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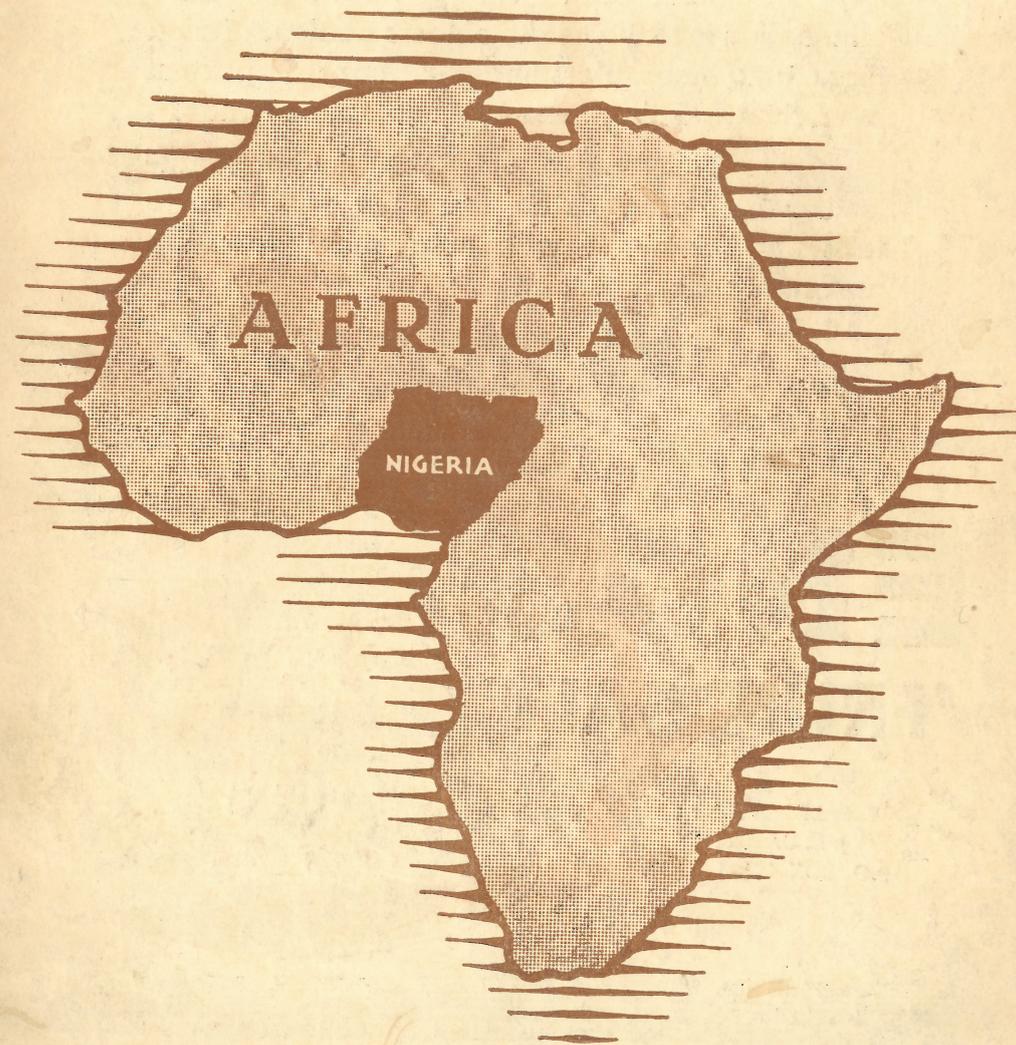
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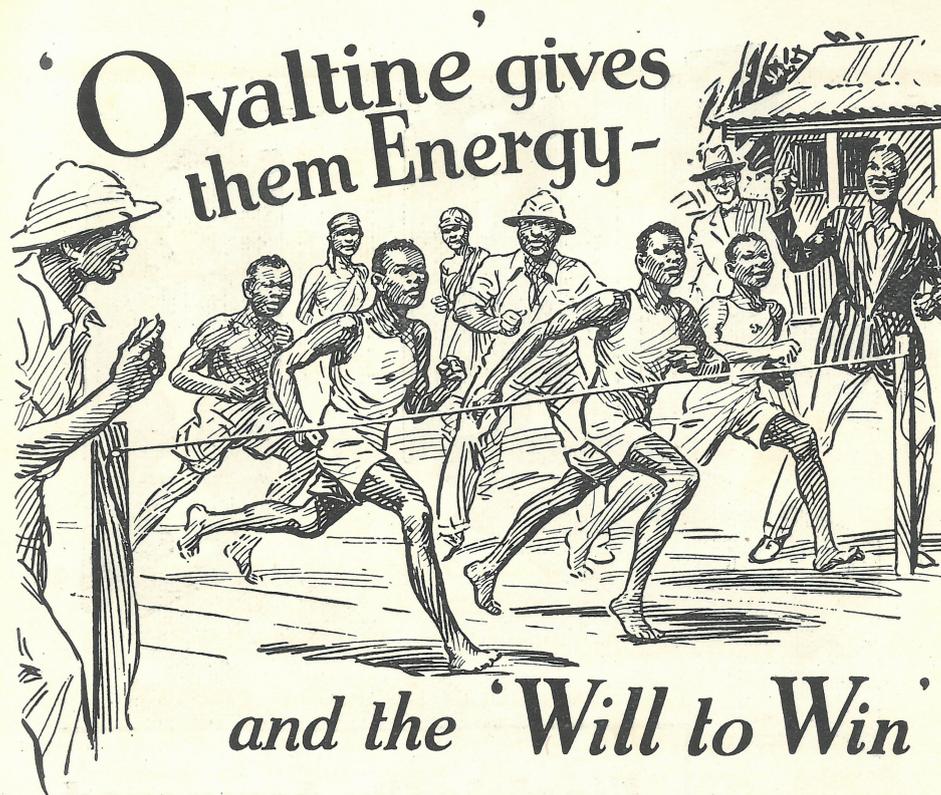
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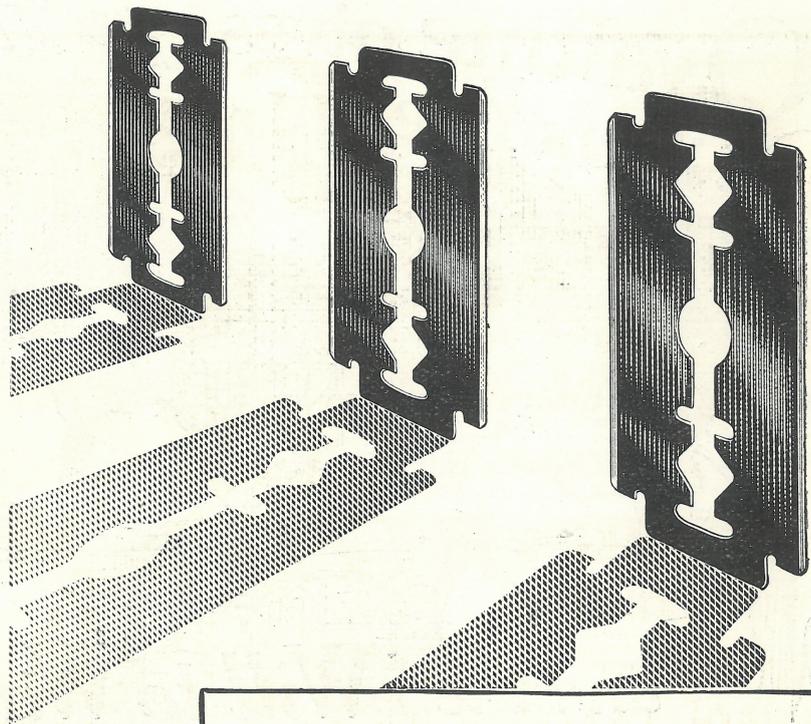
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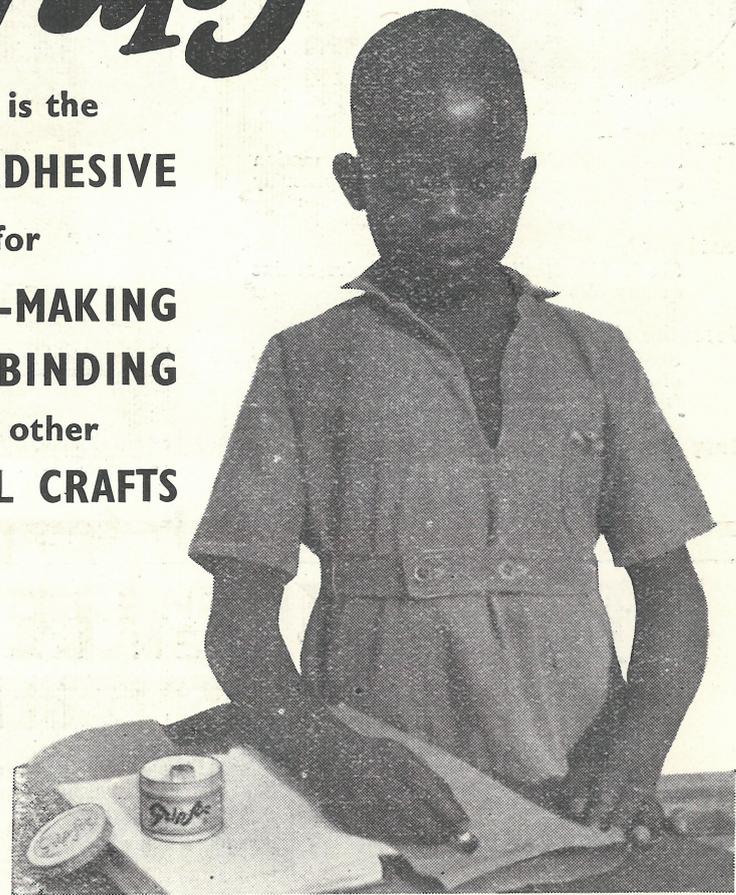
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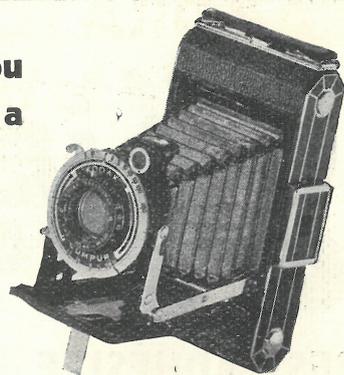


