳。

Lesson 10. *The Bones, Muscles, &c.*

The principal bones are the skull, the jaw-bone, the breast-bone, the shoulder-blades, the spine, the ribs, and the bones of the arms, hands, thighs, legs, and feet. The bones are kept in their places by muscles and tendons. The muscles are the flesh. The tendons are the ends of the muscles; they are fastened to the bones.

Lesson 11. *The Heart, Lungs, &c.*

The blood flows from the heart through the body in the arteries. It returns to the heart through the veins. Its colour has changed to purple, and it passes into the lungs, and is purified by being mixed with the air we breathe. This restores its scarlet colour, and it again flows through the body in the arteries. The circulation goes on without stopping.

第十課。筋骨等論。

骨之最要者，乃頭殼、牙床、胸骨、飯匙骨、背脊骨、脅骨、臂骨、手骨、腿骨、脛骨、足骨。身內之骨，各居其所，因有肌肉及筋，相貼而把實扶持之。筋乃肌肉盡處。

第十一課。心肺論。

血由心出，從血脈管運行周身，然後復從迴血管歸入心裏。已變紫色，乃先經肺，得所吸之天氣，使之復清，還其赤色。于是由心再行周身，循環不已。

Lesson 12. *Sustenance and Rest.*

We eat when we are hungry, and drink when we are thirsty. We cease to eat and drink when we have had enough. We rest when we are tired, and sleep when we are sleepy, and having slept enough we awake, and feel refreshed. We become hungry, thirsty, tired, and sleepy, every day. We therefore need food, drink, rest, and sleep, every day.

Lesson 13. *Internal Actions of the Body.*

The action of the internal organs of the body sustains life. In them the food is digested. That which supports life is mixed with the blood, and that which is useless is sent out of the body. The heart circulates the blood when it is made, and the lungs supply us with air. The heart and the lungs act when we are asleep as well as when we are awake. When they act imperfectly we are ill; when they cease to act we die.

第十二課。飲食安息論。

我飢則食，我渴則飲。食飽飲足，乃止。我身倦則安息，眼瞌則睡，睡足乃醒，再覺精神。我每日有飢，有渴，或倦，或瞌，故每日必食，飲，安睡。

第十三課。身內臟腑功用論。

養人生者，臟腑之功用也。其中食物消化，有用以養生者，漸混為血，無用者，由大腸遺出。血既成，則由心運行週身，而肺為呼吸之經，心肺之功用，日夜不息，寤寐無異。稍有虧損，則病，絕則死矣。

SECTION III — OF FOOD.

Lesson 16. *Animal Food.*

To keep the body in health, we must eat and drink. Many things are proper for food, and among them the flesh of animals. The principal flesh meats are beef, veal, mutton, lamb, and pork. We also eat the flesh of deer, goats, hares, rabbits, and other kinds of animals. Flesh is also made into soups.

Lesson 17. *Animal Food. (Continued.)*

Birds and fish supply man with food. Of birds we eat fowls, ducks, geese, turkeys, pigeons, partridges, and pheasants. Of fish we eat the bream, mackerel, carp, flounder, eels, and other kinds. Of shell-fish we eat crabs, shrimps, lobsters, and oysters, and cockles. The sea-turtle is also used for food.

Lesson 14. *Outward Actions of the Body.*

Our bodies are capable of various actions. We can touch, hold, strike, or pull; we can walk, run, jump, or dance; we can stand, sit, or lie down. We can also see, hear, smell, taste, and feel; we can laugh, smile, sigh, cry, scream, or sing. We can perform many actions with our hands.

Lesson 15. *The Stages of Life.*

The first part of life is *infancy*. When we can run about and talk, it is the time of *childhood*. When we can take care of ourselves, it is the time of *youth*. A few years after, we are strong and full-grown; this is the time of *manhood*. When our strength decays, and our limbs totter, it is the time of *old age*.

第十四課。身外動止論。

人身百體動止不一。能摸、能持、能打、能牽、能行、能走、能跳、能躍、能企、能坐、能臥、又能見、能聽、能嗅、能嘗、能覺、能笑、能哂、能嘆、能叫、能號、能唱。手之用處甚多。

第十五課。人生齒序論。

人生初年為嬰孩之時。能行走、會講話、方為小兒。及力能自顧、是為幼年。越數歲、身已長壯、乃成人之時。至力衰肢弱、則為老年之時。

第三篇。飲食論。

第十六課。肉食論。

欲保身體康健，人須飲食。宜食之物甚多，中有獸肉，如牛肉、牛仔肉、羊肉、羔肉、豬肉。此數樣人多食之。另有鹿肉、草羊肉、兔肉、熟兔等獸之肉，皆為人食。亦有煮肉作湯。

第十七課。繼肉食論。

飛禽水族亦可為人之食。飛禽中有鷄、鴨、鵝、火雞、白鴿、鷓鴣、山鷄等。魚類中，人食鱈魚、鮫魚、鯉魚、撻沙、鱒魚等。于螃蟹類，人食蟹、蝦、龍蝦、蠔、蜆，亦食脚魚之肉。

Lesson 18. Kitchen Vegetables.

Plants and vegetables also furnish supplies of food. Of some plants we eat the leaf, as of the cabbage; of others we eat the stalk, as of celery; of some we eat the root, as of the potato; of some the seed, as of peas; of some the flower-bud, as the cauliflower; and of some we eat the fruit only, as of the cucumber.

Lesson 19. The Grain Plants.

Plants that produce grain are much used for the food of man. The principal grain-plants are rice, wheat, barley, and maize. Rice is much grown in the east. It is boiled and eaten whole. Wheat is the principal food of western countries. All the grains may be ground into meal. When it is sifted, the flour is used for bread, puddings, cakes, and pies; the bran is used to feed animals.

第十八課。菜食論。

蔬菜亦可供食，有的食其葉，如椰菜等，有的食其莖，如塘蒿等，有的食其根，如諸薯等，有的人食其子，如荳類是也。有的人食其蕾，如花椰菜等，有的人止食其菓，如瓜類是也。

第十九課。穀食論。

穀類爲人多取以供食，其中最通用者，有米、麥、麩麥、粟米等。米多出東土，人煮而粒食之。麥乃西土所用爲日糧者。穀皆可磨爲粉，篩其細者以作麵包、糕餅、點心，其粗皮用以喂畜。

Lesson 20. Fruits.

Many kinds of fruits are used for food. Some are berries, as the grape, and strawberry. Some are stone fruits, as the plum and peach. Some are nuts, as the almond and walnut. Some are dried by men, as figs, raisins and persimmons. Apples, pears, plums, and oranges, are common and useful fruits.

Lesson 21. Condiments.

Some kinds of food are insipid. They require salt to flavour them, or sugar, treacle, or honey, to sweeten them. Vinegar, salt, ginger, mustard, pepper, and other things, are used to season food. Nutmegs, cloves, mace, pepper, and cinnamon, are called spices. They do not grow in Europe, but in the hot countries, east and west of it.

第二十課。菓論。

人食之菓，其類甚多，有生成似珠的，如葡提、蛇莓之類，有內懷核的，如梅、桃等，有藏于殼內的，如杏仁、核桃等，有人所晒乾的，如無花菓、葡提子、柿等，平果、沙梨、梅及橙，乃有用之菓，各方多有之。

第二十一課。調味之料論。

食物中有淡者，需鹽以味之，有的需糖、糖水、蜜糖以甜之。醋、鹽、薑、芥粉、胡椒用以調物。荳蔻、丁香、荳蔻花、胡椒、肉桂等，名曰香料，非出歐羅巴，乃出東西之熱地。

Lesson 24. *The Farmer.*

Farmers are one of the four classes of the people. Much of the food we eat is supplied by them. They grow the corn that gives our daily support. Before he can gather his crops, the farmer must plough, and harrow, and manure, and sow his land. This requires labour, and skill, and money. Large farmers employ many men. The farmer sells his produce at the market.

Lesson 25. *The Farmer. (Continued.)*

The farmer keeps *live-stock*. Horses are used to draw the plough, and the harrow, to carry loads, and draw carts. Oxen are sometimes also used for draught, but they are generally kept, like calves, sheep, and pigs, for sale. Cows give milk, from which butter and cheese are made. Fowls and ducks are kept for food, and to supply us with eggs.

Lesson 22. *Food.*

Food is eaten to satisfy hunger and support the body. It is chewed with the teeth, and swallowed, when it passes into the stomach; it is there digested. The nourishing part of it is formed into blood, to nourish the life, and supply the strength of the body. Food that has been cooked is more nourishing than that which has not been cooked.

Lesson 23. *Drink.*

We quench our thirst by drinks. The chief beverages are water, milk, tea, coffee, ale, wine, cider, and perry. Of all these water is the best. Tea and coffee are next to it. Milk is both pleasant and wholesome, especially for children. Ale, wine, perry, and cider, are intoxicating. All kinds of ardent spirits are intoxicating and pernicious.

第二十二課。食論。

人取食以充腹養身。先用齒嚼。然後吞之。遂入胃。而消化之。其津汁成血。以養生。且加全身之力。熟食比生食更爲有益。

第二十三課。飲論。

人飲以止渴。所飲者。有水。乳。茶。加非。麥酒。葡萄酒。平菓。沙梨酒之類。其至好者。惟水。茶。加非。次之。牛乳。與羊乳。味美而可食。最宜于小子。麥。葡萄。平菓。沙梨等酒。皆能醉人。各般火酒。醉且有害。

第二十四課。農夫論。

農爲四民之一。人所食之物。多出。自農工。如每日所用爲糧之穀類。皆其所種植。初則犁。耙。糞田。播種。終乃收割。必須勞苦。見識費用。方能成功。大種植者。多僱傭人。其出產。乃貨于市。

第二十五課。續農夫論。

農夫畜養牲口。若馬。則用以拖挽。犁。耙。負重。駕車。犍牛。有時亦用以挽負。但農夫養之。多欲發賣。如牛。仔。羊。豬。一然。牛母給乳。其乳可出。乳油。與乳餅。鷄。鴨。供食。又以生蛋。

SECTION IV.—OF CLOTHING.

Lesson 28. *Dress of Men.*

Our bodies require clothing. We use warm clothing in winter, and light clothing in summer. People in hot climates wear thin fabrics; in cold climates, furs. Men and boys wear caps, girdles, inner and outer robes, long coats, shirts, collars, waistcoats, jackets, close-jackets, trowsers, leggins, shoes, stockings, boots, &c.

Lesson 29. *Dress of Women.*

The dress of girls and women consists of head-wrappers, temple-bands, wide-sleeved robes, narrow-sleeved robes, shirts, jackets, petticoats, trowsers, leggins, feet-bands, shoes, stockings, &c. Their ornaments are hair-pins, ear-rings, phoenix-caps, bracelets, anklets, &c. The dress of men and women in China is nearly the same, but in the western nations it is very different.

Lesson 26. *Purveyors.*

Our food is derived from husbandry, but we do not get it directly from the farmer; it must pass through the hands of *purveyors*. There are the miller, and pounder, who supply us with flour from grain; the baker, who supplies us with bread and cakes; the butcher, who supplies us with meat; the dairyman, who supplies us with milk; the green-grocer, who supplies us with vegetables; and the brewer, who supplies us with beverages.

Lesson 27. *Purveyors. (Continued.)*

Many people who provide for our wants labour hard—as the brewer, the miller, the rice-pounder, and others. Others buy and sell various articles—as the grocer, who supplies tea, coffee, sugar, raisins, treacle, and spices, &c. Many things are brought from far countries in ships by sailors, who undergo both danger and fatigue to provide us with food.

第二十六課。備辦食物者論。
農工固食物所自來矣。然人不直
得之於農夫。必先經備辦食物者
之手。有如磨者。椿者。以穀造粉。烘
者。以粉作麵包。與餅。屠夫發賣肉
食。治牛乳者。以給乳飲。賣蔬菜者
以供青菜。釀酒家以給酒漿。
第二十七課。續備辦食物者論。
備辦食物者。多要勞力操作。如釀
酒家磨者。椿者等。又有勞于買賣
貨物者。如雜貨舖子。發賣茶葉。加
非糖。葡提子。糖水。香料等物。食物
之在遠邦出者不少。必有洋船運
來。使船者冒危捱苦。以備我等食
須。

第四篇。服飾論。

第二十八課。男人服飾論。

人之身體必須衣服以遮飾之。
冬天服煖布。夏天着輕衫。地方
暑熱者。穿麻葛之衣。地方寒冷
者。着皮革之服。男人及童子所
服者。有冠。帶。袍。褂。長衫。汗衫。風
領。背心。腰衲。緊身褲。褲套。鞋。襪。
靴等件。

第二十九課。婦人服飾論。

婦人及女子所服者。有包頭。雲
額。闊袖衫。窄袖衫。汗衫。腰衲。裙
褲。褲套。腳籠鞋。襪等件。其所飾
者。則簪。環。鳳冠。手釧。腳釧之類。
唐山男女服式大同小異。若西
國則大相懸殊。

智環啟蒙塾課

Lesson 32. Cleanliness.

If we wish to enjoy health we must be cleanly. Those who are not cleanly cannot have good health. Every one should bathe or use the flesh-brush every day. The garments next the skin should be changed often, as they absorb perspiration. Our dwellings should be kept clean and well-aired.

SECTION V.—OF HABITATIONS.

Lesson 33. Dwellings.

The dwellings of men are caves, tents, huts, and houses. Most men live in houses. Small houses are called cottages; large houses, mansions. The rooms of houses are called the inner chambers, halls, dining-rooms, drawing-rooms, libraries, kitchens, and cellars, &c. Passages and stairs lead from one storey and one room to another.

Lesson 30. Materials of Dress.

Clothing is made chiefly of cotton, of flax, of wool, of silk, or of skins. Cotton is the produce of a plant grown in India, in Africa, and in America. Flax is the stem of a plant grown in Flanders, Ireland, Russia, and other nations. Both cotton and flax are much grown in China, but they are not exported to other countries. Wool is obtained from the fleece of the sheep; and silk is spun by the silkworm. The various fabrics of cloth, silk, &c., are made from these materials.

Lesson 31. Makers of Dress.

The making of dress employs many persons. The shoemaker requires leather, which is made from the skins of animals, which are tanned by the various workers in skins. The tailor and the dress-maker require scissors, needles, pins, and buttons, and all the fabrics of which dress is made. The latter gives employment to the blockmaker.

第三十課 衣料論

衣料多用棉花、麻、羊毛、絲、及獸皮。棉花、棉樹所結也。生於印度、國、及亞非裏加、亞麥裏加、二州。麻、即麻草皮也。生於比利時、阿爾蘭、俄羅斯等國。唐山亦多產棉花。與麻、惟不發賣於外邦。羊毛、剪羊得之。絲、為蠶虫所吐。用此數料、織成諸般布帛。

第三十一課 製衣者論

製衣須多人工。如鞋匠用革、而獸皮、必先經諸皮匠之手。去毛而揉之。然後革成。裁縫及製衣婦、用諸般布帛。又須鉸剪、有鼻針、有頭針、鈕子等物。帽匠作帽、而作帽模者、賴之以得生涯。

第三十二課 淨潔論

若欲精神康健、必須身子淨潔。不潔者、身不爽快也。各人宜每日沐浴、或以皮刷擦身。貼肉衫、沾汗氣、宜屢換。房屋宜淨潔通氣。

第五篇 居所論

第三十三課 房屋論

人所居者有穴、有幕、有廬、有屋。居屋者、惟多屋之小者、名舍、高廣者、名第宅。屋宅之內、分內室、外堂、殮房、客廳、書房、廚房、地窖、等處。有冷巷、樓梯、使上下四旁相通。

Less. 36. Trades employed in Building.

