Tso Chuan 春秋左傳 supply ample evidence for this. We learn from these books that below the chiao ( for 12500 families ) , the hsu ( for 2500 families ) and the hsiang ( for 500 families ) handed down from earlier times , was created the small school shu 塾 for 25 families . While above them were established the p'i-yung 辟雍 and the kung - pan 宮泮 . The shu was of necessity limited in size and facilities, but very appealing to the population it aimed to serve. The p'i-yung was situated in the Imperial Palace itself, and often used as the court at which the Emperor received the high officials in audience. What is now called a university was then known as the P'i-yung. Here the Emperor and the princes as well as the most brilliant scholars selected by the Minister of Education were edified. The Head of the college was the Principa' 大樂正 assisted by the Great Tutors, the Small Tutors, etc. The courses centred on music and rites, "taught in Spring and Autumn ", followed by poetry and prose, " taught in Winter and Summer ". It is obvious, therefore, that, more emphasis was placed on the cultivation of a good nature and character than on the assimilation of knowledge.

To all appearances, there existed already some well modelled and organized educational institutions by the time of Chou, and education was within the popular reach; but that was not so . Most of the so called "schools" had no exclusive, permanent premises of their own but carried on tuition work in buildings serving a manifold purpose. Admission into these institutions was perhaps by very strict selection and people of the poorer stock probably thought it more profitable for themselves to send their children to the field than to the class. Anyhow, the path was paved for that very great teacher of the Chinese race, Confucius, who a few centuries later did much to popularize education for all ages and made teaching a profession.

and Huang Ti 黃帝 taught the people fishing, farming and building construction, but no formal teaching in an established institute was then possible. This came later in the reign of Shun 舜 , who, mindful of the welfare and behaviour of the people, commissioned the official Ssu-Tu 司徒 to set up schools. These were called hsiang 痒 and divided into two levels——the upper and the lower. The courses offered were of narrow and primitive scope and nothing more than the understanding of human relations, the worship of gods and the knowledge of music in its widest sense. For economical and practical reasons probably, the schools did not have their premises solely for educational use, for they also served as homes for the aged and parts were reserved for the storing of grains.