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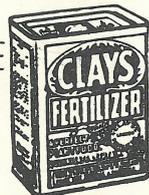
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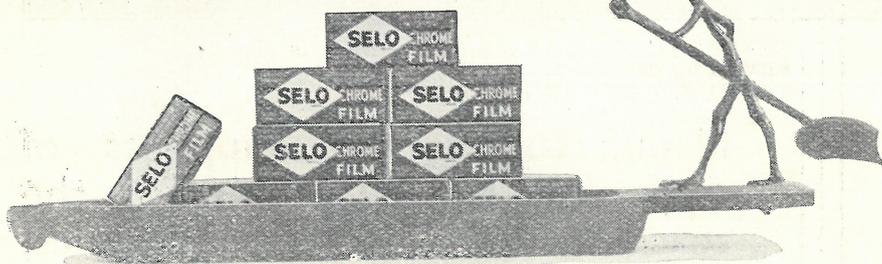
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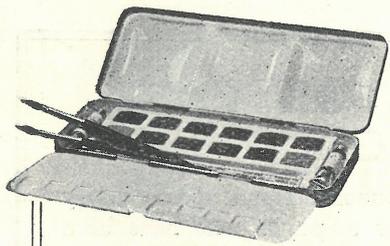
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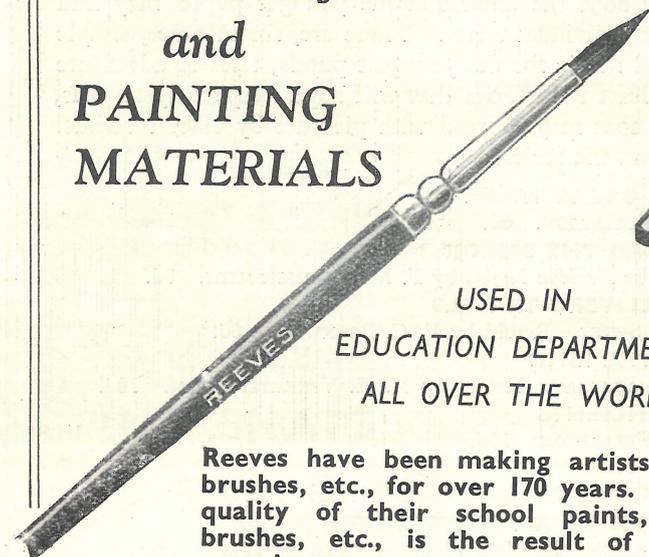
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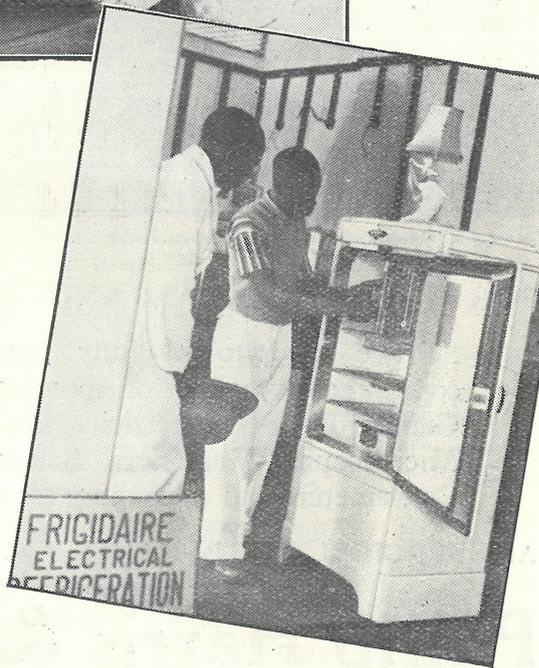
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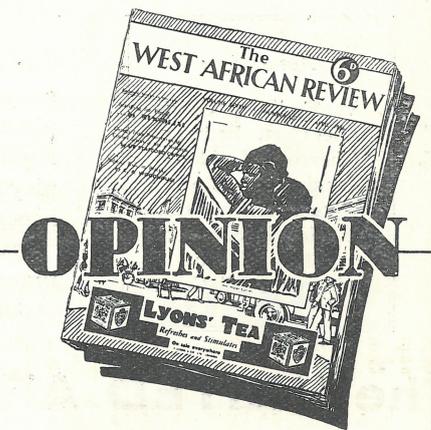
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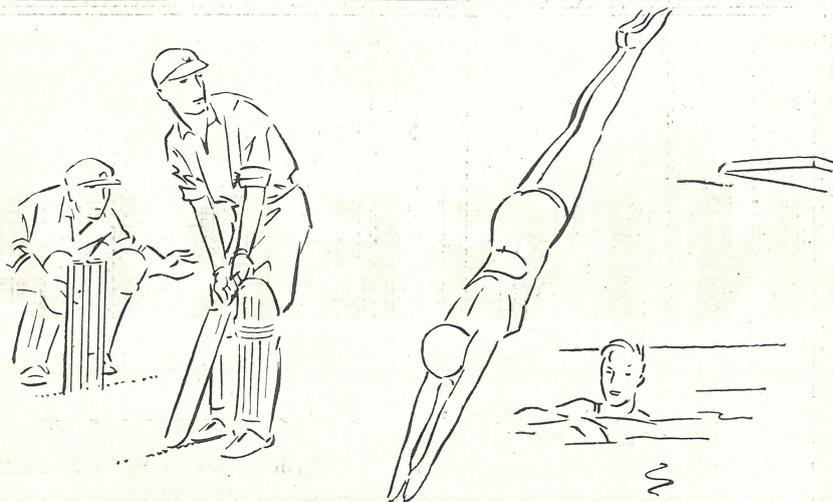
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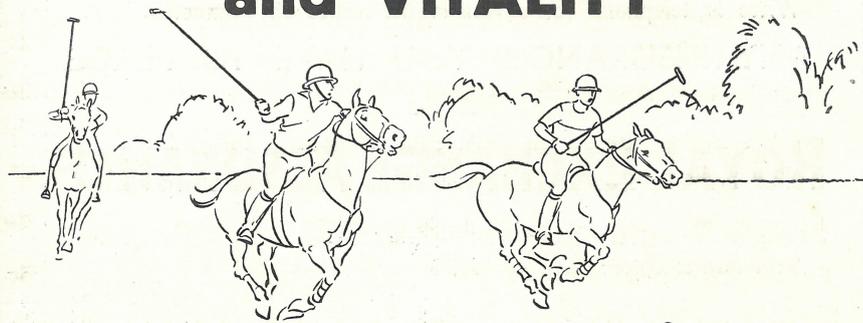
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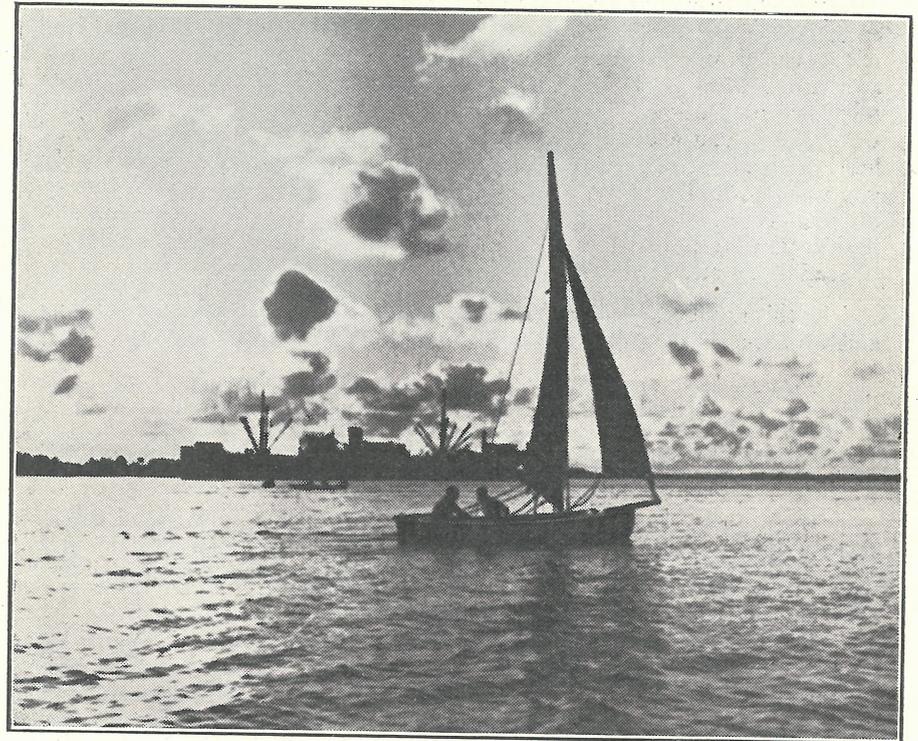
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NIGERIA

No. 12. 1937

This magazine is published under the aegis of the Nigerian Government, but the articles do not necessarily represent official opinion unless expressly stated.



Sunshine and shadow of the sunset, Lagos Harbour.

EDITORIAL

IN this issue we have great pleasure in printing an article on the ancient City of Ife, by Aderemi, Oni of Ife. The Oni takes a very great interest in the beautiful works of art that exist in and around his city, and we are happy to learn that the Ife Native Administration has recently voted a sum of money for the building of a museum.

We hope other Native Administrations will see their way to establishing museums for the preservation of antiquities and for the exhibition of good specimens of present-day art and craft work.

Such exhibitions would help to educate the public and lead them to appreciate the value of their own art for the decoration of public buildings, churches and dwelling-houses. Let us have more church reading-desks, hymn-boards, pulpits and altars decorated by African carvers. Let the carvers and brass workers make carved doors, posts and decorative objects for our Council Halls, Courts and private houses. Let the Ibibio painters of walls come forward and apply their art in our churches and schools and let us hope that in 1938 the furnaces of the brass workers in Benin City will again be lit, and that the craftsmen will find much profit in following the high tradition of their ancestors.

The article by Dr. Gordon Taylor on Patent Medicines should help to enlighten our readers. The following is an extract from *The Listener*, 25th March, 1936, in connection with a wireless broadcast on "A Bottle of Medicine":—

"People usually buy quack medicines because the advertisements are so attractive. They hold out a hope of speedy relief at small cost. Has it ever struck you that in nearly every case a quack medicine is advertised as a cure for not one, but a great number of diseases which are in no way related to each other? But what would you think of a garage proprietor who offered you a liquid which could be used in the place of petrol, of lubricating oil, of furniture polish, and of milk for the baby? Presumably you would call him a fool, or a knave, and certainly not spend your money on such trash. Yet when it comes to that priceless possession, bodily health, you are prepared to risk it in an equally absurd way just because of reading an advertisement!"

In this number of *Nigeria* we print articles on a great variety of subjects and we hope every reader will find something of interest.

We now have many readers in England and elsewhere Overseas. An order for *Nigeria* has even come from far away New Zealand.

We are most grateful to those readers who have helped the progress of the magazine by obtaining additional subscribers.

We suggest that sending a copy of the magazine to a friend might make a pleasant substitute for the more conventional Christmas or New Year card. Don't forget, we are always pleased to supply back numbers so long as our reserve stocks hold out.

Since many of our readers are binding their copies of *Nigeria* we propose making a little modification in the numbering of the pages. Instead of each issue having its own page numbering, as at present, we will start with page 1 in No. 13 and continue to the end of the year with concurrent numbering of the pages in Nos. 14, 15 and 16. This will facilitate the production of an index to each year's set of issues.

NOTES ON THE CITY OF IFE

By ADEREMI,
Oni of Ife.



Left: Head of Lajuwa, a usurper who was the trusted chamberlain of Oni Aworokolokin. He was beheaded after usurping the throne. The head illustrated is modelled in clay. Right: Bronze head of Alaiyemore, Obalufon II, who succeeded his father, Obalufon I, but was expelled by his uncle, Oranmiyan. After Oranmiyan's successful reign, Alaiyemore returned to the throne.

THE last census shows the city of Ife as the nineteenth of the forty largest towns of Nigeria. It was, and is still, the belief of the illiterate Yoruba people that Ile Ife is the origin of the world! Fabulous as this sounds, one is astonishingly impressed to hear from the illiterates the story of its origin, which is identical on all counts with the account as written in the Old Testament. The account of its origin has been preserved and handed down in incantations and magical recitations peculiar to the Ife and other Juju priests.

From researches the modern educated historians advanced the opinion—with which I am in full accord—that the Ifes, or a certain other dominant race, emigrated to this part from the East and, having conquered the indigenous natives of the country, established their rule with their headquarters at Ife. However, the route of the emigrants—owing to lack of writing—is still unknown. The account as related by the illiterate through tradition is the only one available.

In short, Odua, the accepted founder of Ife, was said to have descended from Heaven, charged by the Lord of Heaven to establish the Kingdom of the Earth. The surface of the earth was covered by water, and a five-fingered fowl was sent by him from the summit of the heavens with magical sands under the charge of a priest called Ojumu.

This Ojumo threw the sands while the fowl spread it all over the

earth. By the power and ordinance of God, dry land appeared and Odua, with the reputed sixteen elders and their followers, descended by means of a chain at More quarter, from whence Odua came to live on the present site of the Afin (Palace) which I now occupy.

Orisha, one of the elders, was the maker of men and women by the Power of Divinity and Odua the King. People in those days lived very long. The earliest Onis of Ife were reputed to have reigned each for as long as 200 or more years.

To a critical mind like mine the story is fabulous, and the claim that Ife is the origin of mankind is fantastic. Yet one should remember that Moses, in his Genesis of the World, had to write something mysterious, if not fabulous, about the creation. For example, from Adam to Terah the earliest patriarchs were reputed to have lived so long that many of us to-day would certainly be disinclined to believe the accuracy of the account, *i.e.* Adam 930 years, Jared 962 years, and Methuselah 969 years!

Remember, too, the history of the flood, with particular reference to the Raven and the Dove that Noah sent from the Ark. Are these not all sufficient to show that, in spite of the absence of writings, the Ife or Yoruba people's account of origin is nearly correct. Every nation, judging from several histories, has had something of the kind to say about its origin. Talbot, in his book, *The People of Southern Nigeria*, put it down that the first stream of Yoruba immigrants probably arrived in Southern Nigeria in the Second Millenium B.C., *i.e.* 2000 to 1000 B.C. Other theories were advanced by this great historian. Elsewhere in Talbot's book the theory is advanced that a superior people came to Ife about A.D. 600 to A.D. 1000, and these provided the ruling families among the Yoruba people.

Mr. Ellis, Dr. Johnson and Sir H. R. Palmer, in their respective works, arrived at some deductions regarding the origin of Ife and the foundations of Yoruba land. In order not to weary my readers with argument about the origin of Ife, I stop here and content myself with saying that, at least, Ife is the oldest Yoruba town, founded by the great Odua who was its first King. He at last suffered from eyesight and his eldest son, Ogun, was made Regent and died as Regent of the Kingdom.

The loss of a powerful son, following too closely the death of two other sons, Obameri and Esidale, next below him, made Odua think of sending out his sons to establish kingdoms throughout his realm. To each of them he allotted a crown and sent each out to establish himself as King wherever he could. So these illustrious sons of this great man migrated into the country, each accompanied by as many people as his character allowed him.