Many trades are employed in building a house. The business of each is different, but the services of all are necessary. The bricklayer raises the walls. The mason does the stonework. The carpenter makes the roof and floors. The slater or the tiler covers the roof. The glazier fits the windows with glass. The plasterer covers the walls and the ceilings with mortar; and the painter paints the wood-work.

Lesson 37. Furniture Makers.

A large number of workmen are employed in making furniture. The cabinet-maker makes chairs, tables, drawers, bedsteads, sofas, and desks, &c. The blacksmith makes all articles of iron. The tinsmith makes all articles of tin. Curtains, mattresses, screens, hangings, carpets, blankets, &c., all are furnished by their appropriate makers.

智環啟蒙塾課

第三十六課 建造所需之工匠論
 以建屋言所需之工匠行頭甚多習業雖各不同而莫不相須以成其事。泥水師傅以磚結牆。石匠砌石木匠構屋背架樓板。石板匠或鋪瓦匠以石版或瓦而蓋之。玻璃匠以玻璃片鑲其窗扇。灰泥匠以灰塗牆與天花板。油漆匠油諸般木料。
 第三十七課 作家伙者論
 家中什物須多工人以作之。甲萬師傅作椅棹衣櫃牀凳交子牀寫字檯等物。鐵匠造各般鐵器。錫匠造各般錫器。更有布帳褥窗簾結綵地氈牀氈等物俱有專習其業者以供之。

Lesson 34. Building Materials.

The materials used in building are timber, stone, bricks, tiles, slates, lime, iron, lead, and glass. Timber grows in woods and forests. Stone and slate are dug from quarries. Bricks and tiles are made of clay. Iron and lead are got from mines. Lime is made of limestone, or of oyster-shells. Glass is manufactured at the glass-house.

Lesson 35. Occupations of Men.

Men help each other by a division of labour. Some provide food, others make clothing, others make tools and other articles. The brazier works in brass; he makes candlesticks, lamps, and kettles. The potter works in clay; he makes cups and plates. The cutler works in steel; he makes scissors, knives, &c.

第三十四課 建屋材料論
 木石磚瓦石板灰鐵鉛玻璃等乃建屋之料。木出樹林。石與石板由石礦打取。磚瓦以坭燒成。鐵鉛取自金礦。灰則煨灰石或燒蠟殼為之。玻璃製在局內。
 第三十五課 人之恆業論
 人居于世通工易事是彼此相資也。有備食物者有製造衣服者有造作械器者。打銅匠以銅造燭臺燈俛等器。缸瓦師傅以坭造杯碟等件。利器匠以鋼鐵造諸般刀剪之類。

Lesson 38. *The Contractor.*

Persons who undertake to build a house are called *contractors* or master-workmen. The contractor employs the mason and the bricklayer to build the walls, the carpenter to do the woodwork, and the tiler to cover the roof. He also employs the painter, and other workmen to complete his business till the house is made fit for dwelling in.

SECTION VI.—OF EDUCATION.

Lesson 39. *School.*

Reading and writing are useful arts. They are most easily learned when we are young. Children therefore are sent by their parents to school to learn these and other things. Learning requires attention and patience; we must therefore be industrious. Teachers are to use authority; we must therefore be obedient.

第三十八課 承建造者論

包攬建屋之人謂之承接者或工匠頭其人僱請石匠坭水匠以結牆木匠以做木瓦匠以蓋瓦油漆及別行工匠以成其事務使其屋完備合于居住

第六篇 教學論

第三十九課 學館論

讀書寫字有用之藝也少年時較易學是以父母送兒女入學館習誦讀書寫等事學貴專心致志故學生宜勤敏師長貴嚴學生宜順從之

Lesson 40. *Learning.*

To learn well we must take pains. To read well we must read often and slowly. To write well we must practise much and carefully. To understand we must think of what we hear and read. Ciph-ering is more difficult than reading or writing, but as it is very useful, we must learn to cipher. We can learn if we try.

Lesson 41. *Plays of Boys.*

Those who work in school may play in play-hours. Boys play at shuttle-cock, at ball, at touch-wood, at pheasant-catching, at blindman's buff, and at kite-flying. Playing at innocent games is good for the health. Those who work the hardest enjoy play the best. In cold countries, in winter, boys play at running and sliding on the ice.

第四十課 學習論

欲成就學功宜勞心力于讀書要慢聲溫習方能讀好于寫字要多寫用心方能寫好學生于所聞所讀宜致思方能曉悟學數難于讀寫而甚有用是少不

得的盡力而學無不能者

第四十一課 童子玩耍論

童子在館讀書可有放學玩耍之時所耍者有打燕打毬打撈捉山鷄盲公捉啞佬放耀等事無害之玩耍可令身體壯健最勤讀書者玩耍最樂寒地冬天之時童子在冰上鬥走扇趨

Lesson 44. *The Mammalia.*

The animals that are nourished with milk are called *mammalia*. Men, cattle, whales, and some other fishes, are *mammalia*. Man has two hands and two feet. Monkeys have four hands and no feet, but most of the *mammalia* have four feet and no hands. The elephant has a proboscis which serves for a hand.

Lesson 45. *Domestic Quadrupeds.*

Quadrupeds kept by man are called *domestic animals*. Of domestic animals, the horse is spirited, the ox is laborious, the cow is very useful, the sheep is innocent, the dog is watchful, the cat is thievish. The foal, the calf, the lamb, the puppy, and the kitten, are playful. The goat, the pig, and the ass, are also domestic animals.

Lesson 42. *Plays of Girls.*

The games of girls are different to those of boys. They only play with small stones, at hide-and-peek, at making dolls, and at cats-cradle. It is pleasant to have others to play with. We must therefore try to make our games cheerful, and our playmates happy. In western countries, the feet of women are not bound, so that girls can move about and enjoy play better than girls in China.

SECTION VII.—THE MAMMALIA.

Lesson 43. *Kinds of Animals.*

Animals live, breathe, and move. Most animals grow; most of them also feel. *Quadrupeds* have four feet; they are covered with hair or fur. *Birds* fly; they are covered with feathers. *Fishes* swim; they have fins. *Reptiles* live both on land and in water. Most *insects* have six legs. *Worms* have no legs.

第四十四課。乳哺生物論。
凡物初生之後，以乳哺養者，謂之乳哺生物，即如人類、走獸、鯨魚、江猪等魚是也。人有二手二足，獼猴之類，有四手而無足，惟獸多四足而無手，若象則拔以代手用。
第四十五課。家畜論。
人所養之獸，名曰家畜，其中有馬、驃、驢、不、倦、犍、牛、服、勞、勤、辛、牛、母、甚、是、有、用、綿、羊、馴、習、犬、會、守、家、貓、兒、捕、鼠、馬、仔、牛、仔、羊、仔、狗、仔、貓、仔、皆、喜、玩、耍、更、有、山、羊、猪、驢、亦、為、家、畜。

第四十二課。女仔玩耍論。
女仔玩耍，異於童子，惟有執石子、藏金雞、剪公仔、執交加、數事而已。相與玩耍，甚是樂事，故當彼此湊趣，以相愉玩也。西國婦女無裹足之例，故少年女子，比之中國，走動便捷，更好玩耍。
第七篇。生物乳哺類論。
第四十三課。生物諸類論。
生物皆呼吸運動，其中多生長，自小而大者，又多能覺感者，走獸皆具四脚，有毛或絨，以蓋其身。飛鳥具羽，蔽其體。潛魚具翅，以游水。爬虫或居于山，或居于水。小虫類多具六足。蚓類無足者也。

Lesson 48. *Wild Animals. (Continued.)*

The badger is solitary, the squirrel is nimble, the hare is timid, the mouse is small, the rat is destructive, the beaver is industrious and skillful, the monkey is droll. All these, and many other animals, feed on grass, or grain, or fruits, or the roots and leaves of plants. Some animals are useful for food, some for clothing, some for labour.

Lesson 49. *Clothing of Animals.*

Quadrupeds have different kinds of clothing. The sheep has wool; the pig, bristles; the ox, the horse, the camel, the deer, and the goat, hair; the mole, the cat, the squirrel, the fox, the marten, and some others, fur. The porcupine and the hedgehog have spines. The horse, the lion, and the bison, have manes.

第四十八課續野獸論
犴喜獨居，鬆鼠快捷，山兔怯懼，麕為最小，老鼠殘害，土撥鼠敏慧，獼猴狡猾，令人好笑，已上數等及多別獸皆取草穀菓或草木之根葉以為食，獸之有用于人者或以供口腹或以供衣料或以代勞役。
第四十九課獸衣皮毛論
走獸所具以遮身代衣者各有不同。綿羊毛柔為絨，猪毛如刺子，牛馬駱駝鹿草羊等其毛有類乎髮，田鼠貓，鬆鼠狐狸貂等皮毛為裘，箭猪與蠟，毛刺如棘針，馬獅鬣牛頸毛長而成

Lesson 46. *Beasts of Prey.*

Beasts of prey are those that kill and eat other animals. Beasts of prey are generally wild. The lion is powerful, the tiger is cruel, the panther is fierce, the wolf is voracious, the fox is cunning, the bear is ferocious, the hyaena is savage, the weasel is slender. These and many others are beasts of prey.

Lesson 47. *Wild Animals.*

Wild animals live in forests, in deserts, in plains, and in mountains. The bison is fierce and shaggy, the zebra is beautifully striped with black and white, the elephant is big, the deer is elegant, the reindeer is very strong and hardy, the antelope is swift, the giraffe is tall and gentle, the sloth is inactive on the ground, the wild boar is bold. All these feed on grass and vegetables.

第四十六課殘殺之獸論
殺別物以為食者謂之殘殺之獸，多居野處，其中獅為最強，虎乃殘賊，豹為猛烈，豺狼貪饕，狐狸狡猾，熊勢甚雄，野貓兇暴，猿猱輕薄，此外尚有多獸皆屬殺物之類。
第四十七課野獸論
野獸居乎林木曠野平原山嶺之中，其間有鬣牛猛毅鬃鬣斑驢週身黑白相間，條條輝彩，象大鹿雅，北大鹿絕有力，兼之忍耐，麕類捷趨，長頸鹿身高且馴，缺牙類之樹懶平土難行，野猪果敢，此獸皆食草菜。

Lesson 50. Peculiarities of Animals

The cat, the rat, the lion, and the tiger, have whiskers; the bear has paws; the horse has solid hoofs; the camel has a hump. The pig, the hedgehog, and the mole, have snouts. The ox, the sheep, the goat, the deer, and some other animals, have horns. The wild boar has tusks. The elephant has tusks and a trunk.

Lesson 51. Actions and Noises of Animals.

Animals have many and various ways of defending themselves. The horse kicks; the dog bites; the goat butts; oxen gore; and the bear hugs. Their noises are also different. The lion roars; the dog barks and howls; the cat mews, and purrs, when pleased; the ass brays; the monkey chatters; the horse neighs; the sheep baas; and the cow lows.

第五十課。數獸殊異處論

貓、鼠、獅、虎、皆有鬚。熊足有掌。馬蹄渾然不分歧。駱駝背有峰肉。猪、蝟、田鼠、皆有長喙。牛、綿羊、草羊、鹿等、有角。野猪口旁出長牙。象有長牙。亦有拔

第五十一課。獸之作爲發聲論。

獸之所以禦敵自衛者、多且異也。馬踢、狗咬、羊抵、牛觸、熊抱、其發聲亦各不同。獅吼、狗吠而嗥、貓叫、悅則聲柔。驢聲啾啾、獼猴啁啾、馬嘶、羊咩、牛狗

Lesson 52. Motions of Animals.

Animals have very different motions; the horse walks, trots, canters, and gallops; the dog runs and hunts; the goat leaps; the bear and the monkey climb; the wolf gallops; the tiger springs on his prey; the sloth clings to branches. The animals that feed by night retire to dark woods and dens by day.

Lesson 53. Haunts of Animals.

The mouse, the rat, the rabbit, the fox, the mole, and some other animals, live in holes in the ground. The deer, the wild boar, the hare, and others, sleep among the grass in woods. The squirrel and the monkey live in trees. Beavers make their houses on the banks of narrow rivers. The place where a beast couches is called its lair.

第五十二課。獸之行動論。

獸之行動、彼此甚異。馬或行、或驟、或馳、或跑。狗走、亦嗅而跡物。草羊跳。熊與獼猴攀樹。狼跑。虎躍擒物。樹懶持攬樹枝。獸在夜間尋食者、晝則退藏深林巖穴之中。

第五十三課。獸居處論。

鼠仔、老鼠、家兔、狐狸、田鼠等獸、穴居地中。鹿、野猪、野兔等、林中臥草。鬆鼠、獼猴、居于木上。土撥鼠于窄河旁岸作巢如屋。獸所臥處、曰獸窟。

Lesson 56. *Labouring Animals.*

Some quadrupeds are serviceable to man, and labour for him. The horse draws carriages, carries heavy loads, and is used for riding. The dog keeps guard during the night. The patient camel carries heavy burdens over hot and sandy deserts. The ass, the reindeer, and the elephant, also labour for the service of man.

Lesson 57. *Uses of Animals for food.*

Animals which divide the hoof, and which feed on herbage and chew the cud, make the best food for man, as the ox, the sheep, the goat, and the deer. Many other animals as the pig, the bear, the rabbit, and the hare, are also serviceable for food. The flesh of young animals is sometimes eaten; it is very tender.

Lesson 54. *Habits of Animals.*

Animals with large blunt teeth feed on herbage; those with sharp cutting teeth prey on other animals. Some animals feed on insects, and others on fruits. The elephant has strong thick legs to support its heavy body. The seal has paddles to swim with. The cat has claws, and also a cushioned paw; she can move about without noise.

Lesson 55. *Social Habits of Animals.*

Buffaloes live in herds, sheep feed in flocks, and the goat and the chamois inhabit high mountains. The young stags herd with the hinds in winter for protection. Wild hogs do not leave their young till they are strong. Oxen unite against enemies when they are attacked. Jackals hunt their prey in herds.

第五十四課。獸之習作論。

獸齒闊大粗鈍者，則食草菜若齒尖利宜于切噬者，則殺別物以為食。有獸食蟲，有獸食菓。象身碩重，故其足堅厚以扶之。海牛身邊有如小槳，便以游水。貓足具爪，亦有軟胞，行動無聲。

第五十五課。獸以類聚論。

野牛、綿羊、羣聚遊行，喂食草羊、羴羊、聚居高山。冬時，幼鹿與鹿相聚，藉其保衛。野狗帶子，待其長大，然後相離。牛被敵攻，聚羣自保。野狗成羣獵物。

第五十六課。獸為人服勞論。

為人服勞而供役者，其獸不一。馬可駕車負重，亦便人騎。犬能守夜。駱駝性能忍耐，堪于沙漠熱野，負重而行。驢、北大鹿、象，亦為人服勞。

第五十七課。獸用以為人食論。

獸蹄分甲，慣食草菜，既食後，能翻草再嚼者，如牛、綿羊、草羊、鹿等，其肉至合為人食。更有別種不少，如豬、熊、家兔、野兔等，人亦食其肉。獸仔肉甚柔軟，人有時食之。

Lesson 60. *Sundry Uses of Animals.*

The elephant and walrus afford us ivory, out of which many ornaments are made. The large bones of animals are made by the turner into buttons, chopsticks, and other things. The horns of animals are used for handles for knives. The hair of the horse is woven for hair-seating. The whale and the seal yield us oil for light. Parings of hoofs and horns are made into glue. Candles are made from fat.