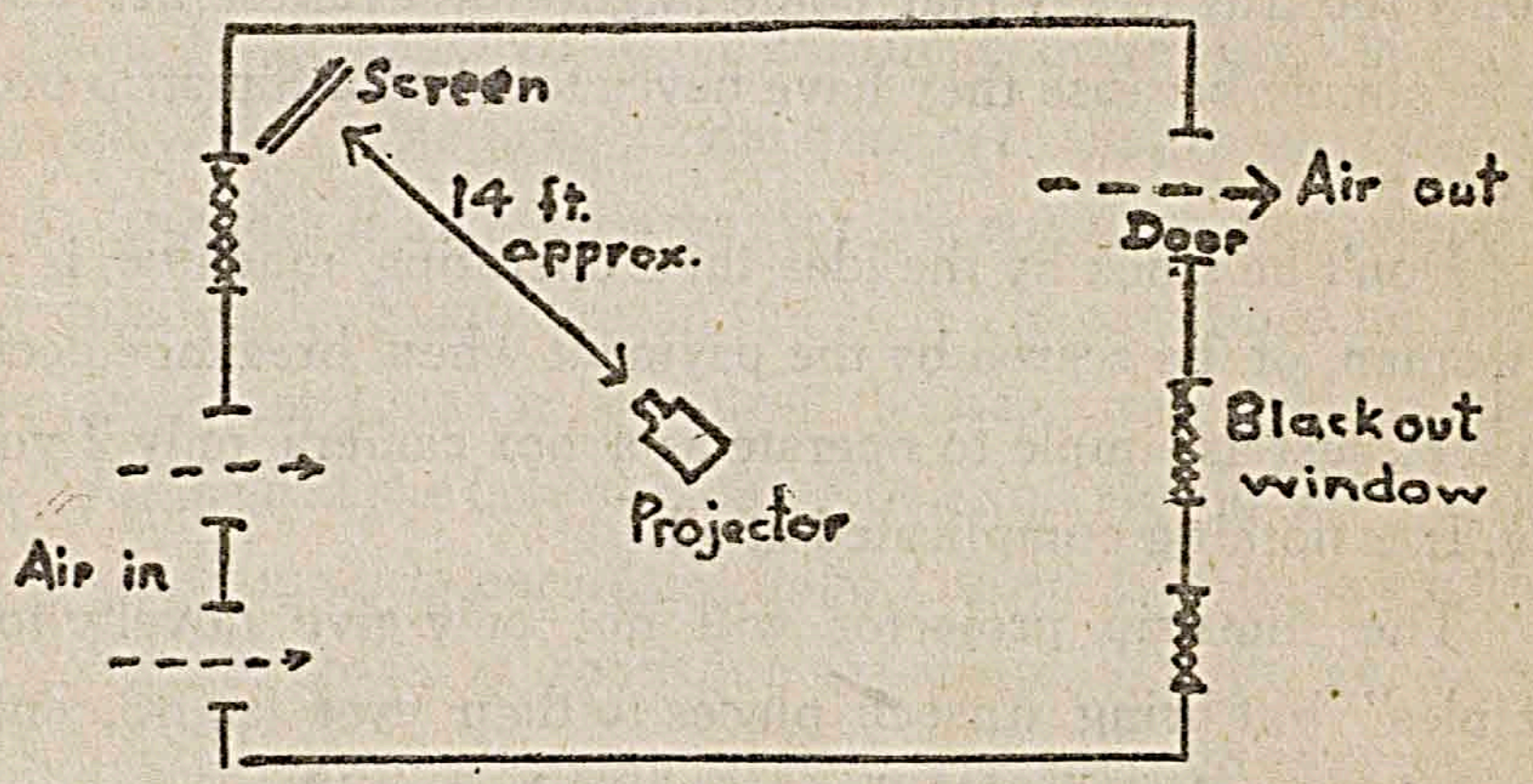
With the coming of the Hsia 夏 era, the schools took on a more mature appearance and were renamed as hsu 序 and chiao 校 respectively, with archery as the main part of the curriculum. The hsu had its east wing and west wing, in both of which elders are said to have been fed and given boarding. Besides being a place for teaching the art of the arrow and bow and for housing the aged, the school had a third use as a venue for the village libation feast. Vivid accounts of which are found in the Book of Songs 詩經 and the Li Chi 禮記 . We are further told that the matriculation ceremony was a very gay one, marked with dancing by ten thousand people wearing masks and holding weapons half resembling the shield and the battle-axe, called the kan 干 and the ch'i 戚 respectively.

The hsu and the chiao carried their tradition into the Shang 商 dynasty, when, however, they became more complex and advanced. Music still dominated the curriculum and it was being taught, we are told, by a blind musician.

The inception of the Chou 周 dynasty saw great strides being made in education. Books like the Li Chi 禮記 and the Ch'un-Ch'iu

has not been shown beforehand. Filmstrip - showing during lesson with the teacher's cammentary on it as a means of presentation is good too; while after-lesson showing serves for recapitulation.

As Mr. Chu Pat Lu said: "Delay not digging your well till you are thirsty", we teachers must dig our "well" and let everything pro. perly arranged when the class-room is empty. We must also preview the filmstrips so that there will not be any interruption in our commentary or in ability to answer wha'soever questions sensed by the children. Setting up the projector requires techinque. I hope the following diagram does help in some way.




This is not much about a filmstrip projector, you will find out more about it when you really come to use it as a teaching aid in you class-room.

## EDUCATIONAL INSTITUTIONS IN ANCIENT CHINA

Education in China is as old as its culture, but it was not till the political structures were firmly set up that the educational institutions began to take shape.

Written history has it that such ancient leaders as Fu Hsi伏羲

# THE FILMSTRIP PROJECTOR

*L. K. L.*

(Based on lectures in the Visual-aid Course at G. T. C-, 1960)

It is heard that by the end of this year every primary govemment school will be issued a film-strip projector together with a Lenticulated (i. e. vertically ridged) screen. This is, of course, news of excitement to some teachers who have knowledge of the great value of it as one of the most remarkable visual aids in the class-room; but it is only too true to say that some might not even bother about it. This is simply because they have never touched a filmstrip projector before.