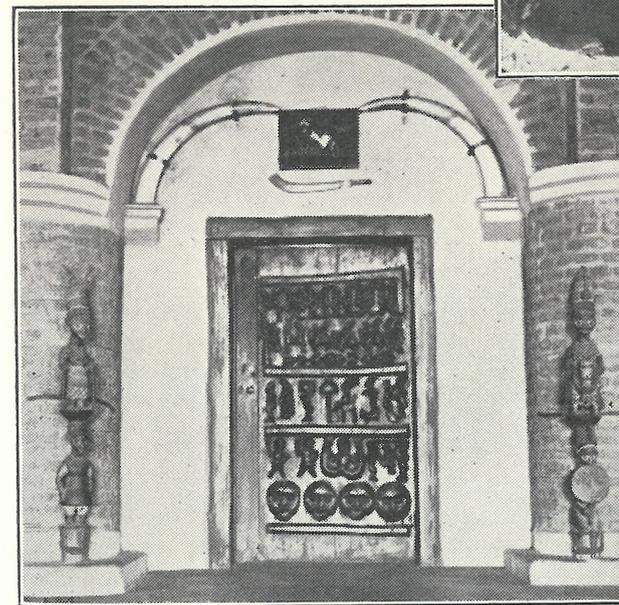
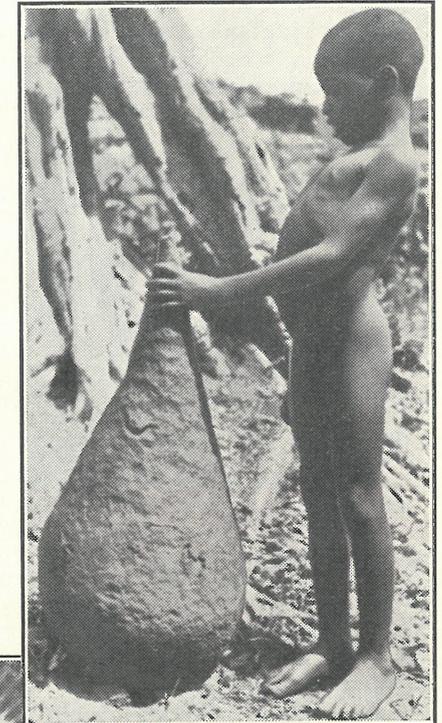
Odua crowned his eldest surviving son as his successor. This son, Obalufon, and Oranmiyan were the only sons of Odua who did not leave the Metropolis after the memorable conference of "Itajero"—"the place of Conference"—so named after their dispersal. Oranmiyan, the youngest son of Odua, remained the ward of his eldest brother, Obalufon, who also inherited his mother. He later grew up to be warlike and famous. He also had the fortune to see on Oyo and Benin thrones his two sons, while he was himself on the throne as the Oni of Ife. These were Eweka of Benin, whom he had left behind at Benin, and Ajaka of Oyo, whom he had left behind at Oyo.

After the migration, the remaining people had to draw closer, for the town, which was about six miles square, was nearly empty. The town was rebuilt, the people in distant places removed to the heart of the town, and the people settled down to normal life of peace and tranquility. Arts

and crafts, which were the most popular industry, then attracted men of noble birth. Ife, the metropolis of the new Empire, grew famous for the beautiful works of art it produced.

To mention a few, there were to be seen in high quarters carved doors with human figures represented on them, riding horses and blowing trumpets, carrying babies on the back, loads on the head or on the shoulder, climbing palm trees, tapping wine or collecting fruits. Others with the King wearing his crown, his chiefs and subjects doing homage, with women kneeling and doing obeisance. Later, in the time of revolution, arts on the doors show the war chief on horseback with revolver in hand, the soldiers with guns, others carrying ammunition-boxes, and war prisoners chained. Artistic wooden posts were to be seen in the houses of the great beside the palace of the Oba. The brass workers were then in the height of their glory, for there were brass posts in the Palaces of the Princes.

Early in those days of peace it was said that the heroes turned into stone at their old age! There was a great secrecy about it all. I suggest that men and women of high position considered themselves, or were considered, too great to die. People who became stone at will were idolised and worshipped after death. Consequently too many objects of worship were in being.



Above: The thunderbolt at the shrine of Ogun Ladi, the founder's special blacksmith. The shrine is at the Afin. Left: The entrance to the Omis reception hall at the Afin, Ife, showing a newly-carved door and wooden posts on either side.

As a result the worship of the supreme God "Olorun," established by the founder of the race, became corrupted. So corrupted had it become that a due study of it from its beginning to its present state would make any serious thinker exclaim: "What a fall from pure religion!" Truly it *was* a fall from pure religion.

At the beginning of the nineteenth century, when the whole Yoruba country was seething with war and turmoil, the artists, the sculptors and carvers abandoned their trade. The majority of these, who were mostly children of noble men, found that the returns from their trade did not provide the standard of living set by the warriors who kept arriving in batches with booty from the theatres of war. The veterans, and the lads too young to go to war, were left at home and so rich and vain-glorious were the plunderers that as each set of lads came of age, they made haste for the slave war expeditions. That was the first blow to peaceful industry.

On the opening up of the country and introduction of legitimate trade, rubber tapping replaced slave-hunting. I was old enough to know how the rubber traders and tappers spent their income. Plenty of gin, seduction of women, and misuse of velvet cloth!

No sooner had the rubber trade died than the cocoa industry replaced it—and the fatal blow fell on the chisel! In rapid succession motor-roads were made through to Ife from Ibadan and Ede, and Ilesha was linked with Ife. The cocoa industry began to flourish. Ife ceased to be dreaded and regarded as the place to which departed the spirits of the dead, who died in the other towns.

Vehicular traffic increased by leaps and bounds, and as a result the many shrines, in the front of which two persons must never meet until almost eighteen years ago, are no more recognised. As I write, the awesomeness of the shrine in the eyes of the people is fast going, while the arts and crafts as a trade can be said to be completely dead.

This is a pity, indeed, but something must be done to bring it back to life; its resurrection is in the hands of the educationists, or a Lord Nuffield or a Rockefeller must be found locally to endow a chair for the purpose in our Odudua College, and to provide a well-equipped and well-staffed trade workshop. For quite long after British occupation, a purely native system of rule was in vogue. Later, the many indigenous courts in Ife and district were abolished and a Native Court was established. In 1917 direct taxation was introduced and Native Administration with a treasury was established. By the establishment of Native Administration the way to Local Government was opened. It may be said that then were its foundations dug. As I write, the foundations are being slowly but steadily laid for the future works of pure and capable Local Government.

There are to-day good motor-roads maintained by the N.A. throughout the districts. Roads to many farmsteads are also in progress. There is a waterworks, and water is plentiful. A Health Unit is in being and doing admirable work. A clinic is working well in temporary premises; its proper building, started a few months ago, is in course of construction. There is a dispensary. Registration of deaths, births and marriages has been started, and so on.

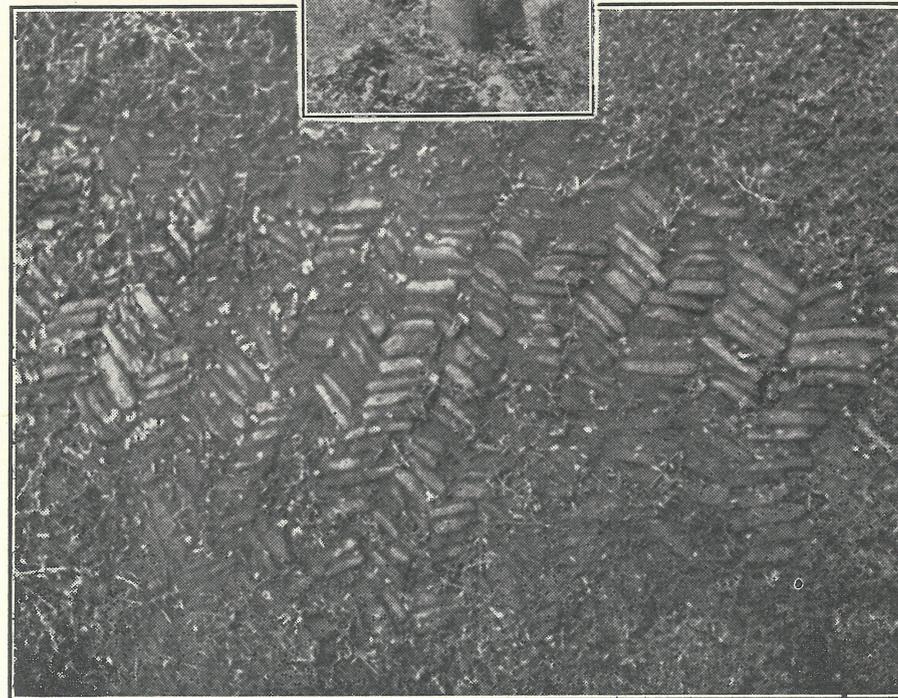
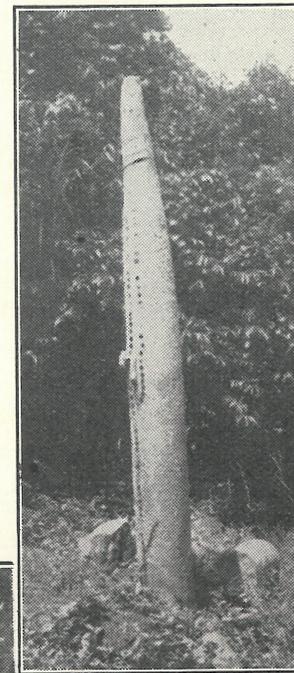
The old Ife chiefs, to whom a few years ago time was nothing, have become wide awake. They and their younger colleagues can be seen daily engaged on one or other of their State duties, those of the right hand in their well-shaped mitre hats and those of the left in their large brim hats.

It is our policy to preserve the best of our Native institutions. Therefore, political societies like the Ogboni, Ogungbe, Ipampa and Emesse freely function. The senior members of the last-named enjoy emoluments under the Native Administration in return for the services they render.

On the whole, the people in the city and in the district are happy and grateful for all the amenities they are enjoying under the new system of Government.

Below: *A small portion of tiled square or street. All principal streets, squares, shrines, and temples were tiled from the earliest times by the Ifes, until the end of a female Oni called Oluwo.*

Left: *The famous Oranmiyan Staff. Oranmiyan was the youngest son of Odudua and was the fourth Oni. This Staff is about 12 feet high.*



THE MAKING OF BROWN SUGAR IN NORTHERN NIGERIA

By MALLAM P. O. ISHAKU,
C.M.S. Boys' Middle School, Wusasa, Zaria.

ABOUT twenty-five miles east of Zaria town there is a little village called Nassarawa. It is not on a main road or railway line, but is very close to Gimi Station, which is one of the small railway stations leading to Kano.

A cyclist takes nearly three hours to do the journey owing to the bad conditions of the road. The first half of the journey is through open country, which is tropical grassland with a few trees here and there. The last half is through fairly dense forest, though of course nothing like so dense as the forests of Southern Nigeria. As one approaches the village one sees tall, green plants with white tassels at the top; these are the plants of the sugar cane surrounding the little village.

The inhabitants, nearly three hundred in number, occupy houses which are built here and there without any definite order. Most of the people are farmers, but the amount of crops produced in a year is far from being sufficient. Because of this, they have to get supplies from the villages round.

The village would have been of no importance whatever had it not been for one peculiar advantage that it has. Just outside the circumference of the wall of the village is a stretch of very fertile land suitable for the cultivation of sugar-cane. Owing to this feature, the place has become one of the centres for the making of brown sugar in Northern Nigeria. Other centres are Kargi and Richifa, two villages in Zaria Province. It is proposed to set up another centre this year at a village called Turawa. It may interest the readers to know that this work is carried on by private individuals and not by companies.

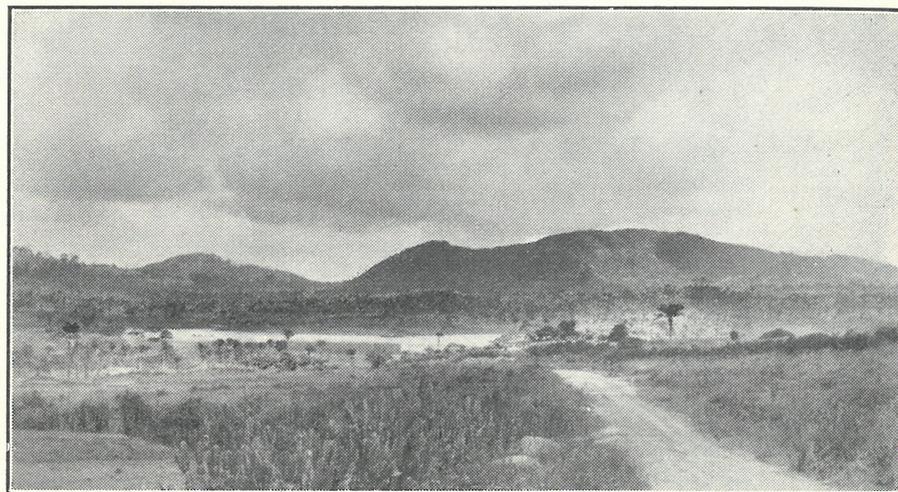
The work is tedious and requires the whole of the day and most of the night. Starting at 7 a.m., work extends sometimes to 1 a.m. the next day. Early in the morning, labourers who are specially employed go out of the village in order to bring back the sugar cane. In order to cut the plant they have to take sharp knives, which look like carving knives. After an hour's absence each labourer returns with a bundle of cane; small boys who are employed in the work then undo the bundles and take each single cane-stick for the purpose of scraping it and making it ready to be pressed.

As soon as the boys have finished the first half of the work, one man brings out a horse and by means of ropes tethers the animal to a long wooden stick which is nailed to the pressing-machine. Meantime, one of the boys sits near the machine in order to put in the cane and have it pressed.