SECTION VIII.—OF BIRDS.

Lesson 61. *Of Birds.*

Animals produced from eggs are called *ovipara*. Birds, insects, and some other animals, are *oviparous*. The flying tribes or birds, have bills, feathers, wings, tails, and legs; their legs have toes and claws. In their throat they have a crop. Some have a comb, and others a tuft of feathers, on their heads. Some birds walk, others climb, others perch, others swim.

Lesson 58. *Uses of Animals for Food. (Cont.)*

The flesh of monkeys is eaten by the American Indians; that of the elephant, the lion, the rhinoceros, the tiger, and the hippopotamus by the Africans. Horse-flesh is eaten by many nations in Europe and Asia; and the natives of the most northern parts of the globe eat the blubber of the whale, and the flesh of the seal.

Lesson 59. *Uses of Animals for Clothing.*

The wool of the sheep supplies us with stockings, with blankets, and with cloth. The furs of many animals are made into coats, caps, and muffs. The long hair of goats and some other animals is woven into shawls and articles of dress. The hides of animals are tanned to make leather for shoes, &c. The furs of the beaver and the rabbit are made into hats.

第五十八課。續獸用以爲人食論。
 亞墨利加土人食獼猴之肉。阿非利
 加人食象、獅、犀、虎、河馬之肉。歐羅巴
 亞西亞二州數國亦食馬肉。于地球
 極北處土人甘食鯨膏及海牛之肉。
 第五十九課。獸用以給人衣論。
 綿羊毛用以織襪、氈、絨布。多獸皮爲
 裘。用作衫帽及手套等物。草羊等獸
 毛長可織成搭膊巾及各般衣裳。獸
 皮刷去其毛。硝製成革。可作鞋。土撥
 鼠與兔毛用作高帽。

第六十課。獸給雜用論。

象與海馬之牙足供人用。以作諸
 般玩器。鋸匠以諸獸大骨作鋸箸
 等器。獸角爲刀柄。馬毛織爲褥蓋。
 鯨魚海牛之油以供燈火。獸角與
 甲碎爲膠。獸膏爲燭。

第八篇飛禽論。

第六十一課。飛禽總論。

凡生物出自蛋者名曰卵生之物。
 即如飛禽、小蟲等物之類是也。飛
 禽即鳥也。有嘴、羽、翼、尾、足、有趾
 爪。喉下有脰腔。鳥類有頭具冠者。
 亦有頭具鬆髻者。有行于地者。有
 攀于樹者。有棲于枝者。有游于水
 者。

Less. 64. *Peculiarities of Birds. (Continued.)*

The ostrich runs as fast as a galloping horse; wading birds have long necks; the stork destroys snakes; the albatross is the largest of all sea-birds; the flight of the eagle is very rapid; the frigate bird can neither walk nor swim well; it is formed for flight; the penguin has small wings, it walks badly, but swims well.

Lesson 65. *Plumage of Birds.*

The plumage of birds consists of a number of feathers of various sizes. These feathers are light, soft, and strong. Some birds have a very gay plumage. Among these are pheasants, peacocks, the different kinds of parrots, humming-birds, and birds of paradise. Birds lose their old feathers, and obtain new ones every year. This change is called *moulting*.

Lesson 62. *Kinds of Birds.*

The owl, the falcon, and the eagle, are birds of prey. Wood-peckers and parrots are good climbers but bad walkers. The poultry kinds are good walkers, but they can not fly high. The ostrich and the emu are good runners. Long-legged birds mostly wade in marshes. Web-footed birds swim well.

Lesson 63. *Peculiarities of Birds.*

Rooks build and live together in companies; finches and sparrows have strong bills; the cross-bill extracts seeds from fir-cones; the swallow feeds on insects; the woodpecker taps on the bark of trees to disturb the insects on which it feeds; owls prey by night; the *too-keuen* lays its eggs in the nests of other birds.

第六十二課。鳥各異類論。

鳴、鷹之類。捕食生物。啄木鳥、鸚哥善攀樹木，不便行地。鷄類善于行走，不能高飛。鴛鳥與鴝鵒走得甚速。長脚鳥多涉水澤。掌足鳥善于游水。

第六十三課。鳥類異性論。

烏鴉成羣，構巢同居。鴉雀、麻雀之類，喙喙健硬。交喙雀將松子拔實而食。燕子食蟲。啄木鳥常于樹皮以喙敲丁丁聲，驚起諸蟲，使其搜食。鳴鳥乘夜捕物。杜鵑放卵于他鳥之巢。

第六十四課。繼鳥之殊異處論。

鴛鳥走疾如馬跑。涉水鳥頸長。鳩鵲捕蛇。海鵝為海鳥之至大者。神鷹飛得甚疾。戰船鳥走游俱難。而飛為所長。企鵝翼小難行。而善于游水。

第六十五課。鳥羽論。

鳥羽長短大小不一，皆輕柔而且固健。有的鳥其羽甚是華彩，如山鷄、孔雀、各種鸚鵡、蜂雀、風鳥等。飛鳥每年脫去舊羽，復出新羽。此換羽之事謂之毳。

Lesson 66. *Nests of Birds.*

Birds build *nests* for their eggs and young ones. These nests are made of moss, sticks, cotton, grass, &c. Some of the smaller birds build their nests with great art in hedges. The swallow builds under the eaves of houses; the ostrich lays her eggs in the sand without a nest; the eagle builds on lofty rocks; the sea-birds build in cliffs on the coast.

Lesson 67. *Voices of Birds.*

Most birds have a voice, and their sounds are different. The cock crows; the hen clucks; geese cackle, hiss, and scream; ducks quack; the pigeon coos; the swallow twitters; the blackbird whistles. Of birds that sing well, there are the "hundred tongues," the thrush, and others. The singing of birds commences in spring.

第六十六課 鳥巢論

鳥造巢置蛋伏之出子其巢料不一如樹衣樹枝棉花草茸等物細雀有結巢于藩籬者多是巧作工雅燕子造巢于簷下鴛鳥生蛋于沙中而無巢神鷹構巢于高巖海鳥沿濱山岸而作巢

第六十七課 鳥聲論

鳥多發聲而聲音不一鷄公之聲嘍嘍鷄母之聲兩兩鴨之聲鴨鴨又作吹噓又大聲號叫鴨之聲呷呷白鴿之聲咕咕燕之聲亂亂山鳥吹氣鳥之喜鳴者有百舌畫眉等春天鳥方始鳴

Lesson 68. *Migrations of Birds.*

Some birds visit different climates. The swallow, the cuckoo, and the nightingale, arrive in England in spring, and depart in autumn; they pass the winter in warmer countries. Birds from colder climates, such as swans, wild geese, and wild ducks, pass the winter in England. Such birds traverse wide seas and extensive countries in their migrations.

Lesson 69. *Uses of Birds.*

The flesh of many birds, such as that of the hen, the duck, the goose, the partridge, the pheasant, the pigeon, the lark, &c., is good for food. Ducks, geese, and swans, give us down and feathers for beds. The large feathers of geese are used in western countries for making pens. The quills of crows are used for fine writing and for drawing.

第六十八課 鳥隨時移地論

或鳥隨時移地而居如燕杜鵑鶯等春天始到英國至秋復往煖邦過冬又有鳥如鴻鵠野鵝野鴨等由冷邦至英國過冬于遊行易地時其鳥每過廣海大地

第六十九課 鳥之有用于人論

鳥肉可食者甚多如鷄鴨鵝鷓鴣山鷄白鴿山麻雀等鴨鵝鷓其幼毛及羽人用以實牀褥鵝之大毛西國人削其管以為墨水筆若欲筆迹細微或繪寫則用老鴉羽管

Lesson 72. *Fishes.*

Fishes live in seas, in rivers, in streams, and in lakes. Some fishes have a smooth skin, others are covered with scales. The bones of fishes are soft and white. Fishes lay thousands of eggs, which are called spawn. These eggs are hatched in the sea, in rivers, or in mud. Fishes have no voice.

Lesson 73. *Uses of Fishes for Food.*

Both sea and river fish are useful for food. The chief sea fish eaten by man are the sciaena, the pomfret, the mackerel, the mango-fish, the herring, the mullet, the garoupa, the sole, &c. The chief river fish are the bream, the perch, the roach, the carp, the eel, the ophicephalus, and the tench. Of fishes the shark is the most voracious.

SECTION IX.—REPTILES AND FISHES.

Lesson 70. *Reptiles.*

Reptiles have cold red blood like fishes, and unlike birds and quadrupeds. Many of them live both on land and in water. Some reptiles have legs, as the frog, the toad, the lizard, the alligator, and the tortoise; others have no legs, but crawl on their belly, as the various kinds of snakes. Not a few serpents are venomous.

Lesson 71. *Peculiarities of Reptiles.*

Some reptiles have a smooth skin, others are covered and protected with a shell or shield. The shell of the tortoise is very hard. The shell of one kind of turtle called the "shell tortoise" is beautiful, and made into combs, &c. The flesh of another called the "fish with feet" is very delicate. Most lizards are harmless. Frogs appear after warm showers.

第七十二課 魚類論
 魚類處於海、河、溪、湖。身皮光滑者有之。鱗蓋其身者亦有之。魚骨軟而白。魚皆生卵。一魚每至生卵數千。其卵名魚子。或在海中、河中、泥中。皆能出魚。魚類無聲。
 第七十三課 魚類以爲人食論
 海魚、河魚、俱可供食。海魚中人所多食者，乃鱸魚、鯉魚、鯽魚、馬鮫、郎鱈、鱈魚、鱒魚、石斑魚、撻沙魚等。河魚中所多取者，乃鰱魚、鰻魚、鱒魚、鯉魚、鱈魚、生魚、鮭魚等。魚類中，鯊魚至爲貪饕。

第九篇 爬虫與魚論
 第七十課 爬虫論
 爬虫似魚，血紅而寒，與禽獸不同。爬虫之居山居水，兩無不可者甚多。具脚者有之，田雞、蟾蜍、龍子、鱷魚、龜等是也。無脚而腹行者亦有之。諸蛇類是也。蛇中有毒者不少。
 第七十一課 爬虫殊異處論
 爬虫有的其皮光滑，有的以甲蓋身，其甲如盾，以保內體。龜殼甚硬。海龜有名玳瑁者，甲美可作梳櫛等器。再有名脚魚者，肉甚有味。龍子多性良，不害。溫雨霽後，田雞多出。

SECTION X.—OF INSECTS AND WORMS.

Lesson 74. *Insects.*

Insects have six legs, but spiders and scorpions have eight. Insects are divided into three parts; the head, the thorax, and the abdomen. Some insects have stings, as the wasp, the bee, and the hornet. The most common insects are the fly, the moth, the butterfly, the beetle, the ant, the bee, the wasp, the book-moth, &c.

Lesson 75. *Changes of Insects.*

Insects undergo several changes. Most of them change three times. First, they are in a little *egg*, which changes into a *caterpillar*; the caterpillar grows to its full size, and gradually contracts, hardens, and changes into a *chrysalis*. After some time the chrysalis bursts, the *winged insect* appears, lays its eggs, and soon dies.

第十篇。蟲類。類論。

第七十四課。蟲論。

蟲有六足。惟蜘蛛與蠍則八足。蟲身分三層。即頭、胸、腹是也。蟲尾有具針者。如蜜蜂、黃蜂、木蜂等。蟲之常有者。乃烏蠅、燈蛾、蝴蝶、甲蟲、蟻、蜜蜂、黃蜂、蠹魚等。

第七十五課。蟲之變形論。

蟲變其形數次。而三次者居多。初于小卵中。其卵變為一蟲。多環及足。既大。身漸短縮而硬。遂變為蛹。其後蛹殼裂開。出一翼蟲。生卵而早死。

Lesson 76. *Uses of Insects.*

Insects are useful in various ways. The bee gives us honey and wax. The silkworm produces silk. The cochineal insect yields the cochineal used by painters and dyers. From an insect we obtain gall-nuts, which are used in making ink and black dyes. The lac insect produces a resin from which sealing-wax is made.

Lesson 77. *Worms and Shells.*

These animals have soft bodies. They are formed either with rings or with shells instead of bones. The bodies of the earth-worm and the leech are ringed. The oyster and the snail have shells. Some of the soft-bodied animals live upon the land, such as the snail; others live in the water, such as the oyster, &c.

第七十六課。蟲有用論。

蟲之用處甚多。蜂能釀蜜。結蠟。蠶能吐絲。呀囉蟲結呀囉米。為畫工染家所用。五倍子亦為蟲結。可以作墨水。染皂色。紫鈔蟲所結如膠。可作火漆。

第七十七課。蚓類蚌蛤類論。

此種生物。身質柔軟。或肉成如環。相連以為身。或外具殼子。所以代骨也。蚯蚓與水蛭。肉環為身。蠔與蝸牛。外有殼子。軟質之生物。有居于山者。如蝸牛等。有居于水者。如蠔蚌等。

Lesson 80. *Trees and Shrubs.*

Trees and shrubs are woody plants. They are distinguished by trees throwing out their branches from the trunk, while shrubs are low and bushy, and throw out their branches from the root. Some trees are grown in gardens, and in orchards; others are grown in woods and in forests. Some trees are planted for ornament, others for fruit, others for timber.

Lesson 81. *Forest Trees.*

Forest trees are employed for a great variety of purposes. Firs, pines, &c., are used for house-building; the oak, for ship-building; the elm, for pumps and for water-mills. The ash is used for tool-handles; the beech, for bowls; walnut, for gun-stocks; lime, for carving; and the pear-tree and date-tree, for wood-engraving, and block-cutting.

Lesson 78. *Uses of Worms.*

Of soft-bodied animals the earth-worm loosens the soil by boring its way through it. Leeches are employed medically, and are useful in extracting blood. The cuttle-fish or insect produces a black fluid from which *sepia* is made. The shell of the common oyster produces pearls. From the mother-of-pearl shell buttons and ornaments are made.

SECTION XI.—OF PLANTS.

Lesson 79. *Kinds of Plants.*

Trees, shrubs, grasses, herbs, ferns, mosses, lichens, and fungi, are plants. Fungi grow on the ground and on decayed trees; lichens grow on trees and stones; mosses grow in woods and on old walls; grasses, in fields; ferns, in shady places; herbs and flowers, in gardens. Tree and shrubs grow in woods and plantations.