Don't be stuck by the idea that operating machine is no job of a woman, or be scared by the payment when breakage occurs; it is, in fact, just as simple to operate as a box-camera only if you care to try. It is nothing complicated at all.

The filmstrip projector will not only give novelty to your "disciples" but bring unseen places to their eyes (sight), unknown information to their ears—thus setting abstract idea concrete. It is in valuable in the teaching of nearly all subjects and particularly of Social Studies and Geography.

But, what is the most suitable time for showing the filmstrip to obtain the best consequent result? This merely depends on the teacher's aim, the children's background, and the nature of the lesson. Showing before lesson does achieve the purpose of building up a skeleton which will facilitate association of ideas when verbal discussion is conducted in class. It is a pity, if not a difficulty, for a teacher to create an image of the life of the Chinese, say, 3000 years ago half as clear as it should be if a filmstrip

some ponds no addition of feed and fertilizers is necessary. The pond mud is fertile enough to stimulate the growth of plankton. In other ponds the natural plankton p oduction is insufficient to s pport the whole population of fish Artificial fish food such as vegetables, soft grass, rice bran, peanut cak s and soya bean cake is added. The appropriate amount of food added and the suitable frequency of feeding is very hard to adjust. This is the work of an expert. The sign of water, the movement of the fish and the water temperature tell the farmer what he should do.

## The Market and Future

Hong Kong as stated above consumes more than 400 piculs of fresh water daily. The local production can supply only 5% of the demand. So there is ample market for the culturists to develop. At present most of the production in the N. T. is consumed locally. Unless the Hong Kong market is better, the fishermen seldom take the trouble to transport the fish to Hong Kong and Kowloon. Typhoons are their profit-making periods as import from Canton is mostly reduced. There is plenty of room for expansion, but further development is limited by the shortage of fish fry, and the inadequacy of fresh water supply. It is true that Mullet can breed within Hong Kong Territorial waters and that Common Carps c n multiply in local fish ponds, but for all that this supply is irregular and too small to meet the local demand. Attempts have been made in many parts in S. E. Asia to induce the Carps species to breed in p'aces other than the West R ver and Yangtze. Until these attempts are successful, Hong Kong is dependent for its fry on China, and unless the fresh water supply in N. T, presents no difficulty, great expansion for this culture in N. T. is mostly unlikely.

bottom feeder, and is reg rded by the N. T. natives as one of the best for dish.

The Mud Carp (土鯪魚) another species of bottom feeder. It never reaches a bigger size than two pounds. So this species can be crowded in a pond. Floating ovens have to be used when water temperature drops below 40 degrees F.

The Common Carps (鯉魚) is a partial bottom feeder feeding on insects and organic detritus.

The Grass Carp (皖魚) is characterized by its herbivorous habit and its rapid growth. It lives in the middle layer. Until recently its spawning ground is believed to be limited to Yangtze and West Rivers, but it has now been found that they also breed in Tone River north of Tokyo.

The Big Head (大頭) and the Silver Carp (銀魚) are surface feeders. Their feeding habits are similar.

The Black Carp (黑　魚) looks very similar to Grass Carp. It feeds on snails and crustacea.

The Beam (扁魚) mainly feeds on aquatic insects, worms and small fish.

Now it is obvious that different species feed on different food and live in different layers. Their association in the same pond is harmless After rearing 3 or 4 months the bigger ones are separated into another pond, so that more room is saved for the smaller ones. The transference into another pond often incurs mortality, especially in the removal of Mullet fingerings.

The feed applied to the pond is of two kinds. One is to be eaten directly by the fish and the other serves to stimulate the growth of planktons and other small organisms, upon which the fish feed in turn. The surface feeders graze directly on the planktons. The bottom living ones subsist on the rains of excreta from the surface. In

pond. Too remote means high cost of transport. In such case the mud is used for bunging the bank.