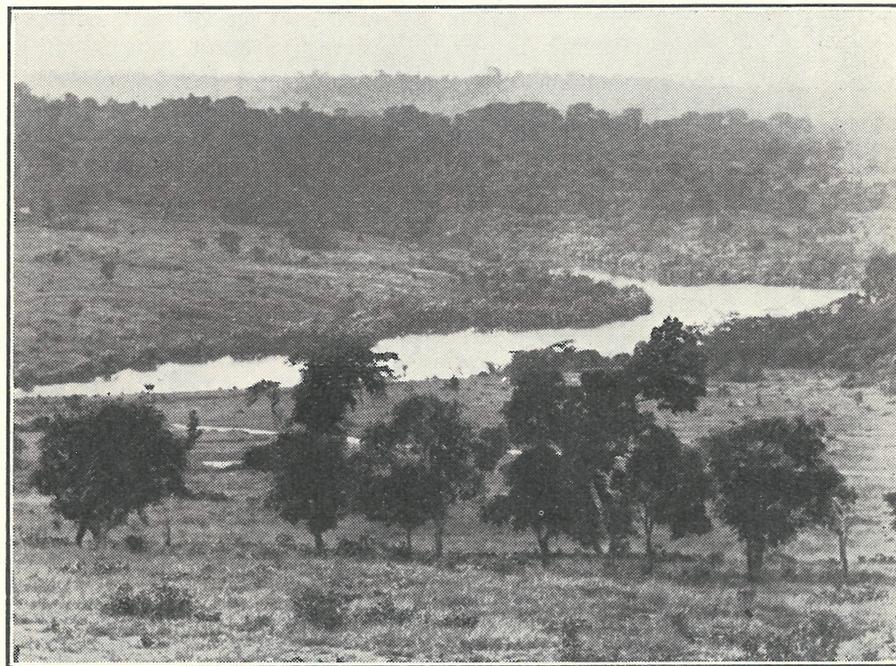
Crack! goes the whip. The work has begun. The horse runs round and round, working the pressers which squeeze out the juice of the cane. The juice is collected in clean kerosene or petrol tins, which are the receivers. As each tin becomes full it is emptied into a native pot which holds about twenty gallons.

The work of pressing goes on, with short intervals for changing horses, until about 160 gallons of the juice are collected. This part of the work usually finishes at 5 p.m.

The next process is the heating of the juice. Heat is provided by setting on fire enormous trunks of trees. Each of the labourers then takes hold of one pot and looks after it, constantly stirring the liquid and taking off the scum that is formed. This continues for a very long time, often



Above: A view of the new Native Administration Water Works at Okene. High rocky hills, open country, and euphorbia hedges are a feature of the landscape. Below: Agulu Lake, near Awka, as seen from the rest-house. This lake is set in beautiful surroundings and the local Ibo people are very artistic. The area is one of great interest to botanists, geologists, and students of art and anthropology.



far into the night, until the liquid in each pot is reduced to a syrupy form, usually about one-quarter of the original bulk.

The syrupy liquid is now taken away and allowed to cool for a short time. It is then placed into dishes, where it solidifies after about twenty minutes. Each dish is tipped over and out comes the brown sugar. It is stored away for the night and the next morning some of it is sold in the neighbourhood and some taken by men or donkeys for consumption in other towns and villages of the Northern Provinces.

ART AND AN INDUSTRY IN AROCHUKU

By Mrs. A. S. ARNOT,
Slessor Memorial Home, Arochuku.



A young woman artist of Arochuku sitting outside her house in the village. She is embroidering a cloth with Uri designs.

THOSE interested in African art can never fail to be greatly impressed by the beauty and variety of design in the old body paintings of Arochuku.

No matter where Aros have settled, these drawings crop out. The women artists of Aro still hold first place in their manipulation of the little pointed stick and the Uri paint.

I have collected Uri drawings for several years and have shewn them to artists and others interested. In every case extreme astonishment was the first reaction, followed by intense admiration and keen curiosity to know more about the designs. While one artist marvelled over curve and line and technique, an anthropologist exclaimed at the boldness

and vigour in the design, revealing extraordinary characteristics.

These Uri drawings are quite distinct from tribal marks. They may have some relation to nsibide—the hieroglyphic characters found in the



This illustration, and that at the top of page 12, is an example of Uri drawing by Arochuku women.

Calabar district—and one authority has suggested that Aro Uri designs may represent the female side of what nsibide represents on the male side.

But whatever the origin or meaning, there is no doubt as to the value of this work as an art. It was with the intention of preventing this art being lost that the collecting was first started.

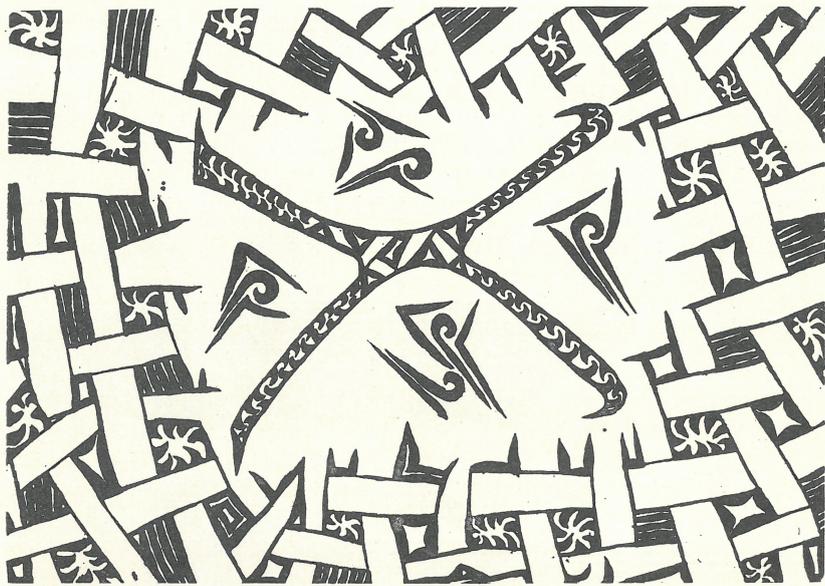
The designs were not only used in body-painting, but were used in decorating buildings and in the carvings found on doors and door-posts.



Examples of embroidery-work by the women of Arochuku. The designs are beautifully-worked on tea-cloths, table-mats and other material like that shown on page 12.

Some of these—not now in their original position—are still preserved in Aro Town.

The idea of using these drawings as designs for sewing has gradually evolved from attempts to create a local industry for women. This industry was started about three years ago, and now over sixty women are sewing and kept supplied with work. To start such an industry a capital of at least £150 is necessary to meet the costs of material and working expenses, and for payment for the work until sales cover these. To ensure success



Above: A further example of Uri drawing as shown on page 10. Left: Table-mats embroidered by the Arochuku women. Note the beauty of the work, which can be purchased by those who are interested.



there must be a steady sale of the work produced—a fixed rate of payment for each pattern, with each worker paid on completion of the work. Fresh Uri designs are sought out and fresh talent is brought to light, and designs may either be reproduced or adapted. Two or three shillings can be earned in a week by a good worker. In 1936 close on £100 was paid out to the women. During 1937 this may probably be doubled.

The first idea, however, was not to produce finely-worked linen, but to start a local production of the cloths women wear. We aim to produce an Aro cloth which, in beauty and value, will equal cloths of other districts. These Uri designs have a significance and a value to the Aro far beyond any a European can appreciate. In making use of them in a way both acceptable and desired by the Aro women the real value of this industry would be proved.

Weaving of Native cotton is done in the Slessor Memorial School, and

the cloth produced is a strong and firm weave of varying widths. When decorated with designs in sewing, this makes very attractive cushions and runners.

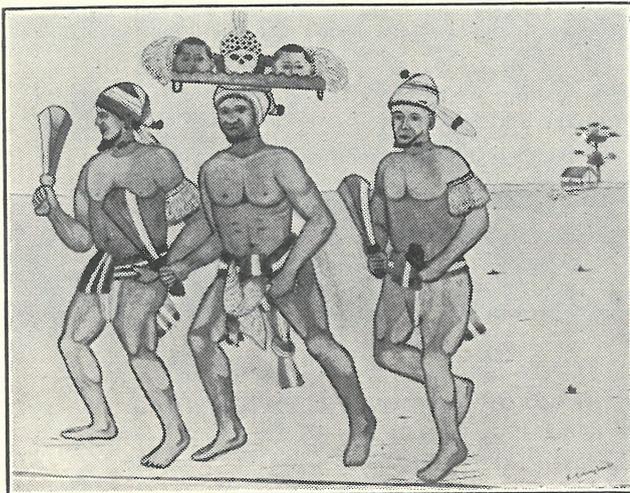
In the illustration a cushion of hand-woven cloth shows a very old design known as "the Snake and Leaf."

No attempt has ever been made to commercialise any of these rare old designs. It would seem a betrayal of trust to hand them over to calico printers or carpet makers—for it is in a very friendly spirit that the old women give them to be used in this Aro industry.

ANYONE interested in purchasing Arochuku work should apply to Mrs. A. S. Arnot for a price list. Her address is: Slessor Memorial, Arochuku, via Itu, Nigeria. The work is very beautiful and quite unique.—EDITOR.

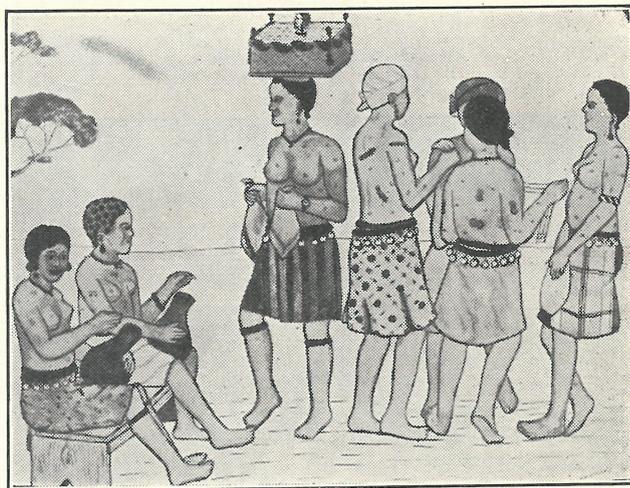


A cushion-case made of material woven in the Vocational School, Arochuku, and embroidered by a woman artist with the old snake and leaf design.



African "War-Dance," Arochuku. Water-colour by E. Okaybulu, a young teacher in the Central School, Church of Scotland Mission, Arochuku. Mr. Okaybulu is a self-taught artist and has supplied the following note to his picture, which is 11 inches by 8½ inches: "The two attendants wear ram's skin and eagle's feathers. The 'oyai' carrier in the centre holds a white cock in one hand. In the centre of the oyai on his head is an old skull, partly covered with leopard-skin and red cloth. The two at either side are imitation skulls of wood."

Right: Girls of Arochuku engaged in a dance—"Ojojo." On the left of the picture (another water-colour by E. Okaybulu) are the musicians beating "udu" pots. On the right is the "Fancy Box" carrier, three dancers and a singer. Below: Specimen of embroidery.



HOW TO MAKE A POWERFUL BLACKSMITH'S FORGE

By BRO. BALDOMIR HERMANS,
Christ the King College, Onitsha.

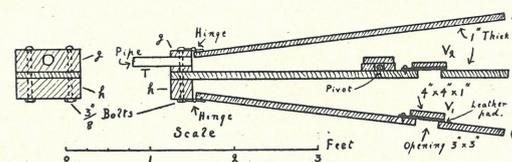
NO workshop is complete without a forge. In fact, we might say that a forge is indispensable. There are always many things to be done which can only be done by means of it—tools to be made and repaired, chisels and such things to be re-tempered now and then. If moulding is to be done you *must* have a forge.

There are two ways of getting a forge; one is to buy ready-made, the other way is to make one. In our workshop the motto is—buy only what you cannot make. There is more of a thrill in making than in buying, and boys are definitely more interested in a thing which they themselves have helped to make.

Lately we were faced with the problem of getting tools for *répoussé* brasswork. These tools can be bought, but they can also be easily made out of old, cast-off files and scraps of hard steel which can be picked up almost anywhere. That is how we came to the decision that we must have a forge; and to have it we decided we must make it.

The making of a forge is not too difficult. In describing ours we do not presume to be original in any way. Ours is simply a pattern of thousands that can be seen in smithies in every part of Europe.

The most important part of a forge is the bellows; so let us first try to tell you how they are made. In the first place bellows seem to have a traditional shape, and we saw no reason for changing it. By means of the accompanying diagrams we can best describe the construction.



Two air chambers are required, one below to take in the air, the other above to force the air into the fire. The air is taken into the lower chamber by means of a valve (the construction of which will be described later) and then is forced into the upper chamber through another valve which allows it to go only one way. When sufficient air is gathered above it is forced through the outlet tube "T" into the fire.

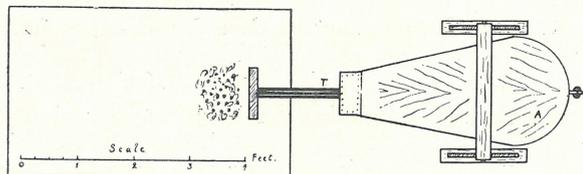
This seems complicated when put into words, but the actual operation is carried out quite simply by moving the bellows up and down. It may be remarked in passing that in the ordinary bellows we have a very practical application of two scientific principles—air pressure and the common lever.