智環啟蒙塾課

三十一

第八十課。真木苞木論。
 真木苞木。其身、枝、與根、皆木質也。所以分類者。則真木枝發自身。苞木矮而叢生。枝發自根也。樹木有生于園圃者。有生于山林者。入栽樹木。或以點綴亭臺。或摘其菓子。或取其木料。
 第八十一課。林木論。
 林木所供之用甚多。松杉等樹。用以構造房屋。櫟樹用以造船。榆樹用以作汲水機筒。水磨機關等器。槐樹宜為匠器之柄。椎樹宜作木碗。核桃木宜乎鎗牀。菩提樹宜乎雕工。至若刻畫刻字。則梨棗為宜。

第七十八課。蚓類蚌蛤類有用論。
 蚯蚓鑽行土壤而鬆之。水蛭入醫用以吸血。墨魚亦名墨蟲。內藏墨漿。用以作黑粉。蚌殼生珠。雲母殼用以作鈕與飾物。

第十一篇。草木論。
 第七十九課。草木分類論。
 草木所包者。有真木、苞木、草、菜、鳳尾、苔、耳、芝、諸類也。芝類生于土面及朽木上。耳類生樹石上。苔類生林中。發于古垣。草類生于田野。鳳尾類多生陰處。菜與花生于園圃。真木苞木生于林裡。及栽于場中。

三十一

Lesson 84. *Medicinal Plants.*

Many medicines are obtained from plants. Of some plants the root is used, as the rhubarb and liquorice; of others, the flowers, as the camomile; of others, the bark, as cinnamon; of others, the juice, as the poppy; of others, the leaves, as the loquat, and sweet basil; of others, the kernel, as the peach, and the almond; of others, the twigs, as the mulberry and cinnamon trees. The plants with healing qualities, are first gathered, and prepared by herbalists, and then sold by the apothecary.

Lesson 85. *Garden Flowers.*

The flowers cultivated in gardens are the rose, the magnolia, the sun-flower, the chrysanthemum, the camellia, the azalea, the flowering pyrus, the oleander, the jasmine, the Lawsonia purpurea, the peony, and a great many others, which cannot be particularly mentioned. Some are annuals—what are called “grass-roots”; and some are perennials—what are called “tree-roots.”

第八十四課 草木入藥論
 草木之可入藥者甚多。有的
 人取其根，如大黃、甘草等。有的
 人取其皮，如玉桂等。有的
 人取其汁，如阿芙蓉等。有的
 人取其葉，如琵琶紫蘇等。有的
 人取其仁，如桃杏等。有的
 人取其枝，如桑桂等。諸藥品皆
 採其先得之配製，既好，然
 後售于藥肆。
 第八十五課 園中花卉論
 園中所植之花，有玫瑰、海
 棠、夜合、桃、茉莉、指甲、牡丹等。
 種類甚繁，難以縷述。有的每
 年栽種者，草本是也。有的歷
 年常茂者，木本是也。

智環啟蒙塾課 二二二

Lesson 82. *The Corn Plants.*

The most valuable of the grasses are the corn-plants. Their grains, either eaten whole, or ground into flour, are suitable for human food. They grow high above the earth; their stems are hard, smooth, light, and hollow. The corn-plants are grown in many countries; the grain when in the ear is covered with a husk.

Lesson 83. *Garden Produce.*

The garden supplies many wholesome vegetables. The most common are potatoes, cabbages, cauliflowers, parsnips, carrots, beet, spinach, onions, and asparagus. The salad herbs are such as mustard, cress, lettuce, and radishes. Mint, thyme, sage, &c., are pot-herbs. In gardens we also grow the various kinds of pulse and gourds.

第八十二課 結穀之草論
 草類之有用于人者，莫如結穀之
 類。或粒食，或磨粉，俱可養生。穀禾
 高出地上，其幹堅滑，輕空。穀禾生
 於多邦，穀于穗中，有糠以蓋之。
 第八十三課 蔬菜論
 園圃多產蔬菜，皆合人食。其至凡
 常者，乃薯、椰菜、花椰菜、蘿蔔、紅蘿
 蔔、火焰菜、莧菜、蔥頭、龍鬚菜等。其
 有鮮食以陪別物者，則如芥菜、水
 芹、生菜、萊菔等。其有用以調味者，
 則如薄荷、茴芹、紫蘇等。于園圃中，
 人亦種菘、豈類、瓜類。

二二二

Lesson 88. *Uses of Plants. (Continued.)*

The cocoa-nut contains a clear, cool, and pleasant beverage within its kernel, the shell is made into cups, and the fibres of the husk into mats, strings, and brooms. The pulp is eatable, and also yields oil. In the countries where the cocoa-nut tree grows, the mansions of the rich and the huts of the poor are built with it, while their roofs are covered with its plaited leaves.

Lesson 89. *Varieties in Plants.*

Plants vary from each other in their roots, stems, and other parts. In some plants the roots are long and tapering, in others they are fibrous. The stem is woody, hollow, pithy, and jointed. The leaves are roundish, angular, smooth, prickly, and odorous. Blossoms vary in colour, shape, and smell. Seeds are inclosed in the pulp, in shells, in pods, and in husks.

智環啟蒙塾課

二二三

第八十八課。繼草木有用論。
椰子肉內有水，清涼有味，殼可為杯，椀衣可為蓆，繩與掃，其肉可食，亦可搾油。在椰樹生長之地，富者之大厦，貧者之小廬，俱用椰木構造，其葉編織可為屋蓋。
第八十九課。草木殊異處論。
草木之根幹等處，彼此不同。其根長而尖者有之，密如鬚者有之。其幹或硬實，或空虛，或心通，或節接。其葉形狀不一，團圓者多角者，滑澤者，粗刺者，芬香者，皆有。其花形色，各有不同。其子或肉藏，或殼衛，或置于筴，或包于糠。

Lesson 86. *Ferns, Mosses, Fungi.*

Some ferns may be eaten, and others are used for litter for cattle, and for thatching houses with. Mosses and lichens grow on stones, on old walls, on trees, and on the ground. Some mosses are used for medicine, and some lichens for dyeing. Mushrooms, toadstools, &c., are called fungi. Some of the fungi are eatable, but others are poisonous and not to be eaten.

Lesson 87. *Uses of Plants.*

Many articles of food, besides the grains and vegetables mentioned above, are derived from plants, as tea, coffee, the spices, sugar, treacle, arrow-root, and sago. The bread-fruit tree is found in the south-sea islands; its wood is used for making houses, its bark for making cloth, and its fruit is the principal support of the people. It is truly a valuable tree.

第八十六課。鳳尾草、苔、芝、數類論。
鳳尾草類有可食者，有用以鋪填在牛馬房之內，且亦可作園苔者，苔與耳類，生于石上，古垣樹木，土面苔有可入藥者，耳有宜平染工者，芝類，即土菌、蘑菇等，其中可食者，有之，毒而不可食者，亦有之。
第八十七課。草木有用論。
除上所言穀菜之外，更有食物甚多，皆出自草木，如茶葉，加非，各般香料，糖，水，藕粉，砂穀米等，皆草木所出。南洋諸島有名麵菓樹者，其木可為屋，其皮可為布，其菓人恃以為糧，真佳木也。

二二三

Lesson 90. *Growth of Plants.*

Plants are nourished by sap. Their smallest roots are called mouths, and draw sap from the earth, which goes into the stem, and spreads through the branches and leaves, so that every, even the smallest part, receives nourishment and grows. Some plants are grown from seeds, others from pieces of the root, others from parts of the plant itself, called slips.

SECTION XII-OF THE EARTH.

Lesson 91. *Civisions of the Earth.*

The figure of the earth is round, and it may be called an immense globe. Its surface is composed of land and water. The land contains plains, mountains, valleys, and islands: the water consists of oceans, seas, rivers, and lakes. There are many countries in the earth. In those countries are cities, towns, villages, fields, gardens, parks, mines, roads, forests, fens, moors, &c.

Lesson 92. *Tracts of Land.*

Large tracts of land are called *plains*. The parts rising above the plains are *hills* and *mountains*. Burning mountains are called *volcanoes*. The tracts of low open land between ranges of high hills are called *valleys*. Bodies of land with water all around them are called *islands*. Hollows in hills are called *caves*, hollows in the earth are called *caverns*.

Lesson 93. *Collections of Water.*

Large bodies of water which separate the different parts of the globe are called *oceans* and *seas*. Waters that run into the oceans and seas, are *rivers* or *streams*. Collections of water which are surrounded by land are *lakes*. Water gushing out of the earth is a *spring*. At springs *wells* are often dug. Tracts of low wet land are *marshes*.

第九十課。草木生長論。

草木之生長。汁氣所致也。其根
莖之最。小者名曰。入地。坭中。收
汁氣。其汁通幹而。上。分派。枝葉
而。一身之中。無微。不得。養以生
也。人之栽植。草木。或播。其種。或
分其根。或折其枝條。而栽插。

第九十一課。地面分形論。

地形。乃圓。可名。為一大球。其面
分。土。與水。平原。山嶽。谷。與海。島。
皆。為。土。洋。海。河。湖。皆。為。水。地。上
分。許。多。邦。國。各。國。有。城。邑。村。田。
園。圃。礦。穴。路。林。澤。郊。野。等。

第九十二課。土之分形論。

地平。而。不。高。廣。闊。四。達。者。謂。之
平原。在。平。地。上。突。然。高。竦。者。謂
之。山。嶽。山。頂。發。火。者。謂。之。火。山。
兩。嶺。之。間。地。卑。而。空。洞。者。謂。之
谷。陸。土。而。週。圍。有。水。者。謂。之。島。
山。之。陷。處。謂。之。巖。地。之。陷。處。謂
之。穴。

第九十三課。水匯論。

水。之。大。匯。以。分。隔。地。球。大。洲。者。
謂。之。洋。與。海。水。之。分。流。注。于。洋
海。者。謂。之。河。川。水。在。中。央。四。週
為。土。所。繞。者。謂。之。湖。地。下。有。水。
其。湧。出。處。謂。之。泉。于。水。泉。處。人
每。掘。井。平。原。低。濕。之。處。謂。之。澤。

Lesson 94. *Changes in Water.*

Frozen water is *ice*; in the northern and southern icy oceans, the ice often rises high like hills. The heat of the sun turns water into *vapour*; the vapour forms *clouds*, and clouds produce *rain*. Water made very hot turns into *steam*. Sea-water is not fit for drinking, because it is salt. Water for drinking should have neither colour, smell, nor taste.

Lesson 95. *Substance of the Earth.*

The substance of the earth is formed of earths, salts, metals, and minerals. There are different kinds of earth, as sand, gravel, lime, clay, chalk, &c. Sand is obtained from the sea-shore or from sand-pits; gravel, from gravel-pits. Salt is usually dug from mines. The ores of gold, of silver, of copper, of iron, of lead, and of tin, as well as coal and sulphur, form part of the earth, and are dug out of it.

第九十四課水變論
水凝為冰于南北二冰洋其冰每有高突如山者日之熱使水薰蒸而為氣氣成雲而雲成雨煮水熱極則變為蒸海水鹹人不能飲好飲之水宜無色無臭無味

第九十五課地之體質論
地之體質以土石類鹵類金類著火質類而成也土石形質不一有如沙泥沙灰埴白粉等類是也沙或取于海邊或採于沙坑泥沙則有泥沙坑焉鹽多從鹽穴掘取金銀銅鐵鉛錫與及煤炭硫磺等礦皆屬地之質體由地內探出

Lesson 96. *Earths and Salts.*

Flint is used for making glass; red clay, for bricks and tiles; potter's clay, for bowls, plates, and all sorts of earthen ware; marble, for chimney-pieces; rottenstone, for polishing metals. Some kinds of chalk are used for drawing; vitriol and alum are employed in dyeing. Salt-petre and charcoal are used in making gunpowder.

Lesson 97. *Metals.*

The metals in common use are gold, silver, copper, iron, tin, lead, zinc, and mercury. Gold and silver are called *precious* metals; they do not rust. Copper, iron, tin, lead, and zinc, are common and useful. Iron is hard, lead is soft, mercury is liquid. Gold, silver, and copper, are made into money, for purposes of commerce.

第九十六課土石類與鹵類論
火石用以作玻璃紅埴用以作磚瓦陶土用以作碗碟諸般磁器雲石用為爐額所謂朽石者用以磋磨金類白粉有入畫工者青礬白礬可作染料硝與木炭用作火藥

第九十七課金類論
人所通用之金類有黃金白金銅鐵錫鉛白鉛與汞黃白二樣稱為寶金不生銹也銅鐵錫與黑白二鉛出產甚盛用處亦多鐵剛鉛柔汞乃流質金銀銅皆鑄為錢以便貿易

Lesson 100. *Precious Stones.*

Precious and beautiful stones are called gems, of which there are many varieties. There are the jasper, the sapphire, the chalcedony, the chrysolite, the beryl, the amethyst, the emerald, the cornelian, the opal, the chrysoptase, &c. The diamond is colourless and transparent; it is the most valuable of all precious stones.

SECTION XII. — OF SUBSTANCES.

Lesson 101. *The three Classes of Objects*

We obtain nearly all things about us from *animals, vegetables, or minerals.* This pen was a feather in a bird's wing, and is therefore an animal substance. This paper is made of linen or of cotton, and is therefore a vegetable substance. This knife-handle is made from the elephant's tusk, and is an animal substance, while its steel blade is mineral.

第一百課寶石論。
石之寶美者曰玉其類甚多。有如碧玉、青玉、蒼玉、黃玉、綠玉、紫玉、葱珩、瑪瑙、貓兒眼、翡翠玉等。金鋼石無色透光乃寶石之至貴者。
第十三篇諸物質體論。
第一百零一課諸物分三類論。
世人日用之物所自來者或生物或草木或金石之類。罕有一件非出自此三類之一也。即如此筆原為鳥翼之一羽故其質乃屬生物之類也。此紙或麻布或棉布所造其質屬草木之類也。此刀柄乃象牙所作其質屬生物之類而刀口為鋼其質則屬金石之類也。
智環啟蒙塾課 二二六

Lesson 98. *Combustible Minerals.*

Besides the metals, the minerals, such as coal and sulphur, are also dug from mines. Sulphur is a yellow mineral, and burns with a choking fume. Coal is a black mineral, and is used for firing. There are several kinds of coal, as anthracite or stone coal, cannel-coal, pit-coal, and jet. From stones we also get oils, which are a sort of pitch, such as naphtha.

Lesson 99. *Uses of Metals.*

Iron is made into heavy tools and sharp instruments. Tin is spread over thin iron plates, which are used to make tin boxes, candlesticks, &c. Gold and silver are coined into money, and also made into costly ornaments. Lead is made into pipes and cisterns, and is often used for gutters on roofs of houses. Copper and zinc are mixed together to make brass.

第九十八課着火質類論。
金類之外更有着火質類亦掘自礦中如硫磺與煤等。硫磺色黃燒之其烟令人氣逆。煤色黑燃可當薪。煤有數樣如石煤、木煤、穴煤、光煤等。又有石出之油可當瀝青如石腦是也。
第九十九課金類之用論。
鐵可作各般器用或重或利。錫則鋪蓋至薄鐵片復用以作錫箱、燭臺等。金銀鑄錢亦作寶飾。鉛作長筒及積水池屋背水槽多以鉛造。銅與白鉛相雜作青銅。
二二五

Lesson 104. *Resins & Gums. (Imports.)*

Many trees yield *resins* and *gums*. Firs produce resin; the camphor tree yields camphor; a species of acacia produces gum-arabic. Mastic and other resins are used for making varnish. Myrrh and aloes are used in medicines. Indian-rubber and gutta-percha repel the wet, and are used for various other purposes.

Lesson 105. *Roots & Oils. (Imports.)*

Roots and other products of plants are imported on account of their utility. Ginger is used as a spice; gentian, rhubarb, and other roots, are used as medicines; orris root, as a perfume. Many plants yield oil. Olive-oil is obtained from olives; castor-oil from a kind of bean; linseed-oil from the seeds of the flax-plant.