Theoretically a pond should be drained once in one or two years and deepened its bottom to its original depth. Exposure of the bottom to the sun is very desirable as the rays are germicidal. However, the costly rental, the difficulty of refilling the pond, and the non-productivity in the draining period make such practice unpractical. The farmers, however, devise various methods to deepen their ponds without losing any water.

## Fish Fry

The commonest fish reared in Hong Kong are Mullet, and various species of carps. With the exception of Mullet fries which can be obtained in Hong Kong territorial waters, the supply of fries of other species is very much dependent on main land China. The East and West Rivers are the chief source areas. The supply of fries, including the Mullet fries is far from being regular. Most of the ponds are stocked to only 75% of the capacity. The Mullet fries are caught in the waters near Ching Lung Tau, Tai Lam Chung, and the closed area at Sha Tau Kok.

## Feeding and Stocking

The fishermen know by experience the optimum number of fish to be stocked in his pond. Different species of Carps and Mullet are reared together. Fortunately different species live in different layers and feed on different food. So they usually live in harmony with one another. The following is just a short description of the feeding habits of different species:-

The Mullet (烏頭) is the most popular species. It feeds on organic matter or small creatures in the mud at the bottom. It is a

they encounter different difficulties such as the problems of water supply, the high cost of the feed, the irregular supply of fish fry, the high fatality in transportation, and the high cost of rent. However, they endeavour the keep and develop their industry.

## Fish Pond

There are two types of ponds. Those near the Deep Bay and the creeks emptying into it are usually brackish, but the salinity is very low. Those situated farther away near the hills and obtaining water supply from nullahs are fresh water ponds. The recently established ones are nearly all brackish because the salt in the subtratum and in the banks has not been completely dissolved away. Low salinity has no adverse effect on the growth of the fish. Grass Carps and Mullets in ponds slightly salty tends to be free from their parasites and are more healthy.

The ideal place for evacuating a fish pond is a depression near a river or nullahs. The cost of establishing a cultivated pond is tremendous for the average farmers and varies enormously with its location, the depth desired, the size of the pond. Most of the ponds in the New Territories are under eight feet deep. For rearing fries a depth of 2 or 3 feet is appropriate but for raising bigger fish the deeper the better. Over deepening, however, is a defect. Oxygen is generally inadequate below 12feet in summer. Usually one side of the pond, especially the northern side is deeper. The deeper side provides a refuge for the fish in time of drought when the northerly wind blows in winter. Low temperature does not affect adversely the growth of most of the pond fish, except perhaps the mud Carps which die if temperature drops below 40 degrees F. The pond mud is very fertile for gardening but whether there is a market or not depends on the locality of the

from a paddy field to a fish pond requires a tremendous capital. Besides the problems of drainage, fresh water supply must be solved. This culture is an expert's work. The farmer must have profound knowledge of the habits of the pond fish. He must be able to read the signs of water in the pond because they mean very much to the health of the fish. He must be able to judge the amount of feed needed, because overfeeding means waste or even death to some species and underfeeding mears no growth. He must be able to judge the appropriate numbers of different species to be stocked in one pond, because over-crowding retards the growth of the fish. He must be able to adjust the level of the ponds in typhoons and heavy rain. All these techniques are not to be acquired in one day. So this industry, like many other agricultural industries, is hereditary. The rice farmers no matter how admiring they may be cannot do much in conversion.

The sign ificant features in the fish pond culture in the New Territories are the systematic farming of brackish water pools and the successful cultivation of Grey Mullets (烏 頭) in the same pond and in company of several species of Carps. This is a new technique and has only been practised for less than 30 years. It is new even in the history of fish culture in China which has record evidence dated back to 475B.C. In Kwangtung many districts along the West, the East and the Han (韓) Rivers are famous for their fish culture. In some places along these Rivers over half of the land surface is under fish ponds. It is from these districts that Hong Kong obtains its major supply of fresh water fish and fish fry for stocking the ponds in the New Territories. It is also from these di-tricts that the art of piciculture spreads to Hong Kong and to South East Asia. Most of the picicul urists in the New Territories are natives of the districts along the East and West Rivers. Even though the practice of the culture is the same,