To construct the air chambers, three layers of wood—A, B, C—are required, shaped as shown in the diagram. Each of these must be made of well-seasoned wood joined by means of tongue and groove. The top and bottom layers are hinged to blocks of wood "g" and "h". The middle layer is fixed. The layers should be about 5" apart. The blocks "g" and "h" and the middle board B are held together with two ¾" iron bolts. The intake air-valve "V1" is made in the bottom layer as follows:

A hole about 3" square is cut out. Over this, on the inside, is placed

another square of wood somewhat larger, to which some pliable leather has been attached. The leather forms a pad which is sufficiently airtight, and by tacking it down at one end it serves also for a hinge to allow the valve to open and close. An exactly similar valve, "V2," is fitted to the top of the fixed middle layer of wood. This valve allows air to pass up from the lower chamber, but not down again.

The next step is to drill a hole about $1\frac{1}{2}$ " diameter through the block



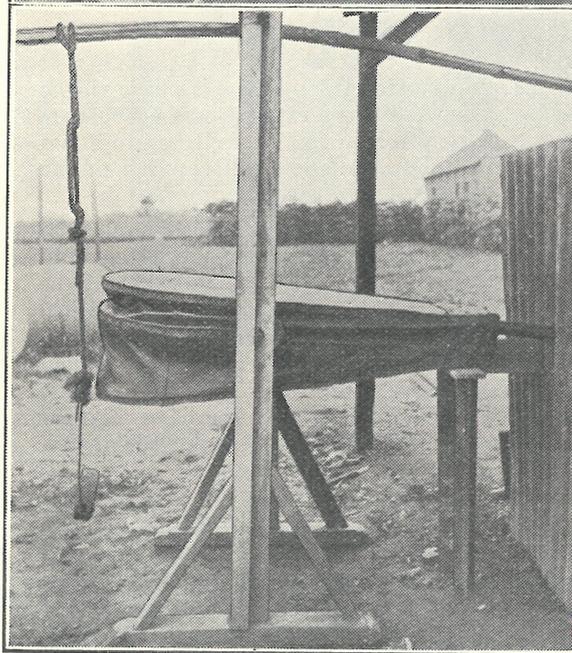
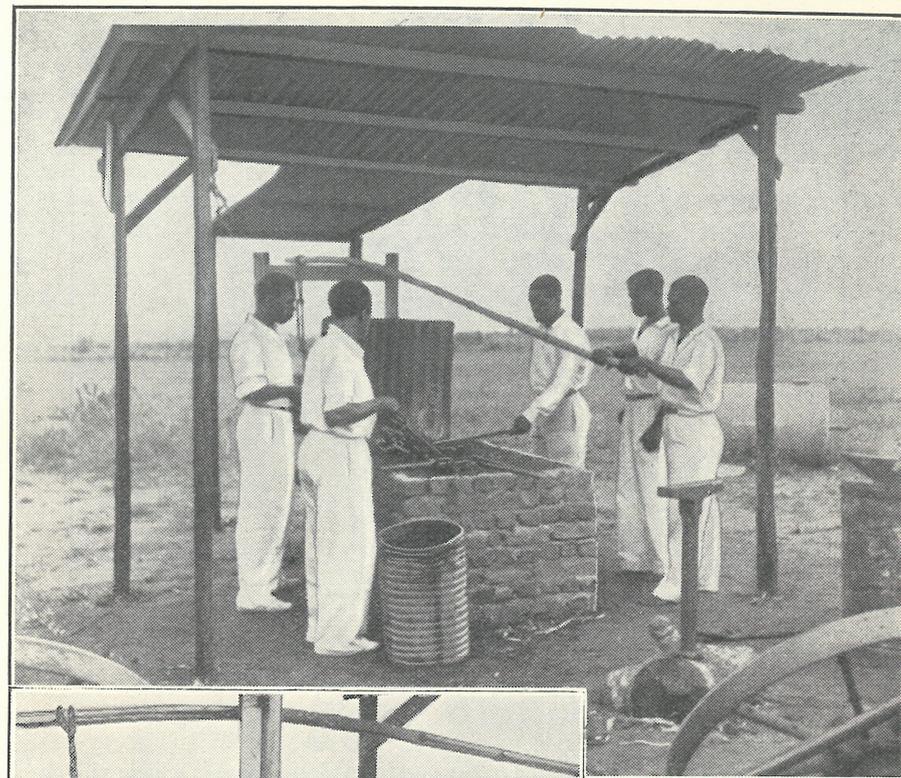
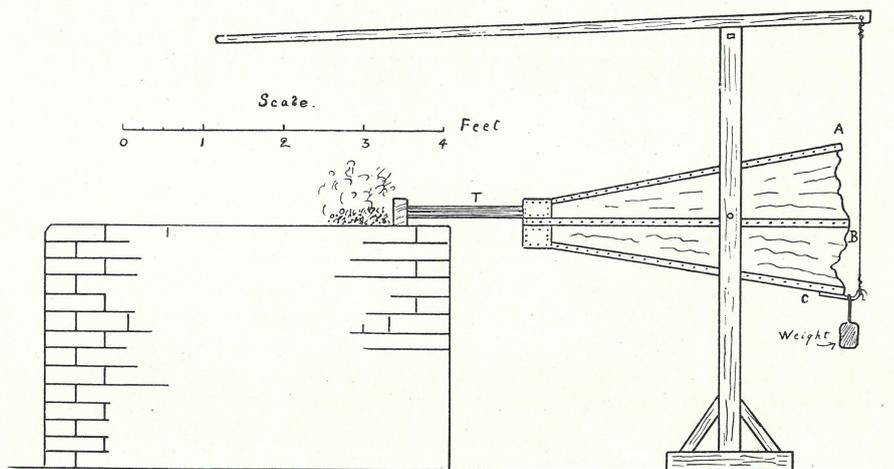
"g" and entering the top air chamber. Into this hole fix a piece of iron tubing about 18" long and of $1\frac{1}{2}$ " diameter. An old piece of ordinary water pipe is quite good.

The whole bellows has now to be made airtight. For this, use soft "Hausa" leather which can be bought in almost any market. Nail it all round the edges of the bellows and over all openings with small, flat-headed nails. It is good to have another narrow strip of leather running under the nails to serve as binding. The bellows, the most important part of the forge, are now complete.

It is not possible to obtain a single length of leather long enough to go all round the boards A, B and C. Joints are necessary, but are easily made airtight by forming a double seam and stitching them on a tailor's sewing machine.

The next thing to be constructed is the fireplace, but this presents no difficulty. A walled-in rectangle, any size you like but of a convenient height for boys of all sizes, is built with bricks and filled in with clay, over the top of which is put a layer of cement. A hollow place for the fire is made at one end.

The bellows must now be hung. This is done by means of two pivots set into the fixed middle layer of wood and held at the sides by any kind of wooden scaffold firmly fixed into the ground. Attach a rope to the end of the lower wooden board C and lead it to the end of a long lever, and suspend a small weight (about 5 lbs.) to the end of the wooden layer C, and



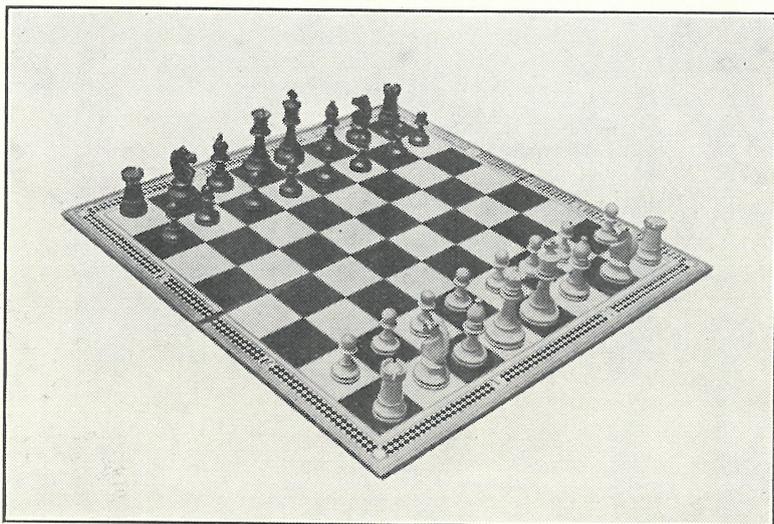
Above: *The forge at Christ the King College, Omitsha.*
Left: *A view of the bellows.*

the forge is complete. By moving the lever up and down, a thing that any child can do (and likes to do), air is taken in through the lower valve V1, forced through the second valve V2 into the top chamber, and from there a strong continuous blast is sent through the pipe into the fire. The accompanying photographs show the forge set up.

In the construction of this forge no skilled labour was required, but only supervision. The total actual cost was about twenty-five shillings. A new mechanical forge would be in the region of five pounds and upwards and we doubt if it would be more effective.

This forge has proved such a wonderful attraction to all the hand-workers that for the first few days it took the Principal as well as the bell to get them away from it to the more prosaic work of the classroom!

CHESS



By W. H. LARGE.

(Photographs by the author.)

HIGH up in the mountains of the Austrian Tyrol there is a little village whose inhabitants are said to be the greatest Chess enthusiasts in the world. Here grown-up folk spend all their leisure hours over this interesting game, and even the small children of the village are taught to play at an early age.

In the evenings in Lagos I frequently see groups gathered under the street-lighting lamps watching a game of Draughts, and I am always impressed with the interest taken by the onlookers and by the skill of the players. I often stop to watch a game, and cannot help being astonished not only at the immensity of the board but also at the apparent ease and solemnity with which whole battalions of draughtsmen are swept off their feet in the space of one move. The spectators take sides and silently criticise or commend the various captures and tactics of the game, and the whole is conducted with such a clatter of pieces being slapped from one square to another that in passing one is reminded of the Mah Jong tables of the Empire Celestial.

This article is headed "Chess", and I am writing it in the hope that some of our African readers may become interested in this game that is ancient but ever new. Darkness sets in early in Nigeria and leisure hours often find us with little or nothing to do. Why not take up Chess?

Chess is not a difficult game to learn once the pieces and their various moves are known. The board is the same as that used for the standard game of Draughts, and the men, while they can be purchased in Lagos for as little as two shillings and sixpence, could be made, given a pattern to work by, by any boy who is handy with a penknife.

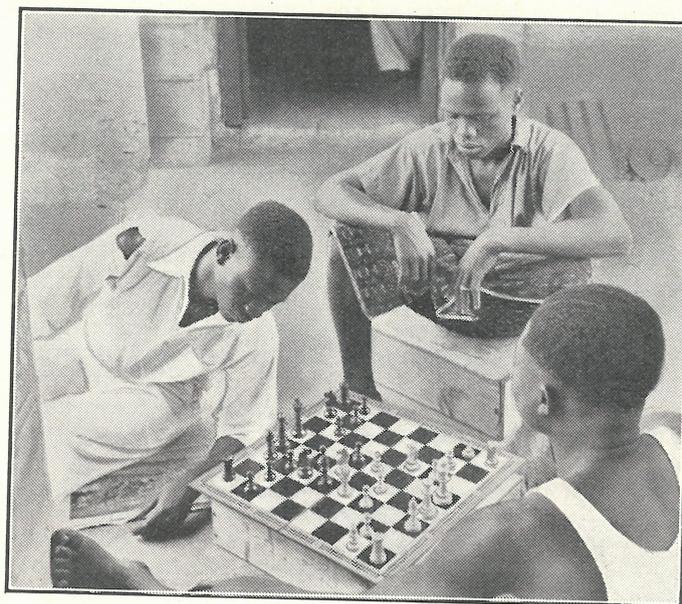
For many reasons it is better not to commence learning the game with a small board and small chessmen. Make the squares not less than two inches wide and play with what is known as a three-inch set of chess-

men. This avoids eyestrain and confusion in picking out the pieces and is of great advantage in scanning the board during play.

There are numbers of inexpensive books written on Chess. Any of these will provide the reader with the rules, moves and explanation of the game much more lucidly and at greater length than space will permit me to do here.

The general principle of the game is that each side is provided with an identical and equal number of pieces, or men, one white and the other red or black. The object of the game is not to "take" as many men as possible and defeat one's opponent by mere depletion of his forces, as in Draughts. It is rather to outmanœuvre one's adversary with a stratagem planned many moves ahead.

The end of a game of Chess consists in forcing the opposing King into a position from which he cannot escape and in which his remaining men



CONCENTRATION.

Intent on a game of chess. Judged by the expression on his face, the onlooker (facing camera) is wondering what is going to happen next!

are powerless to protect either themselves or their King. He is then said to be checkmated.

The term "checkmate" is a difficult one to explain by words on paper, but the following illustration may be of help. Suppose that one King wishes to obtain from another King a document acknowledging his defeat. With this in view they go to war. Both sides are equally equipped and arrayed on the field of battle. The fight opens by advance of the infantry, and after a few skirmishes, in which each side loses men, the winning King succeeds in isolating his opponent's men or in covering each man by one of his own armed forces.

The losing King makes a last stand with a few of his men who have escaped, but at last retreats to a fortified corner of the field under the protection of his Castle, a Knight, a Bishop and a few straggling infantrymen. Here, he is eventually surrounded, his followers disarmed, and the victorious

King, marching up, says: "Your Majesty, I have your men effectually isolated and held up with my forces. My own arquebus is pointed at your head; be pleased therefore to deliver me this document acknowledging your defeat." The defeated King looks round upon the field, sees the helplessness of his remaining forces, considers his own predicament and murmurs: "Alas! I am lost, I am indeed checkmated; here is the document for which we fought."