Lesson 102. *Animal Substances. (Imports.)*

Those things which are sent to us from foreign countries are called *imports*. Many of the imports into England are animal productions, such as wool, fur, hides, feathers, quills, and silk; ivory, whale-bone, tortoise-shell, and horns; tallow, wax, spermaceti, and honey; leather, bristles, leeches, and many other articles.

Lesson 103. *Vegetable Substances. (Imports.)*

Vegetable imports into England consist of timber, plants, bark, and roots. Oak, deal, teak, and other woods are imported in large quantities for building purposes, and for furniture makers. Rosewood, satin-wood, and ebony, are imported for fine cabinet work. Logwood is imported for dyeing; and many vegetables for medicine.

第一百零二課。入口貨。屬生物質者論。

物自外邦載運至本處者。名曰入口貨。以英國言之。入口之貨。屬生物質者甚多。有如羊毛。毯皮。粗皮。鳥羽。筆翎。絲珠。鯨骨。玳瑁。角。脂油。蠟。鯨精。蜜。革。猪鬃。毛。蛭。蜚。等。

第一百零三課。入口貨。屬草木質者論。

英國入口之貨。屬草木質者。有木料。花草。樹皮。樹根。等。櫟木。杉板。油木。等多入。以為諸般構造。及作家中木器之用。花梨木。緞木。烏木。運入。用作木器之精美者。蘇木。運入。用作染料。草木之入藥者。亦多載入。

第一百零四課。入口貨。有樹膠樹脂論。

樹木之出膠與脂者亦多。松樹出松香。樟樹出樟腦。所謂亞喇伯脂者。出自一種銷塞花樹。乳香等膠。用以作漆。沒藥及沉香。可以入藥。抹紙膠及新洲樹膠。可防水濕。其別用亦多。

第一百零五課。入口貨。有草木之根與油論。

草木之根。及其別有所產者。多自外邦運來。以其有用也。薑。用作香粉。黃連。大黃等根。用為藥材。馬蘭。菴。用為香料。草木之出油者不少。橄欖出橄欖油。草麻子。如荳。出草麻油。胡麻子。出麻子油。

Lesson 108. *Materials of Little Value.*

Materials of little value may be made useful. Common clay is made into buttons which look like valuable stones. The woollen waste of the factories is made into beds. Tailors' cuttings are used for fastening trees against walls. Dried leaves are often swept up in autumn, and made into beds by the poor.

Lesson 109. *Nothing is Useless*

Nothing is useless, and therefore nothing should be wasted. Large bones are useful for making the handles of knives and forks, and small ones are ground for manure. Dried branches of trees make good fuel, and acorns are food for pigs. The small bits of the hides, horns, and hoofs of animals are made into glue.

Lesson 106. *Mineral Productions.*

Many of the minerals produce substances unlike themselves. Some of the metals, as copper, iron, lead, zinc, &c., are produced from ores that look more or less like stones. The common tools of the poor man are produced from iron ore; and money, which all people require, is coined from gold, silver, and copper.

Lesson 107. *Waste Materials.*

The things we often waste might be turned to account. Shavings of wood, paper-cuttings, and saw-dust, are used in packing up goods; old woollen garments, torn into shreds, can be woven again into coarse cloth; cotton and linen rags are reduced to pulp, and made into paper; and broken glass is remelted at the glass-house.

第一百零六課 礦產論

諸礦中多有產物與其原質不同者。即如金類之銅、鐵、鉛、白鉛等皆出自礦中而視其礦則極似石或畧似石焉。貧者日用之器俱由鐵礦而出。萬民所必需之錢乃金銀銅所鑄。

第一百零七課 人所花費物料論

人每廢棄物料而所棄者或有可用。如削口柴、紙脚、木糠、藏貯貨物者可用以為墊襯旁塞之需。舊氈衫可拆碎而再織粗布。棉布及麻布衣之破爛者可搗成漿而造紙。玻璃碎可仍歸於玻璃局而再鑄之。

第一百零八課 物料之賤值者論

物料之賤值者可使有用。如常坭可造鈕子。視之若寶石一般。機局所棄之羊毛碎可作牀褥。縫工之布碎可束樹枝依牆。秋天樹落乾葉貧人每掃而取之可為牀褥。

第一百零九課 物無不用論

無物不有用。是以無物可廢棄者。獸骨之大者可用作刀叉之柄。小者搗碎為粉以作糞料。樹之枯枝甚好作柴。橡子可用喂豕。獸之皮、角及蹄即其餘屑亦可煮膠。

Lesson 112. *Motions of the Earth.*

The earth moves round its own *axis* once every day; it moves round the sun once in a year. As it moves on its axis, one half of it is next to the sun, and is enlightened, and the half from it is dark. The light is day; the darkness night. As it goes round the sun, its position is constantly changing, and the poles are in succession turned towards the sun or from it; this produces the four seasons.

Lesson 113. *Equinoxes and Solstices.*

One day in spring is exactly twelve hours long all over the earth, and one night also. The same thing happens in autumn. These times are the *vernal equinox* and the *autumnal equinox*. One day in summer is the longest day in the year, and one day in winter is the shortest. These days are called the *summer* and the *winter solstices*.

SECTION XIV.—THE AIR AND THE HEAVENS.

Lesson 110. *The Earth and Universe.*

The earth is not flat as it appears to us, but an immense globe composed of land and water. The sun does not move round the earth from east to west, as it seems to us; but the earth revolves round it once every year. Many of the distant stars are suns round which planets are perpetually revolving, as the Globe, Mercury, Venus, and other planets, go round our sun.

Lesson 111. *The Poles.*

If I hold an orange between my thumb and forefinger to represent the earth, my finger, being uppermost, indicates the *north pole*, and my thumb the *south pole*. The orange, being a little flattened at the insertion of the stalk and the opposite side, shows the shape of the earth pretty nearly. It is a globe, slightly flattened at the poles. The poles are called the extremities of the *axis*.

第十四篇 天氣諸天論
 第百有十課 地及宇宙論
 吾人擬地以爲扁平其實不然
 蓋爲一大球以土與水而成者
 也吾人擬日以爲匝地而行自
 東以至西其實不然乃地繞日
 而行每年一週穹蒼遠見之星
 多爲太陽有行星環繞不息如
 地球水金等星繞吾日焉
 第百十一課 地極論
 若我執一橙以比地球巨指及
 食指之間則食指在上爲北極
 而巨指爲南極橙之蒂底畧扁
 畧好擬地之眞形蓋雖爲圓球
 而二極處微平也二極名爲地
 軸盡處

第百十二課 地之運動論

地球每日以軸爲機自旋一週亦
 遞年匝日一轉其軸旋則半球遞
 換以向日向日時沾光而明背日
 時無光而暗光爲晝暗爲夜其匝
 日則方位時變兩極更代以向日
 此以成四季也

第百十三課 二分二至論

春季有一日天下晝夜平分各值
 六時秋季亦然此二日名曰春分
 秋分夏季有一日晝長于週年而
 冬季亦有一日晝短于週年此二
 日名曰夏至冬至

Lesson 116 *Meteors.*

Bright lights which float or move in the air and soon vanish are called *meteors*. When the sun shines on falling rain in the opposite side of the heavens, there is a meteor called the *rainbow*. A rainbow caused by the moon is a *lunar* rainbow. Haloes are rings of vapour round the sun or moon. *Lightning* is electricity discharged from the clouds. Clouds are meteors.

SECTION XV.—OF TIME.

Lesson 117. *Divisions of the Day.*

The day consists, in China, of twelve periods of time, named by the twelve *branch*-characters of the cycle. In Western nations, it consists of twenty-four hours, twelve counted from midnight to noon, and twelve from noon to midnight again. The parts of the day are morning, forenoon, noon, afternoon, evening, night, and midnight. When the sun rises, it is day; when it sets, it is night. Before sunrise and after sunset we have twilight.

第一百十六課 氣象論
 氣中若有明物或浮或流倏見倏沒謂之景象于落雨時日在對天照于雨點者謂之虹月照所成者謂之月虹雲氣圍抱日月而成環者謂之暈閃電即電氣從雲中而出雲自為景象之類
 第十五篇 時節論
 每日晝夜唐山分十二時辰以十二地支名之西國則每日分二十四點鐘自中夜至正午分十二點自正午至中夜又分十二點日間亦分朝早上午正午下午晚夜中夜數出為黎明日初入為黃昏

智環啟蒙塾課

三

Lesson 114. *The Moon.*

The moon moves with the earth round the sun; it also moves round the earth. The moon is one of the most beautiful orbs in the firmament. It gives us light during many nights in the year. Its changes are frequent. The moon revolves round the earth in about twenty-nine days, and divides the year into months.

Lesson 115. *The Atmosphere.*

The whole earth is surrounded with *air*. We feel and breathe it. Men, animals, and plants, could not live without air. When the air moves quickly, it is called *wind*. A wind that blows round and round is called a *whirlwind*. The *mists* that ascend from the earth form clouds, and the cloudy vapours are condensed, and descend to the earth as rain.

第一百十四課 月論

月隨地球相與繞日又自繞地而行穹蒼之象莫有美麗于月者年中多夜人沾其光月形恒變其繞地約二十九日而行一週年以之分月

第一百十五課 天氣論

地球包于氣內人身觸氣口時呼吸無氣則人類生物草木皆不能生氣速動謂之風風旋轉而吹謂之旋風霧從地騰而成雲雲氣凝結而為雨

Lesson 119. *Mouths and Decades.*

In China, ten days make a decade, and there are three in a month, the upper, middle and lower. In Western nations, they do not reckon by decades. Seven days form a week, vulgarly called a *Le-pae*, each day having a particular name. The common method of saying the *le-pae* day, 1st, 2nd, of the *le-pae*, &c., is not the practice of the western nations.

Lesson 120. *Cycles and Centuries.*

In China, the age of the world is reckoned by the cycle of 60 years, commencing with the 61st year of Hwang-te, and thence continually repeated. This is the 1st year of the 76th cycle. In the west, they reckon by centuries, dividing the history of the world into two parts, one before the birth of the Saviour, and one after it. From the creation of men to the birth of Jesus, there were 54 centuries and 11 years. From that time to the present there have been 18 centuries and 54 years.

第百十九課月與旬論
 唐山十日為一旬月內分上中
 下三旬西國則無旬計每七日
 為一節俗名一個禮拜一節之
 間各日有定名以別之俗所稱
 禮拜日禮拜一禮拜二云云非
 西國別日之法也
 第百二十課甲子百年論
 唐山記世系用六十年花甲子
 自黃帝六十一年起週而復始
 輪流不已今年即第七十六個
 甲子內之第一年年歲次甲子
 也西國則用百年將世系分為
 二層以救主耶穌降生之前後
 別之自上帝造人至耶穌降生
 有五十四個百年零一載自
 耶穌降生至今十八個百年零
 六十四載

Lesson 118. *Months and Seasons.*

A year consists of twelve months. In China, there are two intercalary months in five years, and in the West, there is one intercalary day in four years. In China, some of the months are 30 days long, and some 29. The length of the English month, and the intercalation, are given in the following lines;—

Thirty days hath September,
 April, June, and November.
 All the rest increase one day,
 (How easy is it this to say!)
 But February;—that you fill
 With eight and twenty days, until
 The fourth and leap year, then's the time.
 That February's days are twenty-nine.

Each English month has a particular name. There are four seasons in the year, three months forming one season.

第百十八課月與季論
 十二月為一年唐山十九年內
 有七閏月西國四年內閏一日
 唐山一月或三十日或二十九
 日若英于年月閏日有歌云
 四、六、九、十一、卅日皆圓全
 餘月增一日、此數亦易言
 惟逢第二月、二十八日焉
 四歲二月閏、廿九日回還
 英月各有名號以別之每年
 分四季三月為一季

Lesson 123. *The Torrid Zone.*

If a broad belt were wrapped round the middle of a globe, east and west, so as to cover one third of the surface, it would represent the *torrid zone*. In it live the largest, the most beautiful, and the most dangerous animals. Beasts and birds of prey, venomous reptiles, and noxious insects, are found there, besides many others more useful.

Lesson 124. *The Frigid Zones.*

The two *frigid zones* extend from the poles to the two temperate zones; about one quarter of the distance from each pole to the equator. The white bear, the reindeer, the dog, the whale, the walrus, and the seal, are found there. For months the sun never rises in the frigid zones; during other months it never sets.

SECTION XVI.—OF CLIMATES, ETC.

Lesson 121. *The Cardinal Points.*

If we look towards the sun at noon, our face is turned to the *south*, our back towards the *north*, our right hand is towards the *west*, and our left hand towards the *east*. In a map, the bottom is south, the top north, the left hand west, the right hand east. These are the Cardinal Points.

Lesson 122. *The Equator & the Zones.*

The line that runs through the map of the world at the largest part of the earth, midway between the poles, is called the Equator. The map is divided into five zones; the torrid zone, two temperate zones, and two frigid zones. The equator lies in the torrid zone. The poles are in the frigid zones. The temperate zones are between the torrid zone and the frigid zones.

第二百二十三課 熱帶論。

于地球形象，以闊帶一條，自東而西，包裹其中，致蓋球面三分之一，斯可比擬熱帶。在彼，生物之至大，至麗，及至兇者，處焉。于熱帶中，生物之有用于人者固多，而亦為猛獸、惡鳥、毒蛇、螫蟲之淵藪。

第二百二十四課 二寒帶論。

二寒帶自南北二極，至溫帶界止，各佔二極所去赤道之處，約四分之一。在彼，白熊、北大鹿、犬、鯨魚、海馬、海牛、處焉。寒帶間，太陽數月不見，又數月不沒。

論

第十六篇 地球分域等論。
 第二百二十一課 四方論。
 若人於正午時，向日而望，則面南背北，左東右西。于地理圖，則圖下為南，上為北，左為西，右為東。東西南北，謂之四方。
 第二百二十二課 赤道及五帶論。
 南北二極之中，地之最大處，地圖有圓線環繞，名曰赤道。圖面分五帶，一曰熱帶，二、三曰溫帶，四、五曰寒帶。赤道在熱帶之中，二極在寒帶之中。熱帶寒帶間，即溫帶之所。

Lesson 127. *Climates.*

Each zone is hotter at the parts nearest to the equator, and gradually becomes colder at the parts distant from it. The scholars of the west, according to the variations of heat, divide the globe into *climates*. The heat at the equator causes luxuriant vegetation, and snow is never seen. At the poles there is constant ice and snow, but neither vegetation nor animal life.

Lesson 128. *Productions of Climates.*

The first, or hottest climate, produces such spices as ginger, nutmeg, and pepper; and cooling fruits, such as the cocoa-nut, and bread-fruit. The next climate produces fragrant spices, such as cinnamon, myrrh, and frankincense; and also delicious fruits, such as the pine-apple, the date, and the tamarind.

智環啟蒙塾課

三十三

第百二十七課。寒暑道論。
地球諸帶之處。近赤道者。熱較勝。漸遠則熱漸減。西國博士。以球面分為寒暑道。蓋視其熱氣多少而別之也。赤道左右。熱氣猛烈。草木茂盛。冰雪不見。若二極之處。則冰雪週年。草木不生。人物絕跡。
第百二十八課。諸寒暑道土產論。
寒暑道第一。熱氣至烈。出產辣料。如薑。荳蔻。胡椒等。亦生涼果。如椰子。麵頭果等。第二道出香料。如玉桂。沒藥。乳香等。亦有美果。如波羅。棗子。酸果等。

Lesson 125. *The Temperate Zones.*

The *temperate zones* lie between the torrid and the frigid zones. The temperate zones are the most healthy parts of the earth. In them the most useful animals abound. Beasts such as horses, oxen, goats, sheep, and deer; and birds such as nightingales, pigeons, and fowls, may be found here; also useful fishes.