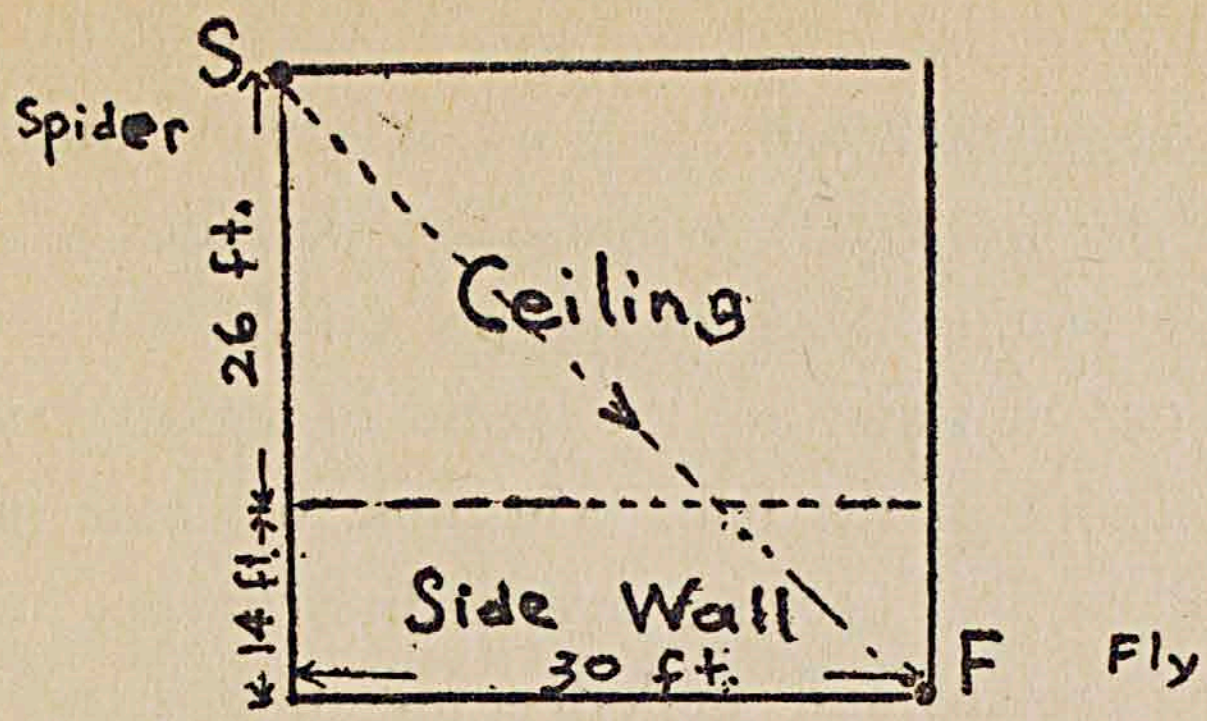



FIG. 2

The shortest possible route is therefore 40 feet in length and the spider crawls over the ceiling and down the opposite side wall or, of course, the corresponding route down the side wall and over the floor.

# PICICULTURE IN THE NEW TERRITORIES

*Kwan Ki Tai*

## Introduction

Over 90% of the fish ponds in the Colony are concentrated in the N.W. of the New Territories. Piciculture among all branches of agriculture in the New Territories seems to be the most profitable in the recent years and the easiest pursuit. The enormous local market which consumes about 400 piculs of fresh water fish daily, and the limited supply from the New Territories about 20 to 40 piculs a day give the farmers great stimulant to increase their production. There is plenty of room for expansion of this culture. Since 1950 there has been yearly increase of acrage under cultivation. The area devoted to this culture is about 520 acres.

Piciculture is a leisurely job. The pond farmers can take up secondary work. The rice producers in the New Territories are not unknown to the advantage of this culture but the conversion

outer coins must subtend an angle of sixty degrees at the centre of the inner.