The forces mentioned above and which take part in this game are, first, the King—who, being an elderly monarch, is only allowed to move one square at a time. He is ably supported by an all-important Queen who has the freedom of the board and moves where she pleases. The Royal couple are flanked by Bishops, who may only move along the straight and narrow diagonals. Their Eminences are protected by Knights—who, being horsemen of the highest order, have sole right to jump over any other piece.

Next come the Castles, the corner bulwarks of the board. They remain firm until the last stages of the battle, when they are unhindered to guard a line of squares. In front of these important people are set out eight little infantrymen called Pawns. They are always ready to advance, to hold up the enemy, to support one another to grim death, or even to creep unnoticed into the enemy's back lines and be promoted to regal state for their bravery. The above pieces are set out on the sixteen bottom squares of the board as illustrated.

Chess is a most absorbing game, and I have no doubt that those readers who make up their minds to learn it will regret that they did not do so sooner. It can be played with such a variety of openings and moves that one never grows tired of its intriguing problems. Chess is played the world over, though it is not as popular as it might be—and this through imagining it is a difficult game for people who claim no more than ordinary intellect. This is quite erroneous. Chess is played by its champions in international games, by clubs or individuals either directly or in postal correspondence; and—not least in our mastery and enjoyment of it—by you and me at our own quiet firesides.

Other games may be recorded for posterity by the moving-picture camera, but with the exception of the comparatively modern games of Auction or Contract Bridge I know of no game boasting the precise written records of Chess. The games—move by move—played by the great masters of the past and of the present day may be purchased in book form and their wonderful technique studied by us to-day. Coming down to more simple exercises, many of the home papers include Chess games and problems in their sports columns, and a glance in these will show how well supported the game is in England alone.

Those who play Chess regularly acknowledge its moral influence upon them. What does the game of Chess teach us? To support and honour our King and Queen, without whom we as an Empire cannot hope to keep together. Not to waste or misuse our time on the journey through life; a lost or misguided move is seldom, if ever, recovered and we are always that one move behind. Our enemy is just as clever as we are; never underestimate his powers. Knowing him, we avoid the easy and, at first sight, advantageous way he has laid for us, when, looking beyond the immediate benefits, we find ourselves outpointed and defeated.

The underling, the servant, the common soldier, the Pawn—call him what you will—has a definite and useful purpose to fulfil, and with consideration and encouragement can prove his worth to all. Masters of the game are invariably those who make wisest use of their Pawns.

There are numbers of social clubs in Lagos and other towns in Nigeria. In these especially I ask a place for the game I have endeavoured to describe simply and non-technically.

THE CREATION AND MAINTENANCE OF A FLOWER GARDEN

By R. J. NEWBERRY,
Agricultural Department.

I.—PLANNING AND LAYING OUT

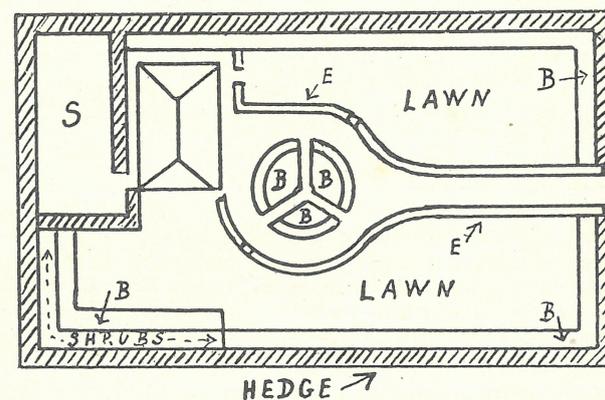
It often happens that the possessor of a house has either a new compound in which he wishes to make a garden, or an old garden with which he is dissatisfied. In either case the problem is the same, namely, how to plan and plant the area available so as to produce the most beautiful and lasting display of flowers, shrubs and trees.

Before anything in the way of actual gardening is done a clear idea should be had of what the lay-out of the garden is to be. Some sort of mental picture should be formed of what the garden will look like when the plants are growing. For this purpose it is necessary to get paper and pencil and draw a plan of the area, inserting on it such details as shape, size and disposition of plots, borders, lawns and hedges, as nearly to scale as possible. Within the outlines of plots may be shown the actual positions the plants will occupy, allowing adequate room for their growth.

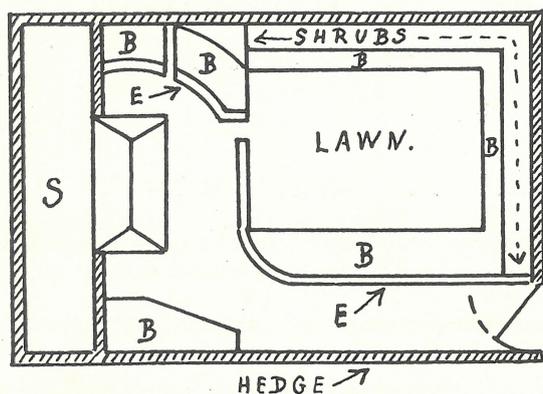
In nine cases out of ten a flower garden is intimately associated with a dwelling-house; most gardens stretch along at least one side of the building, and often right round it. Therefore, right at the start, we should consider the views of our garden which can be seen from the various doors and windows overlooking it.

In which rooms, for example, do we spend most of the hours of daylight? What kind of outlook have we from the dining and other rooms which we occupy during the day? Is the background to our plots to be a hedge surrounding the garden, or do we wish the latter to be unenclosed?

When we have settled these and similar details in our minds we can set to and mark out our land from the plan, using pegs. The following sketches of imaginary garden lay-outs are meant to serve as a rough guide in drawing up a plan of our proposed garden.



- S. Servants' Quarters, etc.
- T. Tree or Trees.
- B. Flower beds and borders.
- E. Edging of low growing plants.



N.B.—Sketches are not drawn to scale.

The original site may not be rectangular, in which case a rectangle may be marked out within it, and the surplus area planted with trees. Alternatively, the irregularly-shaped site may be retained and planted up without altering its shape. This provides scope for more original designs in the lay-out of beds and borders and often gives a more satisfactory effect than the square garden.

Paths.—Paths should be laid out first and, if it is required to drive a car right up to the house, a road with provision for turning the car. The choice of materials for making paths and roads will depend largely upon what is available. In some districts, where stone is plentiful, broken stone and chippings can be supplied by contractors at a fixed price per cubic yard. When this is so the paths can be made by taking out a trench the width of the path to a depth of eighteen inches to two feet, filling it half-way with large pieces of stone, and topping this first with inch-and-a-half pieces and then with small stone chippings, raising the path to the desired level.

This kind of path is useful where the rainfall is high and concrete is not available, as it prevents pools of water forming on the surface and acts as a drain. In areas where the soil is of a sticky nature, however, gravel paths are not ideal, as the gravel sticks to the soles and gets carried all over the garden and house.

A good alternative is to lay down cement or concrete paths if possible. The foundation for these must be solidly packed to minimise the risk of cracks spoiling their surface through the material below them subsiding. The foundation is usually a broken stone layer, the larger interstices of which are filled with pieces of a smaller gauge; this is either rammed or rolled hard, and the concrete is laid on the top. Planks laid along each side of the path before concreting will give a clean finish and help to prevent wastage of material.

As the wet concrete is laid it should be packed or rammed down firmly. A common device is to attach two wooden uprights to the ends of a heavy horizontal beam which is then repeatedly raised a few inches above the concrete and dropped. This rammer, which stretches across the width of the path, is gradually moved along the length of the latter by two workers, one at each upright. Standing water can be avoided either by building the path with a gentle slope or by making the surface slightly convex.

A third alternative is crazy paving. Large flat slabs of stone or

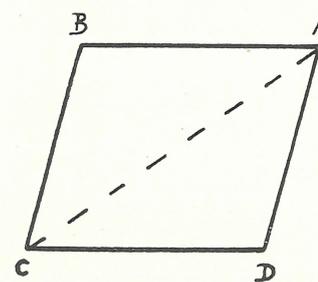
concrete are carefully laid on a prepared foundation, and the crevices filled with soil which must be packed in. The shapes of the slabs should be irregular, but the sides must be chipped into straight lines, as this not only enhances the appearance of the path, but also reduces the size of the crevices. If the pieces do not fit fairly closely together the comparatively large patches of soil between them will become a lodging place for weeds. All that is required is just sufficient space between the slabs to permit of our selected crazy-paving plants being grown.

Roads and paths which are not made on the above lines, but consist simply of a levelled stretch of soil, should have their surfaces dressed with fine ballast which should be well rolled in. Such paths may be finished off with a "tarmac" surface where tar is available.

Beds and Borders.—Beds and borders may now be dealt with. It is assumed that the actual planting will be done as soon as the rainy season sets in, though the beds may well be prepared before. Mark out the beds according to the plan, taking care that the shapes are right. If the bed or plot is intended to be rectangular or square, see that it is exactly so. Nothing looks worse than a bed which is nearly, but not quite, the shape it pretends to be.

Methods for marking out some less common shapes are illustrated below.

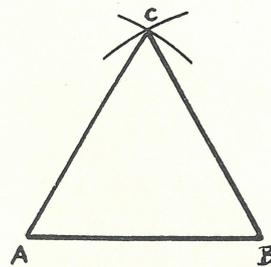
Rhombus and other Parallelograms.



Set out baseline AB, pegging at A and B. Stretch marked line or tape round A and B and pull out until the corner C is where you require it. Peg at C. Mark position of A, B and C on tape. Remove tape and replace it over A and C so that the "C" mark is now over peg A, and the "A" mark over peg C. Pull tape tight with one finger hooked round it at the "B" mark. (The tape must be fully stretched on all sides at the same time.) Join pairs of pegs A and B, etc., by straight lines. In a rhombus adjacent sides are equal: in other parallelograms they are not.

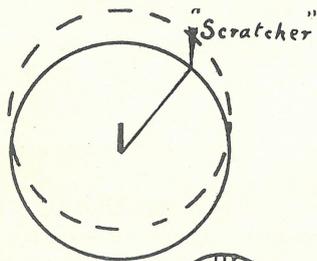
Triangles.

(a) Equilateral.

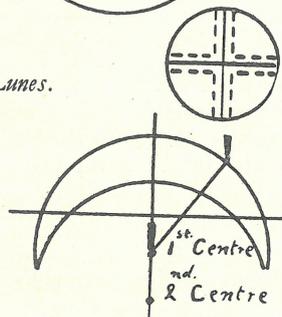


(b) Other triangles. Proceed as in the first part of laying out of parallelograms.

Circle and Quadrants.



Lunes.



Drive peg for circle centre. Loop string over it, placing second peg as "scratcher" at far end. Move round first peg, keeping string tight and scratcher erect, and scratch circle. Run a straight line through centre of circle circumference on either side, and another at right angles to it also through the centre. Mark out narrow strips between quadrants for walking on.

Set out a straight line at right angles to the longer axis of required lune. Fix a peg on this line to act as centre for striking the outside curve of the lune, and mark this out. (See circle.) Now select a second point on the line inward of the first centre and mark out second curve. Continue both curves until they meet.

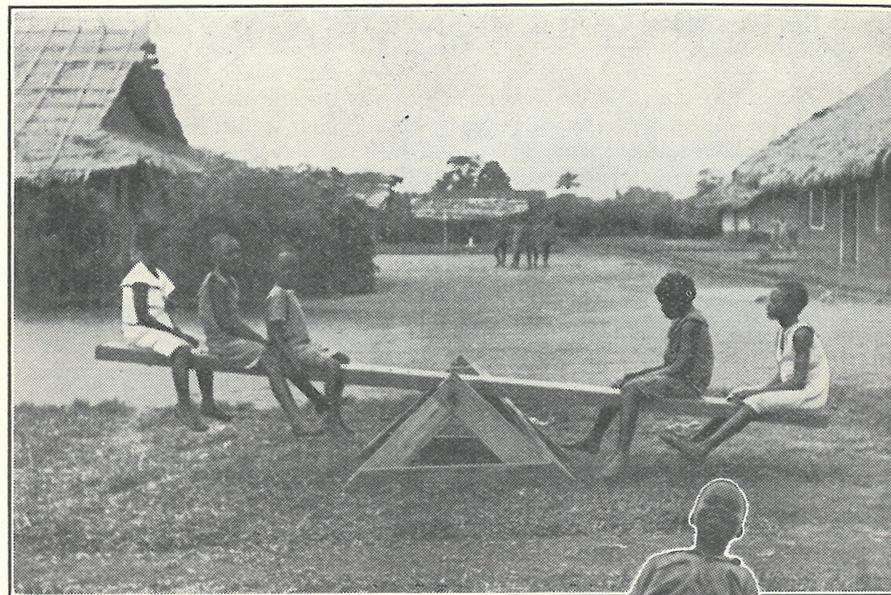
Beds may be made in a great variety of shapes, many of which are based on those given. For example, six equilateral triangles with their apices meeting at a point will give a hexagon; a four-pointed star can be formed by basing four outward-pointing triangles on the sides of a square; clover-leaf shapes are got by setting out three intersecting circles, and so on.

In deciding what shapes plots are to be, consideration must be given to the ease or difficulty with which such beds can be cultivated. A wide bed, for example, means that the plants in the middle can only be got at by walking on the bed, unless narrow strips are left running across it to serve as miniature paths. Long, narrow plots are the easiest to attend to, though there is in such plots a larger proportion of edging to area.