Lesson 126. *Inhabitants of the Zones.*

The natives of the torrid zone are mostly of black, or dark complexions; they are indolent in their habits. In both the temperate zones, the natives have white or light skins; they are industrious and intelligent. The people of the frigid zones are dwarfish, and have little knowledge; they live by fishing and hunting.

第百二十五課。二溫帶論。
二溫帶居熱帶及二寒帶之間。乃全地至爽快之處。內中生物之有用者。比別帶尤多。獸類。則有馬。牛。羊。鹿等。禽類。則有鶯。鴿。鷄等。亦有嘉魚。
第百二十六課。諸帶土人論。
人生于熱帶者。皮膚多全黑。或淺黑。性成懶惰。居二溫帶者。皮膚全白。或頗白。性成敏捷靈慧。若生于寒帶者。則身矮。見識微小。以漁獵為生。

三十三

Lesson 131. *Productions of Climates. (Cont.)*

In the very cold climates there are no high trees, but only stunted shrubs, and mosses, and lichens. Near to the polar circles there is no vegetation at all, but ice and snow all the year round. The plants of warmer climates are, however, often reared in the warm, sheltered parts of colder climates; the more tender plants are grown by artificial means.

Lesson 132. *Productions of Climates. (Cont.)*

Many plants grow in various climates. Some which are natives of hot countries, grow during summer in colder regions. Many plants from other countries flourish in England. Every part of the earth may furnish plants for our fields and gardens, where they are reared by paying attention to their habits, whether they belong to hotter or colder climates.

Lesson 129. *Productions of Climates. (Cont.)*

The third climate produces the cotton-plant, the sugar-cane, rice, maize, the almond, the palm, and tobacco. The fourth produces the orange, the tea-shrub, the olive, and melons. The fifth produces the fig, the mulberry, the cork-tree, and the onion. In this climate vines begin to be cultivated.

Lesson 130. *Productions of Climates. (Cont.)*

The sixth climate abounds in grassy plains, and in it wheat and vines are cultivated. The seventh also produces vines and much corn. The eighth produces apples, barley, &c., which are also found in the ninth. In the tenth the best oaks and elms are found, and many small fruits. The eleventh produces hemp and flax; and the twelfth—oats, rye, firs, pines, &c.

第三百二十九課續諸寒暑道土產論

第三道產棉花、甘蔗、米、粟、杏仁、棗子、烟葉草。第四道產橙、茶、橄欖、與諸瓜類。第五道產無花果、桑、厚浮皮樹、與葱頭等。至此第五道、人始植葡萄樹。第三百三十課續諸寒暑道土產論。第六道、平原草澤乃多、人種麥、植葡萄。第七道、亦生葡萄、產穀甚多。第八道、第九、二道、俱生平果、大麥等。第十道、櫟樹、榆樹甚盛、小果之類亦多。第十一道、產麻類。第十二道、產粗麥、小麥、與杉、松等樹。

第三百三十一課續諸寒暑道土產論

道之甚寒者、無高樹、只有矮叢、苔蘚、地衣而已。近寒帶處、並無草木、類冰雪、週年不解。一道、寒于一道、以漸而進、而每道各有所宜之土產。雖然、一道所產之草木、于次道之、陰煖處、亦屢生之。若其草木之更柔者、則必用巧法、以培養之耳。第三百三十二課續諸寒暑道土產論。草木之類、生于寒暑數道者不少、間亦有熱方所產者、而夏時寒地、又生之。今夫英國、雜聚別方之草木、植諸田園之間、可見地球各處、土產不拘其原土、寒熱、苟人能順其草木之性、而善養之、雖易地亦無不生矣。

Lesson 135. *Tradesmen, Mechanics, &c.*

Grocers, drapers, ironmongers, &c., are called *shopkeepers*. Hatters, tailors, shoemakers, &c., are *tradesmen*. Watchmakers, smiths, and cabinet-makers are *mechanics*. Men who work at trades to earn wages are called *journeymen*. Boys who are bound to masters for a term of years, to learn trades, are called *apprentices*.

Lesson 136. *Divers Employments.*

Men who do any kind of work for day wages are called *labourers*. The men and women who live in families to do the work are called *servants*. The richer people employ servants to wait upon them and to do their work; thus many poor people are employed, and obtain wages for their labour.

SECTION XVII.—OF SOCIAL LIFE.

Lesson 133. *Domestic Relations.*

Those children who have the same parents, belong to one *family*, and those whose fathers or mothers belonged to one family, are called *relations*, or *relatives*. Our nearest relatives are fathers, mothers, brothers, and sisters. Our next relatives are grandfathers, grandmothers, uncles, aunts, and cousins.

Lesson 134. *Trade and Agriculture.*

Manufacturers, mechanics, merchants, and tradesmen, live in town. Manufacturers employ men and machinery in making silk, linen, cotton, cutlery, hardware, &c. Farmers and their labourers live in villages. They cultivate the earth. Manufacturers, farmers, and tradesmen, serve each other best by keeping each one to his own business.

第一百三十五課。賈工等業論。
賣雜貨、布帛、鐵器之輩，謂之坐舖者。裝
帽師、縫工、鞋匠等，謂之手藝人。創修時
辰鏢者，及諸般金匠，與甲萬師傅，謂之
工匠。自投人處，而作其業，以獲工錢者，
謂之傭工。童子投師，限年若干為約，以
習其業者，謂之學業徒弟。
第一百三十六課。各等僱工論。
不拘作何工夫，論日獲工錢者，謂之小
工。家間服役之男女，謂之僕婢。富家每
用僕婢伺候，代服其役，是以貧人僱工，
勞力而獲工錢者，甚眾。

第十七篇。人生會聚同居等事論。
第一百三十三課。家屬論。
同父母之兒女，皆屬一家。一家之
兄弟姊妹，其所生之兒女，稱為親
戚。人生之最親者，父母、兄弟、姊妹
也。祖父、祖母、伯、叔、母舅、姑、姨、堂表
兄弟姊妹，次之。

第一百三十四課。貿易及農事論。
工師、匠人、商賈等，居於城邑。工師
用人及諸機器，製作絲髮、麻布、棉
布、利器、鐵器等貨。農夫與其工人，
居於村鄉，以畊田為業。工師、農賈
各守本業，最能相資。

Lesson 137. *Professions.*

Those occupations that require a good education and much knowledge, are called *professions*. They consist of preachers of the gospel, teachers, lawyers, physicians, and surgeons. Preachers make known to us our religious duties. Teachers instruct the young. Lawyers give advice respecting the laws. Physicians and surgeons heal diseases.

Lesson 138. *Buildings of a Town.*

In towns the houses are built together; there are streets, shops, prisons, court-houses, almshouses, infirmaries, churches and chapels, schools, libraries, a marketplace, &c. In most towns of England a market is held weekly, and fairs are held several times at certain periods every year.

第一百三十七課。斯文生業論。

凡業必須學深識廣，方能習之者，謂之斯文業也。福道教師、習讀教師、狀師、內科醫師、外科醫師，皆其屬焉。福道教師示人以服事上帝之道，習讀教師訓誨少年，狀師解辯律法之事。內外醫師俱醫人病。

第一百三十八課。城邑之宮室論。

城邑之中，房屋相連而建，有街衢、行店、監牢、衙門、老人院、濟病院、禮拜堂、學館、書房、市場等處。英國邑中，墟市多有七日一次者，而大市則每年數次，各有定時。

Lesson 139. *Gas.*

In the west, towns were formerly lighted with oil lamps; now, nearly all towns are lighted with *gas*, which is an inflammable air made from coal, and conveyed under ground by iron pipes to the streets, and houses. Towns are lighted to protect the property of the inhabitants, and to light them as they walk through the streets.

Lesson 140. *Water.*

Many towns have fresh water supplied to the houses from rivers or from reservoirs. The water flows under ground, sometimes for many miles through large pipes; it is then conveyed into houses by smaller ones. In former times, water was drawn from wells, and carried, which was laborious, and took much time.

第一百三十九課。煤炭氣論。

昔者，西國城邑皆用油燃燈照夜，今則用氣代之，幾至無邑不然。其氣乃燒煤炭所出，最易著火，藏鐵筒於地，引至各街各屋而點之。城邑街上點燈，一則代民防賊保家，二則以照行人。

第一百四十課。水論。

西國多邑，俱有河池清水，遍給各屋所用。其水有時以大筒在地下引導，自數十里之遙而至邑中，然後以小筒相接，派入諸屋內。昔者，水自井汲，人擔畜負，甚是勞力，亦須多時。

Lesson 143. *Roads and Railways.*

Roads are formed from place to place in nearly all countries. The mode of travelling on roads is on horseback, in gigs, in coaches, or by railway. Large trains of carriages, containing passengers and merchandise, are conveyed very rapidly along railways. People travel by water in ships, carried by the winds, or in steamboats.

SECTION XVIII — OF GOVERNMENT.

Lesson 144. *The British Nation.*

The three countries of England, Scotland, and Ireland, form the British nation. They are governed by laws which are decided on in the two houses of Parliament. Those houses are named the House of Lords, and the House of Commons; they pass the laws, which, however, must be assented to by the Sovereign before they are in force.

第一百四十三課。道路鐵路論。
大約天下諸邦皆有道路，使各境相通。於路上，人或步行，或騎馬，或坐車。而車二輪者有之，四輪者有之，甚至火輪車行於鐵路者亦有之。火輪車相連數乘，或載人，或載貨，於鐵路上行走甚速。人行水路，則用船，或藉風帆，或藉水氣，悉激之力。
第十八篇。國政論。
第一百四十四課。不列顛國論。
英倫、蘇格蘭、阿爾蘭，三邦之地，合為不列顛國。其政令法度，乃由國會二院所創定。斯二院，一名公侯院，一名百姓院。其酌定律例，必經國君批准，然後頒行。

Lesson 141. *Fire.*

Fires are required in all climates for cooking food; and in cold climates for warmth also. In some places fires are made of wood, in others of peat, which is dug out of bogs, but in England the chief fuel used is coal. Coal is a mineral; and is dug out of deep places which are called *coal-mines*.

Lesson 142. *Ventilation.*

We cannot enjoy good health without pure air. Rooms that are low and damp, rooms in which sick people are confined, and all bedrooms should be well ventilated. Fires and lights burning in a room consume the air, and make ventilation more necessary. Those who work in close rooms should walk much out of doors.

第一百四十一課。火論。

諸邦皆須燃火以煮食，若寒地則亦靠火以取煖。有處燃火用薪，有處用燐炭，自澤中掘取者。若英國則用煤炭居多。煤炭乃著火質類，自地下深處掘採，此深處謂之煤炭穴。

第一百四十二課。人居必通風氣論。

清氣缺乏，人身不得舒暢，故於房室之多濕者，與及病人偃臥之所，人所常睡之處，必使天氣廣通。若於房中多燃火燭，則燒滅天氣，是以通風尤要在密房作工者，宜時常在外遊散。

Lesson 145. *Evil-doers.*

Those who break the laws of their country are liable to punishment. According to the laws of England, theft which is taking another person's goods, is punishable with imprisonment. Forgery, which is signing another person's name, to deceive, is punishable with transportation, Treason and murder are punishable with death.

Lesson 146. *Trial by Jury.*

Trial by jury is an excellent institution of Britain. According to it, twelve of the people attend at the court with the judge, to determine whether prisoners are or are not guilty of crime. It is their business to hear the accusation, to listen to the witnesses, to attend to the defence, and to bring in the verdict, upon which the judge passes sentence according to the law.

第一百四十五課。為非者論。
犯國法者、當受刑罰。按英例、偷盜、即竊取別人之物、治以監禁之罪。假單、即寫別人筆跡名字以行欺詐、治以流徙外邦之罪。若叛逆兇殺、斯乃死罪。

第一百四十六課。陪審聽訟論。

陪審聽訟一例、乃不列顛之良法也。其例乃于審司坐堂判事時、則有民間十二人、陪坐聽審、以斷被告之人有罪與否。其十二人、宜聽訟辭、辨證據、察訴供、然後定擬其罪之有無。上告審司、于是審司照法定案。

Lesson 147. *War.*

War is one of the greatest calamities that a nation can suffer. For in war people are killed, houses are plundered, lands are wasted, towns and villages are burned. War reduces the rich to poverty, makes wives become widows, and children orphans. War is the cause of much wickedness and sorrow.

Lesson 148. *The Land and Naval Forces.*

The army of Great Britain consists of many regiments of horse and foot soldiers. Most of them live in barracks, in England, Ireland, and Scotland; but some of them are sent abroad to protect the colonies. The marine troops live on board the ships of war, which protect the English commerce in all parts of the world. Soldiers and sailors, when aged or wounded, receive pensions.

第一百四十七課。國戰論。

凡國所遇之災、莫有重于戰者。戰時則殺人、劫屋、田地變為荒蕪、城邑村鄉、多被焚燬、且使富者為貧、妻喪其夫、兒女喪其父母、諸般惡孽、愁惱、多自戰出。

第一百四十八課。陸軍及水師論。

大不列顛之陸軍、有馬兵步兵、分隊甚多。其中大半、屯在英蘭、蘇葛蘭、及阿爾蘭之兵房內、惟有幾許、差往遠處、戍守屬地。其水師則居戰船、周往天下、隨在保護英商貿易。水陸軍兵、或老邁、或受傷、則領皇家恤養。

Lesson 151. Taxes.

Taxes are sums of money paid by the people for the support of the government. Life and property must be protected, violence and fraud must be punished, laws must be obeyed, and social order maintained. The persons employed to do these things for the people are paid out of the taxes that are collected.

SECTION XIX.—OF OTHER NATIONS BESIDES BRITAIN.

Lesson 152. Countries of Europe & Asia.

The five great divisions of the earth are Europe, Asia, Africa, America, and Oceania. Each part comprises many nations. The chief nations of Europe are Russia, Austria, Prussia, Spain, Portugal, Italy, Great Britain, France, Belgium, and Holland. Those of Asia are China, Hindostan (or India), Japan, Siam, Persia, Arabia, and Turkey.

智環啟蒙塾課

三十一

第一百五十一課賦稅論
 賦稅者民所輸納之錢以供國用者也人生家業要保強悍詐偽要過律法要行國要平治斯皆有司代民理之而有司之祿則在所聚賦稅支給第十九篇大不列顛以外別國論
 第一百五十二課歐羅巴亞西亞二洲諸邦論
 地球面分五大洲曰歐羅巴曰亞西亞曰阿非利加曰亞墨利加曰阿西巴尼亞各洲自分邦國甚多屬歐羅巴洲之著名者有俄羅斯奧地利普魯士西班牙葡萄牙以大里大不列顛佛蘭西比利時荷蘭等屬亞西亞洲之著名者有華夏印度日本暹羅波斯亞刺伯土耳其等

Lesson 149. Money.

Money consists of gold, silver, or copper, stamped by the government into coins of a certain value. In China, the *tael* of gold money is worth seventeen *taels* of silver, and the *tael* of silver money is worth about 1400 or 1500 *cash*. The principal coins used in England, are what are vulgarly called *gold pieces*, *shillings*, and *pennies*. One gold piece is equal to 20 shillings, and one shilling to 12 pence. Bank-notes are printed strips of paper with promises to pay the sums marked on them.