(4) There are four intervals between the strikes of 5 o'clock and 8 intervals between the strikes of 9 o'clock. So the clock will take twice as long to strike 9, that is 10 seconds.

(5) It is quite sure to say that

$$1x0=2x0$$

but is clearly not permissible to divide both sides of the equation by zero to come to the absurd conclusion 1=2. This is exactly what has put down there. At the beginning x is put equal to y, and later the equation is divided throughout by (x−y) which itself is equal to zero.

(6) The spider has the wisdom in collapsing the room and reducing his shortest crawling distance to a straight line.

By collapsing the end wall, as shown in fig. 1, the spider calculates the shortest distance by this route to be given by

$$SF^2 = (30+14)^2 + 26^2$$
$$= 2512$$

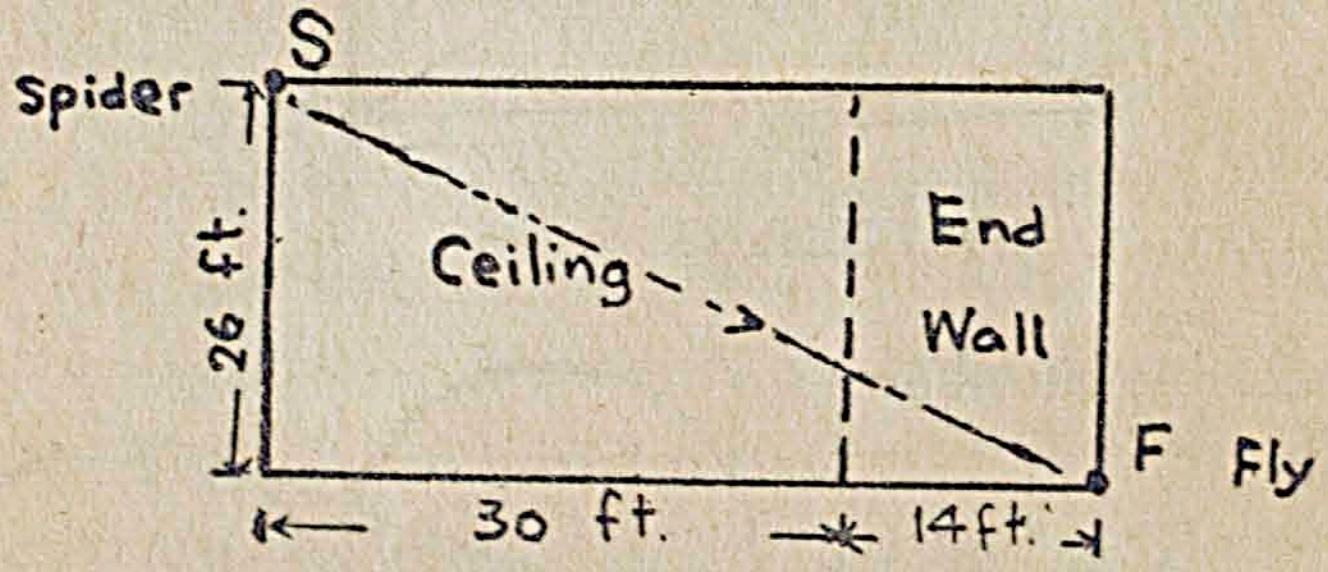



FIG. 1

By collapsing the side wall, as shown in fig. 2, he can find that $SF^2 = (26+14)^2 + 30^2$

$$= 2500$$

or $x(x-y) = (x+y)(x-y)$.