The circle, of course, gives the greatest area proportionate to edging, and the square and hexagon are of the same type. Long rectangles, long, short-based triangles and lunes have edging increased at the expense of diminished areas.

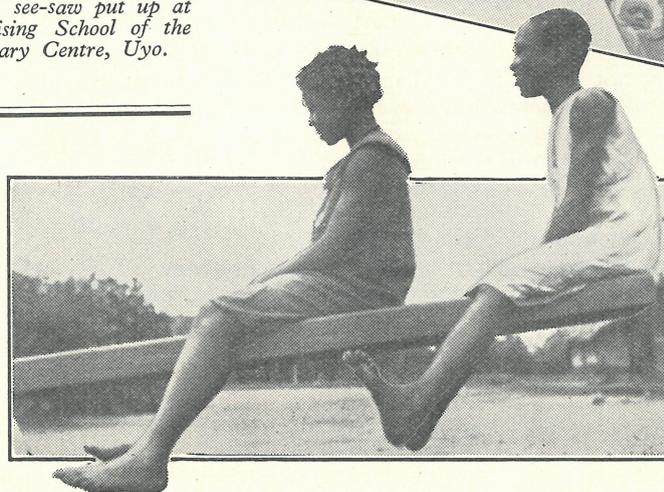
Whatever shapes are decided upon, they should be drawn first on the plan. Once they are laid out on the garden site the preparation of the soil can be taken in hand.

(Part II will deal with the preparation of the soil and planting.)



**YOU CAN MAKE
THIS SEE-SAW**

Overleaf (page 26) you are told how a see-saw like this can be made. See-sawing gives the children—and grown-ups, too!—endless fun. Boys seem to enjoy it more standing up, as can be seen in the centre picture. These photographs are of the see-saw put up at the Practising School of the Elementary Centre, Uyo.



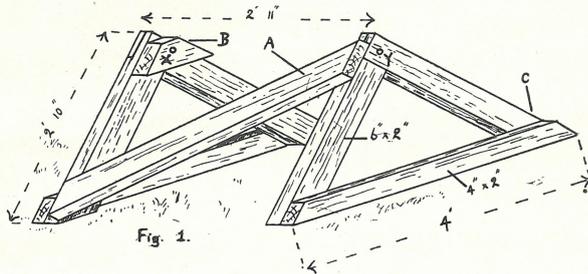
THE CONSTRUCTION OF A SEE-SAW

MOST people, old and young, enjoy the up and down motion of a see-saw, and it is always a very popular addition to a school playground. Two very good see-saws have been made for the children of the Practising School at the Elementary Training Centre, Uyo.

The plank of the see-saw illustrated is 12' 4" long, 1' wide and 3" thick.

The axle is a 1" diameter iron or steel rod, long enough to pass through the holes X and Y of the wooden support, Fig. 1, and project out on either side to a distance of about 1". Each end of the rod is threaded to a distance of 1" and fitted with a nut to prevent the rod working out of position.

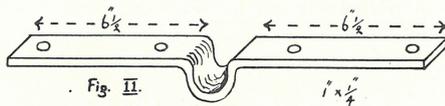
If the cutting of the threads presents any difficulty the rod can be prevented from working out sideways by fitting it at each end with a washer and split-pin, or the ends can be covered with hard wood caps nailed or screwed to the main framework.



The framework is easily made of wood nailed together as shown.

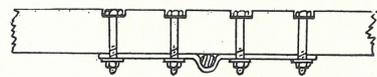
The see-saw plank is maintained in a central position by means of two strips of black mild steel, bent as shown in Fig. II. These strips can be made by any blacksmith.

The loop in each strip should be an easy fit over the 1" diameter iron rod.



The strips are bolted to the underside of the plank by means of eight 4 1/2" x 3/8" iron bolts, Fig. III. The cross-piece of wood A, Fig. I, and a similar

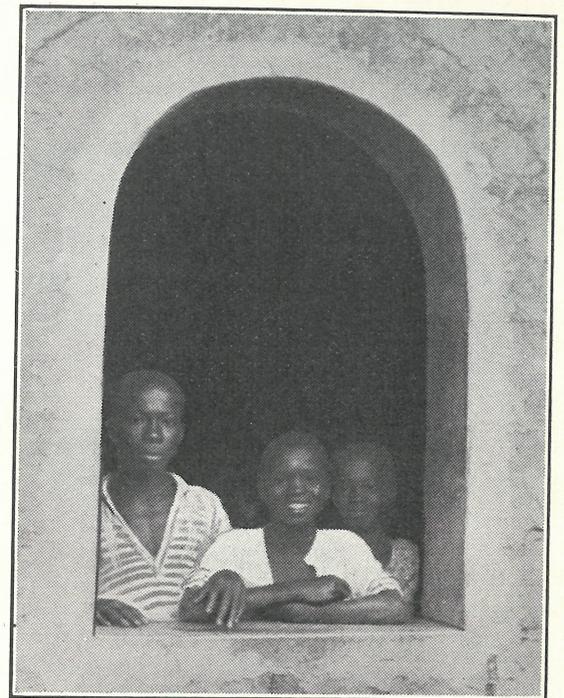
cross-piece, not shown in the diagram, but fixed between B and C on the other side of the framework, serve to make the latter rigid. At the same time these cross-pieces act as stops to prevent the plank from working out of a central position with reference to X and Y.



The measurements given are for a see-saw suitable for children of elementary school age. A see-saw giving a greater range of movement can be obtained by increasing the length of the plank and the height of the support.



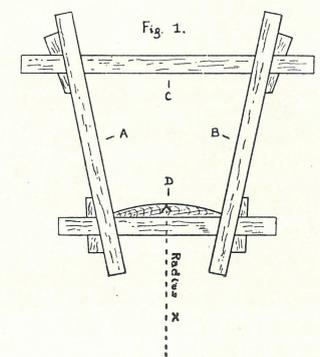
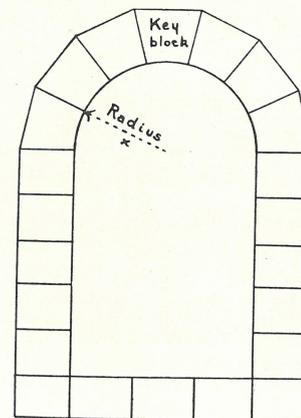
AN IMPROVED FORM OF WINDOW OPENING FOR PISÉ BLOCK BUILDINGS



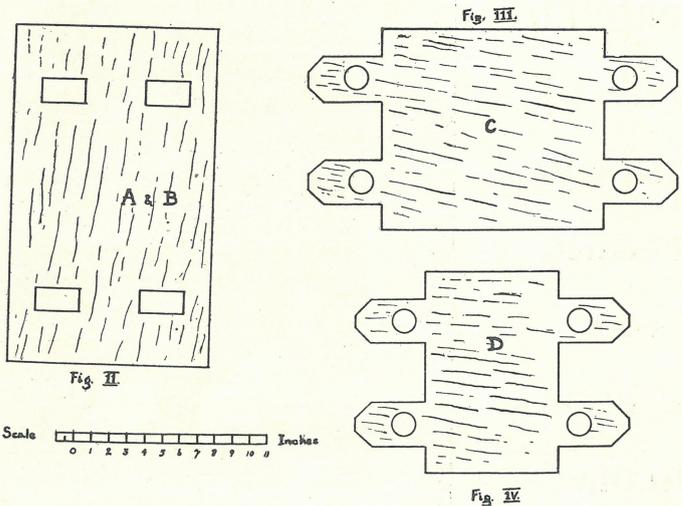
Happy faces framed in an arch built with pisé blocks.

THE wooden window frames of pisé block buildings are very liable to attack by termites and fungus, and their replacement involves considerable expense. At the Elementary Training Centre, Uyo, Mr. Holt was constantly having to contend with this trouble, but has now overcome the difficulty by making the window openings with arched tops.

Pisé blocks are formed in a wooden mould constructed as shown in the sketches, Figs. I-IV. The blocks, when placed together, make a self-supporting arch for the window opening. During the building up of the arch and the placing in position of the central key block it is necessary to use a light, temporary supporting frame. Once the key block is in position the frame can be removed and used for building up another window opening.



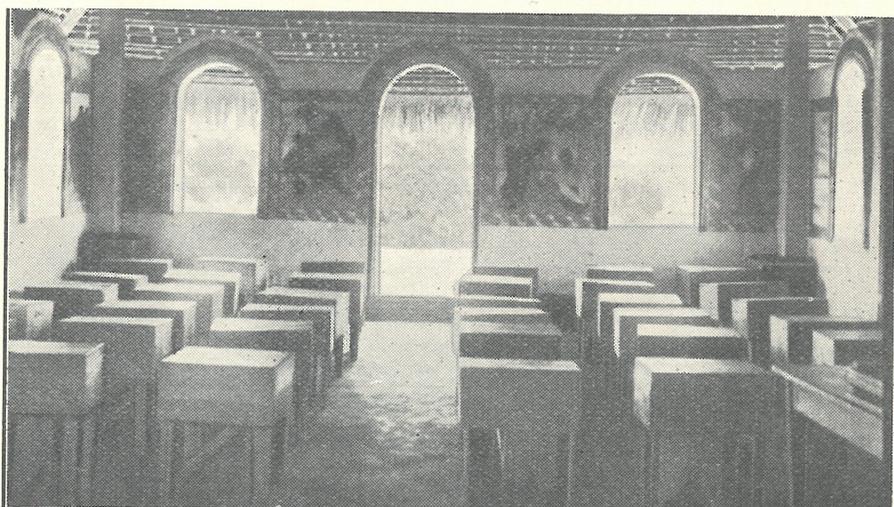
Shutters or glass windows can be fitted if required by hinging them on to vertical strips of wood arranged on the inside face of the wall. If these strips perish it is a very cheap and simple matter to replace them—and their failure does not involve any risk of the window-opening itself collapsing.



The sides A and B of the mould are shown in plan in Fig. II, the side C in Fig. III, and the side D in Fig. IV. The wood used for the mould is $1\frac{1}{4}$ " thick. The mould is held together with eight wedges. The inner face of the side D should have a piece of wood fastened to it, shaped to a curve, having a radius equal to the inner radius of the arch.

The inside measurements of the mould used in the construction of the arch as shown in the photographs were as follows:—

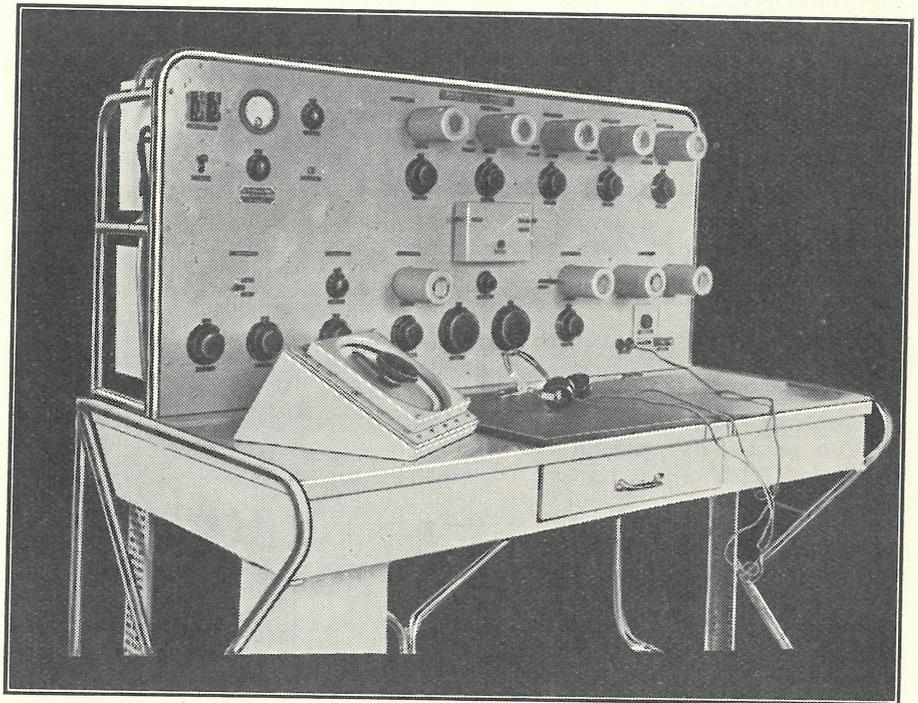
- Sides A and B . . . $10\frac{3}{4}" \times 11\frac{1}{2}"$
- Side C $12" \times 11\frac{1}{2}"$
- Side D $7\frac{3}{4}" \times 11\frac{1}{2}"$



Arches made as described in the above article. The photograph shows one of the Practising School's classrooms. Interesting and decorative pictures have been painted on the walls.

AIRCRAFT WIRELESS SERVICES IN NIGERIA

By W. H. LARGE,
European Operator, Posts and Telegraphs.



Apparatus used at Apapa for locating the position of aeroplanes.
(Photographs by the Author.)

DESCRPTIVE articles, short stories or novels, we are told, should have a beginning, a middle and an end. In an article of the type that I am about to write, it is a temptation to begin with what would inevitably be a theoretical and therefore, to many readers, an uninteresting exposition of how a wireless set works. However, by asking those minority of readers who are already acquainted with electrical phenomena to kindly bear with me for a moment—and by asking those majority of readers who know nothing of wireless to believe what I am about to say—we shall get over the difficulty without having recourse to technicalities.