Lesson 150. Property.

Houses, furniture, books, cattle, fields, forests, manufactures, &c., are *property*. Property is sometimes obtained from parents and friends; but it is also got by skill and by diligence. Persons who have money to spare often employ a part of it in promoting useful or benevolent undertakings, as hospitals and railroads.

第一百四十九課通寶論
 通寶者乃皇家以金銀銅鑄錢印以國號定其所值若干唐山金錢每兩換銀十七兩銀則每兩約換銅錢一千四百或一千五百文不等英國通用之錢有俗所稱金仔時令便尼數樣金仔一個換時令二十而時令一個換便尼十二銀錢票乃紙塊上印以花草字號並刊明許換銀若干
 第一百五十課產業論
 房屋家器書籍畜生田地林木及所製作諸貨等件皆謂之產業有得之于父母親朋者有得之于自己敏勤者有餘錢之人每捐若干以助有用及濟人之善舉如建養病院及鐵路等事

Lesson 155. *Barbarous Nations.*

Those nations are called *barbarous* that have no capital cities and certain dwelling-places, but wander about to obtain food for their flocks, or to make war on neighbouring tribes. Such nations are found chiefly in the deserts of Africa, Tartary, Arabia, and Persia. Some of them possess villages, practise agriculture, and obtain European manufactures by barter.

Lesson 156. *Half-civilized Nations.*

The people of some countries are partly civilized. Such are found in Africa, in Hindostan, in Japan, in Persia, in Turkey, and other countries of Asia. They cultivate the soil, and know a few arts. They have laws and some books, but they are mostly ignorant of the useful arts. Many of their customs are barbarous.

Less. 153. *Countries of Africa, America, & Oceania.*

The chief countries of *Africa* are Egypt, Barbary, Guinea, the Cape of Good Hope, Negroland, and Abyssinia. In *America* are the United States, Canada, Mexico, and Brazil. The parts of *Oceania* are not called countries, but islands, which are divided into three large groups; Polynesia, on the east, Malaysia, on the west, and Australia, in the south.

Lesson 154. *Savage Nations.*

Some nations exist in a *savage* state. They dress in skins, and feed on wild fruits, roots of plants, and the flesh of animals caught in the chase. The North American Indians, the Indians of South America, the natives of Australia and New Zealand, and most of the Negroes in the interior of Africa, are in a *savage* state.

第一百五十三課 阿非利加、亞墨利加、阿西亞尼亞、三洲諸邦論。
屬阿非利加洲國之著名者有埃及、巴利、幾內亞、極南即所謂好望角、尼給里西亞、阿比西尼亞等屬亞墨利加洲者有合眾國、加拿他、墨西哥、巴西等邦。惟阿西亞尼亞所屬不以國稱皆名海島。分三大都會在東曰波里尼西亞、在西曰馬來西亞、在南曰澳大利亞。
第一百五十四課 國之野劣者論。
有等邦國甚是野劣全無教化。人衣獸皮食則野菓草根或獵獸而取其肉。亞墨利加南北二洲、澳大利亞、新西蘭二島其土人皆是野拙如此。阿非利加內地之黑人、大半亦然。

第一百五十五課 國之野遊者論。
國無都城定處民遊各方尋蕪以牧羣畜或尋機以侵隣部者皆稱野遊之國也。阿非利加洲、撻撻里亞、刺伯波斯、數邦之曠野較別地多有之。其間或有居村落者乃耕田以土產易歐羅巴製造之貨物。
第一百五十六課 國之被教化而未全者論。
有等邦國之民于格物致知已有所獲于教化政治已有所行但僅得其偏而未得其全者如阿非利加數國、亞西亞之印度、日本、波斯、土耳其等國皆然。如此之邦其人耕田頗識工藝有法有書惟于有用之藝多所未達而習俗亦有慘酷者。

智環啟蒙塾課
巴

Lesson 159. Exports and Imports.

England exports iron, steel, salt, and many manufactures; and imports wine, tea, cotton, timber, gold, silver, &c. France exports wine, brandy, fruit, and fancy goods; and imports cotton, coffee, spices. Russia exports tallow, leather, fur, hemp; its chief imports are the produce of tropical climates, and manufactures. China exports tea, silk, &c.; its imports are cotton, cotton yarn, piece goods, &c.

Lesson 160. Ships.

Countries that are separated from each other by the ocean are reached by means of ships, which are urged with sails only by the wind, or provided with engines worked by steam. Ships convey both persons and goods. The owners of ships are often merchants; the men who work them are sailors; and the master is called the captain.

第二百五十九課 出口入口之貨論。英國出口之貨有鐵、鋼、鹽及製造之物甚多。入口者有葡萄酒、茶葉、棉花、木料、金銀等。佛蘭西出口之貨有葡萄酒、黃火酒、菓子及彩飾之貨。入口者有棉花、加非、香料。俄羅斯出口之貨有脂油、皮革、皮草及麻。入口者多為熱帶土產及製造之物。唐山出口之貨有茶葉、絲等。入口者有棉花、棉紗、布疋等。第一、六十課 船論。邦國隔以洋海者，則用舟船可以相通。其船有揚帆藉風而行者，有造成機勢藉水蒸而動者，或運入或運貨。船屬商人者多，供船上使役者謂水手。管船之人謂之船主。

Lesson 157. Civilized Nations.

The nations of Spain, Portugal, Italy, Russia, and Poland, may be called civilized. The arts and sciences are known among the learned, but most of the people are very ignorant. The other nations of Europe, and the people of the United States of America, are the most enlightened in the earth.

SECTION XX.—OF TRADE AND COMMERCE.

Lesson 158. Commerce.

The productions of countries are different. One produces wheat in large quantities; another, grapes. In other countries, figs, olives, dates, oranges, spices, tea, coffee, gums, cotton, sugar, and tobacco abound. Other countries are noted for their manufactures. The exchange of the productions of one country for those of another is called commerce.

第一百五十七課 國之被教化而頗全者論。西班牙、葡萄牙、以、大里、俄羅斯、波蘭、數國可稱被教化而頗全者。其中士子諳熟技藝文學，惟民尚多愚蒙。自此外，歐羅巴之別邦及亞墨利加之合眾國，其民為天下之至明達者。第二十篇 通商貿易論。第一百五十八課 貿易論。諸國土產不同，有多產麥者，有多產葡萄者，無花菓、櫻、棗、橙、柑、香料、茶葉、加非、樹膠、棉花、糖、烟、葉、草等物，皆有盛產之邦。又有邦國因所製造之貨物，而其名遂著者，以一國之土產貨物，易於他國者，謂之貿易。

Lesson 161. Machinery.

Many operations are performed by machinery, which either could not be done at all, or would require great toil and expense. The plough, the harrow, and the threshing-machine, save the labour of the spade, the hoe, and the flail. The railway, the coach, and the waggon, save the pack-horse and the foot passenger.

Lesson 162. Language.

We express our wants, our thoughts, and our feelings, by means of language. Language enables us to give names to persons, animals, places, virtues, vices, and every thing which can be pointed to. It expresses qualities; such as hard, soft, old, new, &c. We speak also of actions and of events. Language may be written as well as spoken.

Lesson 163. History.

History is a record of what has happened in former times. The oldest history is that which tells us how the world was made. The most important is that of the spread of the Gospel. The history of England tells us of kings, of wars, and of great men, &c., for about 1900 years. The history of China records the affairs of more than 4000 years, from the time of the emperor Yaou.

Lesson 164. Newspapers and Books.

Information is conveyed by newspapers and by books. The newspapers of the western nations are very numerous, several tens perhaps being published in one city in one day. They contain accounts of accidents, crimes, deaths, trades, inventions, amusements, and many other things either important or agreeable to be known. Books are written either for instruction or for amusement. By reading, mankind become wiser and happier.

第百六十一課 機器論
機器之用甚廣，或補人力所不能，或省其勞苦繁費，既有犁、耙、及打禾之機器，則可免用鑿、長柄鋤、及連耨之苦矣。既有火車鐵路，及諸般輕重之車，則馬不須勞于負人，不須勞于行矣。

第百六十二課 言語論
胸中所懷之想，慕意思，心情，皆以言語而出。人物方所諸德，諸弊，與及凡有端可指者，莫不各以言語而得名焉。言語有形容人物之情狀者，如剛柔新舊等詞。言語亦有說人物所作及凡所遇之事者。言語可寫而成文字。

第百六十三課 史記論
史記者，所以述往時之事也。其至古者，乃述世界如何創造之傳也。若其至要，則福道流行之志焉。英史歷載君王戰仗名人等目，約有一千九百年之世系。華夏之史，自堯君至今，所記有四千餘年世系。
第百六十四課 新聞篇及書冊論
廣人之識見者，乃新聞篇及書冊也。西國新聞篇甚多，在一城中，有一日，間而出數十張者，雜載遭際、犯法、人亡之事，且于生業、製作、玩喜之遇，及一切有益于人，能供權趣者，無不集報書之。所以作者，或以教人，或以快其情意。人既習讀，則廣其知識，增其福祉。

Lesson 167. *Indestructibility of Matter.*

We cannot destroy one particle of matter. We may break and powder stone, but the dust will remain. We may boil away water, but it will be changed to steam, condensed in the cold air, and again changed to water. We can burn coal, wood, and paper, but the smoke and ashes will be left. This is called *indestructibility*.

Lesson 168. *Attraction.*

Matter possesses the quality of attraction, and by this things are drawn together. Atoms of matter, as coal, wood, and stone, are held together by *cohesive attraction*. Bodies are drawn to the earth by the *attraction of gravitation*; by the same kind of attraction, the earth revolves round the sun. A sponge absorbs water through its pores by *capillary attraction*.

第一百六十七課。物質不能滅論。
凡物之本質，不能滅其一毫。人能搗石為粉，但其塵粉猶存。人能煮水使乾，但其變為蒸氣而去，得遇冷氣，遂凝結而復變為水矣。人燒炭及柴紙等物，但其烟灰尚在，此所謂物質之不能滅也。
第一百六十八課。物之相引論。
物質有相引之勢，故恆結聚。煤、木、石等物，其纖塵粘聚，謂之粘引也。物之粘附于地，乃因地之吸引，地之旋日而行，亦賴日之吸引也。海絨由其小孔吸水，謂之竅引也。

Lesson 165. *Self-Improvement.*

Self-improvement is one of the first duties of life. Persons improve themselves by study, by practice, and by observation. Whatever a man's occupation is, he may improve himself by giving attention to it. And whatever his position in life, he may improve himself in his love to man, and in his obedience to God.

SECTION XXI.—OF MATTER, MOTION, ETC.

Lesson 166. *Divisibility of Matter.*

All existences in the universe may be reduced to two classes, distinguished as *material* and *immaterial*. Material existences may be called *things*, and all things which we see are formed of *material substance* (or *matter*). Matter may be divided and subdivided so often that it will at length be very small indeed. The smallest portions of matter are called *atoms*, and the power of being divided into atoms is called the *divisibility* of matter. The odour of flowers consists of atoms.

第一百六十五課。修身論。
修身為人生切要之事，必博學力行，竭耳目之力，方能有所得焉。不拘習何事業，苟用心專務，則無不如其練達。不拘在何地位，若致志于愛人事，帝之道則無不增益焉。
第二十一篇。物質及移動等論。
第一百六十六課。物質可細分論。
宇宙之間，所有者惟二樣，以有形無形而別焉。有形者，概可謂之物，而凡所見之物，皆積質而成者也。物質可以分而分，至於極細之地，此則名為物質之纖塵，其可分如香之氣，其質之纖塵所成也。

Lesson 171. *Form.*

All things have *form*. Some objects are straight, others are curved; some are regular, and others are irregular. A bench is *straight*, a ring is *circular*, and a horn is *curved*. A ball is *spherical*. A *triangle* has three sides. A *square* has four sides. A lump of earth is irregular in its form.

Lesson 172. *Magnitude.*

Objects are great or small. The greatest works of man in a country are small compared with the country itself; the largest country is small compared with the earth; the earth is small compared with the sun; and the sun is small compared with the universe. Many small objects cannot be seen without a microscope.

Lesson 169. *Peculiar Properties of Matter.*

All bodies have *weight* or *density*; although some are much heavier than others. Some substances are very *hard*; as glass and iron. Some are *elastic*; as Indian-rubber and whalebone. Some are quite *brittle*; as glass and china. Some metals can be beaten thin, being *malleable*; and some can be drawn into wire, being *ductile*.

Lesson 170. *Motion.*

Motion is change of place. By motion the blood circulates; the heart beats; the lungs contract and dilate. Bodies are put into motion by *force*. When a ball is struck, the force of the blow puts it into motion. Bodies can neither put themselves into motion nor stop themselves when in motion; this property is called *inertia*.

第一百六十九課。物之本質異性論。凡物莫不可以其重實稱之。而有一物或重于別物多者。有甚硬者。如玻璃。鐵之類。有甚韌者。如抹紙膠。鯨魚骨之類。有甚脆者。如玻璃。磁器之類。金類有可搗成薄片者。有扯成線條者。

第一百七十課。物之移動論。物之移動。即其易處也。血動而運于週身。心動則跳。肺動則吸張。物可激而使動。則謂之勢。如球被擊則滾行也。物不能自動。既使動。則不能自止。此所謂物蠢也。

第一百七十一課。物之形像論。

物皆有形。或直。或曲。或正。或歪。如登直。環圓。角曲是也。球乃徧圓。三角形有三邊。四方形有四邊。一堆泥。其形則不一。

第一百七十二課。物之大小論。

物有大小。人所建造之物。雖至大。較之其所在之邦國。則為小。至大之國。較之地球。則為小。地球較之太陽。則為小。太陽較之宇宙。則為小。物之細小。無顯微鏡不能見者甚多。

SECTION XXII.—THE MECHANICAL POWERS.

Lesson 175. *The Lever.*

Mechanics use tools, implements, and machines, to assist them in their operations. One of these implements is called *the lever*, being much used to raise or move heavy objects. A poker is a lever with which we raise the hot coals of the fire; a spade is a lever, that is used to cut, lift, and move, masses of earth.

Lesson 176. *The Lever. (Continued.)*

In lifting a lump of coal with the tongs, we use a lever, the *power* being applied by the hand to the legs of the tongs. In the treddle of a turning-lathe, the power is applied by the foot. A pump-handle is a bent lever, the power being applied at its end. A clawed hammer when used to draw nails is also a bent lever.

第二十二篇。借力匠器論。
 第一百七十五課。舉物器論。
 工匠用器皿機械助其行工。內中有名舉物器者。蓋多用以舉移重物也。火杖用以燒火中紅炭。長鑿用以鑿銷起移坭塊。皆舉物器之類也。
 第一百七十六課。續舉物器論。
 用火鉗舉煤團。手挾鉗之兩股。而施其勢。亦即舉物器之用也。鑿匠旋車。乃用脚踐而得其勢。囊水機筒之柄。乃舉物器之曲者。用手上下其端。則勢力生矣。燕尾鎚。用以拔釘。亦舉物器之曲者也。

Lesson 173. *Measurement.*

The size of many objects can be measured by a rule, on which inches and parts of inches are marked. Ten parts make an inch, ten inches are called a foot, and two feet four inches make a yard. Tables, doors, and boxes, are measured by feet and inches. Cloth, calico, carpets, &c., are measured by yards. Distant places are measured by miles.