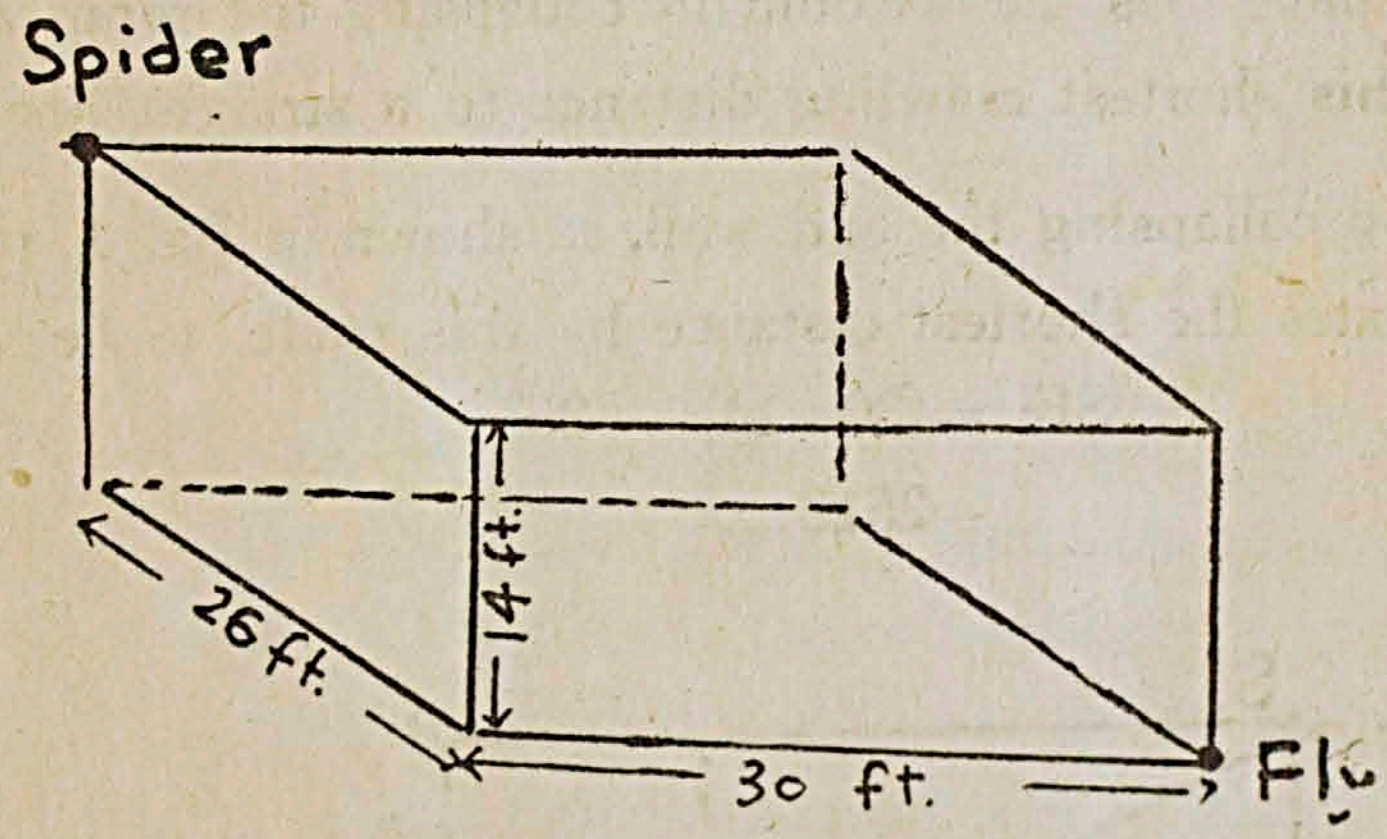
Dividing both sides by $(x-y)$, we get

$x = (x+y)$;

or $x = 2x$ since $x=y$

and so $1 = 2$.

(6) A hungry spider is sitting in a corner of a room, which he has found, by experience, to be 30 feet long, 26 feet broad and 14 feet high, Suddenly he catches sight of a fly, sitting peacefully in the extreme corner of the room. The spider in order to satisfy his hunger, has decided to crawl to the unsuspecting fly. This spider is very mathematically-minded for he takes the shortest crawling distance between himself and the fly. How far must the spider crawl to reach the fly?