Lesson 174. *Colour.*

All objects about us have *colour*. The sky is blue, grass is green, blood is red. Seven colours are seen in the rainbow, but only three of them are principal colours;—red, blue, and yellow. All other colours are made by mixing these. White is not a colour, and black is the absence of all colour.

第一百七十三課。量物之法論。
 物之用尺量者甚多。尺內有寸。寸內有分。十分爲一寸。十寸爲一尺。二尺四寸爲一碼。棹、凳、門、箱等物。俱用尺量。布帛地氈等物。則用碼量。地方遠近。則以里數量之。
 第一百七十四課。物色論。
 我所見之物。皆有色。水天藍。草青。血紅。是也。所見於天虹。有七色。其中惟紅。藍。黃三色爲正。餘皆此三色相雜而成耳。白不算色。而黑則色盡絕也。

Lesson 177. *The Wheel and Axle.*

The *wheel and axle* are used to lift heavy weights. On board ship this instrument is called the *capstan*; the cable is attached to the capstan, and the anchor to the cable; the anchor is raised or lowered by means of the capstan. The crane, and the grindstone are also applications of the wheel and axle.

Lesson 178. *The Inclined Plane. The Wedge.*

A sloping plank or ladder, used to roll goods up slight elevations, is an *inclined plane*. When ships are launched, they are made to descend an inclined plane into the water. The *wedge* is used in splitting blocks of wood. In coalpits and in quarries, it is driven between layers of coal or stone to separate them.

第一百七十七課 輪軸相合論

輪軸相合所以起重物者在船上此器名爲絞盤。絞盤或繩繫于絞盤中。錨繫于鍊或繩尾。錨之起放皆用絞盤之力。千斤稱車及磨刀輾石亦輪軸相合之用焉。

第一百七十八課 斜板及尖口論

用板或梯斜放以滾貨物上畧高處者謂之斜板。船隻落水乃用斜板褪下。尖口用以裂木。在煤穴石礦用尖口撞入煤石紋縫以開之。

Lesson 179. *The Screw. The Pulley.*

The *screw* is chiefly used in presses, which are worked by levers; the thread of the screw is the projecting ridge round it. If the threads are near each other, the screw is easier to turn than if they are wide apart. The *pulley* is used for raising weights; a rope passes over it, and the pulley turns round with the rope.

Lesson 180. *Mechanical Contrivances.*

The best machines cannot be made to act of themselves; power must be applied to them. The power employed is labour, wind, water, or steam. A grindstone is turned by a man, a windmill is moved by the wind, a steam-engine by steam; when the power is no longer applied to the machine it is at rest.

第一百七十九課 螺絲及轆轤論
螺絲多用于夾盤以左右旋轉而上下之。螺絲線乃其凸起之邊纏繞于周身者也。若其線密則較線疎更易轉。轆轤用以起重物。有索一條穿在其上。索行則轆轤與之同轉。

第一百八十課 工匠機謀論

機器雖至妙亦不能使自行必用勢力以動之。所用之勢或人力風水。不一。卽如磨刀輾石乃用人手以轉之。風磨用風。水磨用水。火動機器則用蒸是也。倘勢力不再發則機器自止矣。

SECTION XXIII.—OF THE SENSES.

Lesson 183. *The Sight.*

We have five senses, seeing, hearing, smelling, tasting, and feeling. The organ of sight is the eye. By means of the eye, we discern the colours and the forms of objects—the sun, the moon, the stars, the blue sky, the green grass, and the gay flowers. One who cannot see is blind. The blind are much to be pitied.

Lesson 184. *Hearing and Speech.*

The organ of hearing is the ear. By means of the ear, we hear noises, and music, and speech. Children learn to speak by imitating the voices of others. Those who have never heard are dumb. The dumb cannot speak because they can not hear. They make known their wants by pointing to objects, and by signs.

Lesson 181. *Applications of Mechanical power.*

Machines save labour and time; a hammer to drive nails is better than a brick or a stone; a grindstone is better than a flat stone to put an edge on a chisel. A saw is superior to an axe for cutting a log of timber into boards, and moreover it prevents waste. The saw-mill cuts better and faster than the hand-saw.

Lesson 182. *Mechanism in Nature.*

Mechanical contrivances are seen in the structure of many animals. Our limbs are levers with power of motion. The arch of a bridge is formed of wedges, so is the arch of the human foot. The teeth of animals are cutting instruments. Some insects have screws and piercers with which they can pierce wood or stone.

第一百八十一課。匠器勢力之用論。

機器力省時。如用鎚打釘，勝于磚石。石磨鑿勝于石塊。用鋸界木為板，勝于斧，且不費料。鋸磨則又巧捷于手鋸也。

第一百八十二課。工藝之見于天

觀于生物之體格，其機謀多矣。人之四肢是即舉物器類，兼自具振動之勢力者也。橋拱乃用尖口相逼而成。人足之拱亦若是。生物之牙，即切斷之器也。蟲類中有具螺絲鑽嘴，用能穿刺木石者。

第二十三篇。五官論。

第一百八十三課。眼官論。人身有五官，所以司視聽聞嘗覺者也。司視者目也。人有目則見物之顏色形狀。日月星宿蒼天青草美花，無不了然在目。目不見謂之盲，盲者甚可哀也。

第一百八十四課。聽與言論。司聽者耳也。人有耳，可聽物聲。音樂人言，兒女聽人言而效其聲，遂漸學言。耳不能聽者，則為啞。啞者之不能言，以不能聽故也。其有所須，則指揮使人會意而已。

Lesson 185. *The Taste and Smell.*

People taste with the tongue and palate, and they smell with the nose. The taste and smell help us to discern what things are proper for food, and what are improper. Some flavours are very distinct. For instance, vinegar is sour, gall is bitter, veal is insipid. So with smells; some substances have an agreeable smell, and others are unpleasant.

Lesson 186. *Feeling or Touch.*

The organ of touch is the whole skin, and especially the fingers and tip of the tongue. We learn whether objects are hard or soft, rough or smooth, warm or cool, damp or dry, sharp or blunt, by feeling. We speak of feeling also with reference to the mind. Thus when we have a headache, or are cut, or struck, or burnt, we feel pain. When we are at ease, or have agreeable sensations, we feel pleasure.

第一百八十五課。嘗與聞論。司嘗者，舌與腭也。司聞者，鼻也。嘗味聞臭，乃使人能別物之合食與否也。物味有甚相異者，如醋酸、膽苦、牛仔肉淡之類。物臭亦然，有香有穢。

第一百八十六課。覺論。

司覺者，全身之皮也。指與舌尖尤甚。人既覺物，則知其硬軟、粗滑、冷煖、燥濕、利鈍。覺字亦可言心情，如頭痛、身割，或受打、被火燒，皆曰覺其苦。身子平和暢快，則曰覺其樂。

Lesson 187. *Use of the Senses.*

The senses are not confined to man, but also exist in other animals. The horse learns to know his master, the dog follows the scent of the hare. Animals refuse to eat what their smell disapproves. Man obtains most of his knowledge by means of the senses. He thus acquires ideas which language enables him to express.

Lesson 188. *Health.*

Health is sustained by food, but people who eat and drink too much destroy it. Health is promoted by exercise; but those who work too hard, or take too little exercise, cannot enjoy health. Air and cleanliness are essential to health; but those who live in impure air, or who indulge in dirty habits, cannot be healthy.

第一百八十七課。五官之用論。

五官非獨人有，生物皆然。馬辨識其主，狗聞鬼而逐之。生物嗅不合食者不食。人之見識多從五官而得。意生于心，後發之于言。

第一百八十八課。身子安康論。

飲食既足，則身子安康。若過于飲食，則壞其身。閒遊有益于安康。若作工太苦，或懶于閒遊者，則安康損虧。人身之安康，亦賴天氣及淨潔。若所居氣穢，或習俗污垢者，則不得安康。

Lesson 191. *Death.*

The senses do not act in a dead body. During life the soul is in the body, and the body is sensible. At death the soul leaves the body, and the body becomes insensible. The body and soul together constitute a man. The body is visible, but the soul is invisible. The body is mortal, the soul is immortal.

SECTION XXIV., ATTRIBUTES OF GOD.

Lesson 192. *Eternity of God.*

God created all things. The heavens and the earth, the sun, the moon, and the stars;—even all things that are in the universe, were created by him. There was a time when the only being that existed was God. All creatures fade and perish; but God exists for ever. He is from everlasting to everlasting; He is ETERNAL.

Lesson 189. *Bodily Defects.*

Some people are blind, others deaf, others are humpbacked, others lame. Some squint, others have clubbed feet or hands. Some men are so tall that they are giants, others are so short that they are dwarfs. People ought not to be either mocked or reproached for their bodily defects. Let us rather pity and help them.

Lesson 190. *Diseases.*

When every part of the body acts properly we are in health. When some part does not act properly we become ill. Sickness is occasioned by excessive labour, by want of proper food, by breathing bad air, and by unhealthy occupations. Diseases that are communicated from one person to another are called contagious.

第一百八十九課。身子玷缺論。
人生于世，有瞽者，有聾者，有駝背者，跛脚者，斜眼者，有手足彎曲者，有身長名偉丈夫者，有身短名矮仔者。若身子玷缺者，人不可欺詈他，更宜恤助他。

第一百九十課。疾病論。

若身之百處，功用合宜，則身見安康。若有一處施為不合者，則病生。用力太勞，飲食不好，吸氣污濁，日業損神，皆所以致人于病。疾可染過人者，謂之瘟病。

第一百九十一課。死亡論。

身既死矣，五官無為。生時，靈魂于身內，若物有觸，身必覺動。死時，靈魂離身，而身不覺不動。身子與靈魂配成一人。身可見，靈魂不可見，身可死，靈魂不可死。

第二十四篇。上帝體用論。

第一百九十二課。上帝永在論。

上帝創造萬物，諸天與地，日月星辰，即宇宙內凡所有者，無不受造于上帝。有一時，上帝而外，別無所有。受造者皆可衰滅，而上帝恆存。其始無始，其終無終，蓋永在者也。

Lesson 195. *God Every-where Present.*

All things are kept in being by God; things in heaven; and things on the earth. He is the Preserver of the universe; and He is everywhere present at the same moment. Wherever we go, we may say, "God is in this place;" and whatever we do, "Thou, God, seest me." He is EVERY-WHERE-PRESENT and ALL-SEEING.

Lesson 196. *God All-Wise and Good.*

The WISDOM of God is seen in the skill displayed in creation; and his GOODNESS in making all things for the happiness of his animate creatures. The wonderful structure of the human body, the constant supply of food and raiment, the changes of the seasons, and the wonders of the heavens, declare to us, that God is ALL-WISE and GOOD.

Lesson 193. *God Unchangeable.*

Flowers are beautiful, but they fade; animals become feeble and die. Mankind are continually changing from infancy to old age; and all things change. Some people weep to-day, and rejoice to-morrow; some are rich to-day, and poor to-morrow; some are in health to-day, and dead to-morrow. God alone NEVER CHANGES.

Lesson 194. *God Almighty.*

Kings are mighty among mankind, but God is mightier than the mightiest kings. Men can build strong towers, but they cannot create matter; they can perform skilful works, and make curious things, but they cannot give life, sense, and intelligence, to the things which they make. God alone can do all things; nothing is impossible with Him. He is ALMIGHTY.

第百九十三課。上帝無更易論。花雖華美，不免枯謝。生物漸弱漸死。人類自幼而老，常有更易。物概皆然。時變其勢。人或今日泣，明日樂。今日富，明日貧。今日壯盛，明日死亡。獨有上帝全無更易。

第百九十四課。上帝全能論。

人中惟君為能，而上帝能于至有能之君。人能建固臺而不能創物質。能作巧妙之工而不能以生命靈覺智慧賦于所作之物。獨上帝能作萬事，無所不能，故為全能者也。

第百九十五課。上帝無所不在論。

上天而下地，萬物皆賴上帝而保其有。上帝保存宇宙，同一時而無處不在者也。吾人不拘何之，可曰上帝在此，不拘何作，可曰上帝鑒我。上帝無所不在，無所不見。

第百九十六課。上帝全智全恩論。

觀造化之巧妙，可悟上帝之智。觀萬物之備造，以供靈物之福，可悟上帝之恩。人身之妙造，衣食之常給，四時之迭更，穹蒼之異象，斯皆明彰上帝之全智全恩也。

Lesson 197. *God Perfect.*

Men have defects of the body, of the senses, and of the mind. All men have faults, follies, and sins, of some kind or other. The best men that ever lived had their faults and defects. God alone is PERFECT. The works of man may be improved, but no works of God can be improved; for "His work is perfect."

Lesson 198. *God Just and Merciful.*

God wishes men to avoid evil, and to do right. He encourages those who have done wrong in striving to do right, by being more ready to forgive than to punish. Those who continue in sin will be punished hereafter, because God is JUST, but those that turn to him, with purpose of heart, will be rewarded, because God is also MERCIFUL.

第九十七課。上帝純全論。
人身之百體、五官之功用、心靈之
想念、皆有失錯。人類于疵病、癡愚、
罪惡、莫能盡免。互古以來、人生之
至善者、亦有過不及之處。惟上帝
無所不全。人之所作、可以加善、而
上帝所作、不容加善。如經所謂、其
工純全。

第九十八課。上帝公義慈悲
論。

上帝願人避惡而行善。其捷于赦
緩于罰者、所以勸人心、勉之去非
從是也。人若恆于為惡、後必受罰。
上帝公義故也。惟若堅心悔歸、則
將得賞。上帝慈悲故也。

Lesson 199. *God a Spirit.*

There is only one God, and no man has ever seen him; He is invisible, and has no bodily parts like man; He is a SPIRIT. We can know but little of this Great Being. We can see His works, and feel gratitude to Him for his goodness, but we cannot fully understand how Great, Wise, Merciful, and Good He is to his creatures.

Lesson 200. *God to be Honoured.*

It is our duty to HONOUR God at all times, and in everything we do; to think, to speak, and to do, what is just and right, and avoid all that He forbids. We honour God when we love Him with all our heart, and all our soul, and all our strength; and when we love our neighbours as ourselves.

第九十九課。上帝乃神論。

上帝惟一、未有人見。其無形可觀、非如
人之有身。蓋乃神惟靈者也。上帝至尊、
吾人止識其萬一。其所造之物、可睹而
知、其所賜之恩、可覺而感。惟其尊大、智
慧、慈悲、恩德、無限無量。吾人不能盡
曉也。

第二百課。上帝宜恭論。

吾人之分、不拘何時何事、凡有所作、悉
當致恭于上帝。所想、所言、所行、皆應公
正。遠諸上帝所禁之事。若盡心、盡靈、盡
力愛帝、兼愛人如己、是則恭上帝也。

跋

西儒理雅各先生，耶穌教會之牧師，英華書院之教授也。余自甲寅歲，忝居西席，得與日夕討論，洞悉先生之為人，其生平以主道為依歸，以誨人為樂事，每於傳道課徒之暇，輒手不釋卷，先生其真學不厭，而誨不倦者歟。茲譯有智環塾課一卷，以授生徒，其中自上帝之體性功用，以及所造之天文地理、人事、服食、器用，與夫一切飛潛動植之物，罔不悉載，卷中將英唐文字，分列上下，俾學者開卷了然，足以增廣智慧，固不僅為學語之津梁已也。

丙辰冬西樵任瑞圖氏識

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