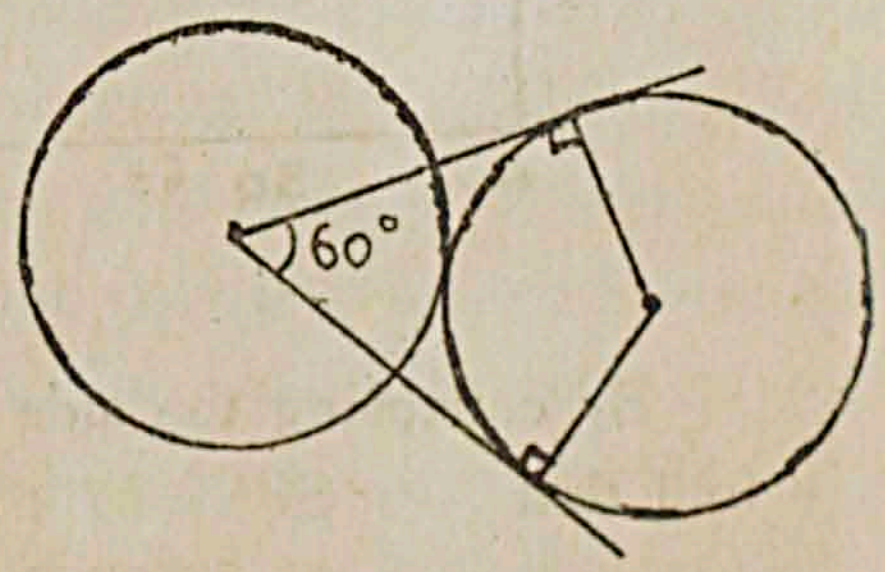



## SOLUTIONS

(1) The small possible number of sheep is 3.

(2) The man needs to take only 4 socks because then two of them must be of the same colour.

(3) Six, because each of the



We are humbly proud to be able to produce for your perusal this little pamphlet. Of course we could not publish anything readable if it were not for the assistance and support from our dear readers. So as editors we offer our most cordial thanks to all who have contri uted and who will continue to contribute their articles and constructive suggestious to the Agora.

## HOW MATHEMATICALLY-MINDED YOU ARE.

*By L.M.B.*

Here are some puzzles that I gathered from different sources. You will find fun in solving them. In order not to spoil your interest, try them before you refer to the solutions.

(1) A shepherd was once asked how many sheep he possessed. He replied: "I have two sheep in front of a sheep; two sheep behind a sheep and a sheep in the middle." Do you know how many sheep this shepherd had?

(2) A man had four pairs of white socks, five pairs of yellow socks and six pairs of red socks. He kept them in a drawer. One night he went to the drawer in the dark to take a pair of socks. How many socks must he take to ensure that he got a pair?

(3) How many 10¢ coins can be placed round the outside of another 10¢ coin, all touching the coin and each other?

(4) A clock takes 5 seconds to strike five. How many seconds will it take to strikes nine?

(5) Here is a proof showing that 1=2 Can you find out the fallacy in the following arguments?

$$x^2 - y^2 = (x+y)\ (x-y).$$

Now let us put $x=y$, so that $y^2 = xy$ and then

$$x^2 - xy = (x+y)\ (x-y);$$

# CONTENTS



# EDITORIAL

Summer, to many people, is a hot and tedious season, but to us as teachers is the most welcome period of the year, for it is a vacation for teachers and students alike. Everyone is refreshed mentally and physically after a long period of relaxation and rest, spending our jolly good time by the seaside or in some other summer resorts and making ourselves healthy and robust. So let us exert our utmost in our profession and next summer will be another well-earned rest.

Summer brings joy to everyone of us and especially to our Chief Eidtor of this Agora, Mr Mak Tit Wah who got married this summer. Let us take this opportunity of expressing our heartiest congratulations and wishing the couple a happy and prosperous married life.

Many of our readers must have been very impatient, awaiting this issue of the Agora. But we have to say good-bye to our dear readers for it is our last issue. The General Meeting of members will take place in the present month and new members for the Executive Committee of 1960-61 will be selected. More 'new blood' will flow in and the Agora will be in better hands.

香港銅鑼灣怡和街八十四號三樓　電話：七八零七八

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