Most of us are familiar with the sight—or rather the unsightliness—of telegraph or telephone wires on poles along the streets, by the railway or through the bush. We know that we may go into any of the many Post and Telegraph Offices throughout Nigeria and send a telegram to a friend in another part of the country and that this message will be delivered at its destination almost immediately. We will have associated the telegraph poles and wires with the transmission of our message, and wondered, perhaps not unreasonably, how the words are sent along the wire.

It may be more difficult to believe, but it is none the less true on that account, that with the aid of wireless we may send a message over any distance of the earth's surface without having the sending and receiving

stations connected by wires. Apparatus, called the transmitter, is connected to an antenna or short piece of wire suspended in the air; with this we are able to radiate invisible vibrations, or waves, into space.

These vibrations, which carry with them the sounds of speech, music, or code signals, may be picked up by a distant station which employs another piece of apparatus connected to an antenna to receive them. This phenomenon is commonly called Wireless or, more correctly, radio-communication.

Those readers who live in Lagos will have heard the wireless programmes distributed to subscribers through loud-speakers from the receiving station at Ikoyi. These broadcasts are transmitted by wireless from England for world-wide reception, and the Nigerian Post Office have installed a large and up-to-date receiver in Lagos which ensures almost flawless reception to those who subscribe the small monthly fee for the use of a reproducing unit in their homes. This at least is tangible evidence of the reality of wireless.

For telegrams the Morse code is used, as errors of speech or language are thus avoided. The code consists of a combination of sounds of long and short duration. Thus a short sound followed by a long sound (·—) represents "A". A long and three shorts (—···) is "B", and so on. With practice an operator can send or receive these signals at writing speed. Telephony is transmitted with similar apparatus, but instead of using a system of long and short sounds, the user may speak directly into a telephone and be heard by a listener at the distant station, one hundred, one thousand, or even ten thousand miles away.

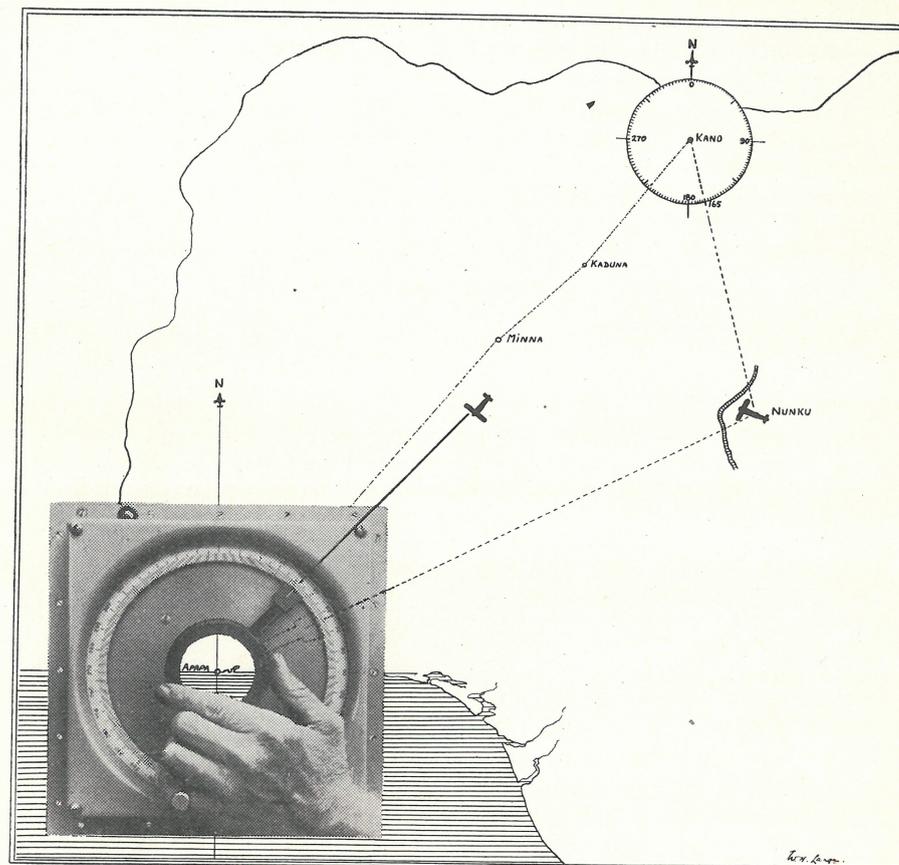
Land-line telegraphs continue to be used between places which can be connected by wires without undue upkeep expenditure. They have the advantage of being comparatively free from outside influences which sometimes render wireless communication unreliable.

The transmitter radiates energy in all directions and in certain circumstances it is necessary that we may be able to find out exactly where a ship or aircraft, using a transmitter, is located. This is most important in the case of aircraft, which, when flying in fog, cloud, or harmattan, have no visible means of checking their position.

Certain stations are allocated for directional reception and are fitted with expensive and intricate receivers, which, combined with elaborate antenna arrays, enable the operator to determine with the utmost precision from what direction the transmitted signals are coming.

Lagos and Kano are now fitted with the most modern type of Marconi-Adcock direction-finders, giving a night and day service to all aircraft requiring their assistance. In his article in the previous issue of this magazine, Captain Taylor, of Imperial Airways, stresses the importance of this service as an aid to navigation in overcoming to a large extent the dangers of poor visibility. Indeed, in many parts of the world, both shipping and air services rely entirely on wireless beacons and direction-finders for their guidance during foggy weather.

I have drawn a very simplified sketch to show how this apparatus is put to use. Commencing with True North as a reference point common to all stations, 360 degrees are marked off from North in a clockwise direction both on charts and on the wireless receiver dial. Allowances are made in the calculations for compass error and magnetic variation, which for clearness sake will be omitted here. An aircraft requiring a bearing sends out signals, and the receiving operator at the direction-finding station,



HOW BEARINGS FOR AN AIRCRAFT ARE TAKEN.

The full line shows an aircraft bearing 42 degrees from Lagos, and the broken line bearings of 63 and 165 are from Lagos and Kano respectively. In practice, in this case, Lagos would wireless his bearing to Kano, who lays the two bearings off on the chart and informs the aircraft that it is flying over Nunku. This method gives aircraft pilots an invaluable check on their positions at any time, whatever the weather.

making suitable adjustments, takes a bearing and transmits it to the 'plane whose pilot lays it off on his chart for navigational reference.

Let us suppose an aircraft is flying from Minna to Lagos and, due to an unexpected easterly set—or drift—when flying above low cloud, requires a bearing with reference to Lagos. This is given as being, say, 42 degrees. By referring to his map the pilot is thus enabled to see how far off the course the bearing shows him to be, and allows him to calculate his drift and alter course accordingly.

Again, let us suppose an aircraft is flying somewhere in the region of the Plateau and wishes to know his position. Kano and Lagos simultaneously take bearings. These are "laid off" on a small-scale chart at whichever station is controlling this particular communication, who informs the aircraft that he is now over Nunku and twenty miles east of the railway line. This operation or "fix" is shown where the dotted lines cross, in the accompanying sketch.

The taking of accurate bearings under all circumstances is a combination of precision instrument and skilled operator. It demands an amount

of practice and experience with which only a small percentage of qualified telegraphists ever have the opportunity of availing themselves.

The Air Service wireless equipment in Lagos consists of two transmitters which are housed in the Ikoyi transmitting-station. These are connected by control lines to the direction-finder station at Apapa, where the actual signalling or keying is done. At the latter station we have, as well as the main direction-finder receiver, one of the latest Marconi all-mains short-wave receivers, and also a telegraph circuit for transmission of messages to or from Lagos G.P.O., and the aerodrome wireless weather receiving office.

The reception and transmission of weather reports and storm warnings forms an important part of the aircraft wireless service. Adjoining the Meteorological Office on the aerodrome is a Wireless Office which is staffed and equipped with two receivers and a telegraph circuit for the reception of weather messages. Reports from over twenty-five Nigerian observation stations are received by land-line each morning, and observations from stations outside Nigeria, such as Fort Lamy, Zinder, Lome, Cotonou, etc., are received by wireless. These messages are handed to the Meteorological Office for decoding and tabulation, after which they are put into collective form and broadcast by wireless for the benefit of any station requiring a full daily report of weather conditions over Nigeria.

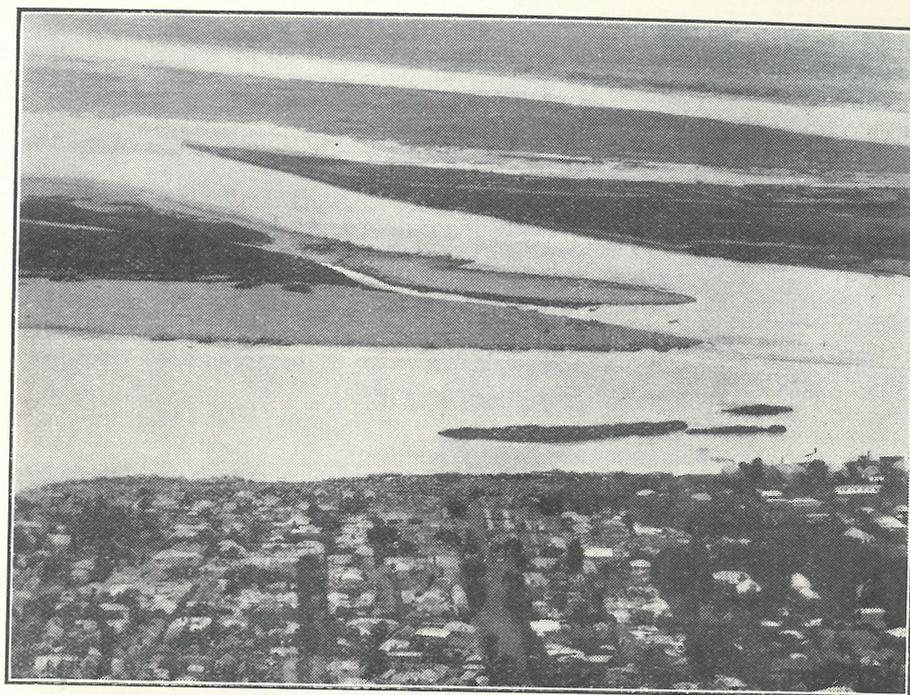
This, in brief, is a summary of our ground organisation at Lagos. Here is a short description of the apparatus and work aboard the aircraft.

Aircraft are fitted with wireless equipment primarily and compulsorily because of the "Safety of Life in the Air" Act. Not only does this enable them to send out distress signals in time of danger, but also they can utilise such services as direction-finding and beacon stations, weather reports, storm warnings and navigational messages, all of which increase the safety of flying.

Commercial aircraft on busy and important routes generally carry a Wireless Operator as an extra member of the crew, but on such services as are at present operating in Nigeria, the Captain or First Officer possesses the necessary licence (after examination) to carry out the Wireless Operator's work. Persons with privately-owned machines are not always conversant with the Morse code and so make use of telephony for communication with ground stations. The disadvantages of speech are that it cannot be written down as quickly as Morse. Also, in spoken messages in code or even plain language it is extremely difficult to avoid phonetic errors.

The wireless equipment on board an aircraft consists of a compact transmitter-receiver of small power; a wind-driven generator which, in conjunction with batteries, supplies power for wireless and for cabin and navigation lights. Two aerials are fitted; one which is wound on a drum and released through a tube in the cabin floor to trail in the air during flight, and the other a fixed aerial spread between the wings and sternpost, for use when on the ground or in emergency landings. Some aircraft are fitted with a small directional receiver or "homing" device as an extra, but this need not be described here.

When the set is operated by the pilot, or when space does not permit of the apparatus being installed in position convenient to the Operator's hand, the various dials are actuated from the Pilot's seat by means of Bowden cable controls. When an Operator is carried, the set is usually placed behind the cockpit seats. He has a small folding table and a small folding seat—and with a hasty glance at the available space one might be forgiven for imagining that it is intended for a small folding Operator!



Part of the town of Lokoja, showing the junction of the rivers Benue and Niger, as seen from the top of Mount Patti, which rises behind the town. The Niger is in the foreground, and the water flows from left to right of the photograph. When the two great rivers are in flood they unite at this point to form a single river three miles wide. Stern-wheel paddle steamers pass up and down the rivers and at low water the sand-banks make camping sites for hundreds of canoe dwellers.

Imperial Airways machines on this route may transmit speech if necessary, and during a recent experimental flight the Operator on the 'plane carried out tests with telephony, and his voice was heard quite clearly in Apapa Wireless Station when the machine was in flight.

As soon as the aeroplane takes off, the trailing aerial is released from its drum, the Operator switches on his set and is then ready to transmit or receive.

It will be of interest to give a brief resumé of a typical day's work at the Apapa Wireless Stations. At 6.30 a.m. all apparatus is tested and signals exchanged with Kano. At 7 a.m. Kano informs us the Imperial Airways 'plane is about to take off on the Southbound flight to Lagos, and at 7.5 a.m. the 'plane is in the air and sending her first departure message. This telegram gives the aircraft's registration letters, the exact time of leaving Kano, and the name of her next stopping-place, and on reception by Lagos is immediately delivered to the Agents here.

By mutual arrangement the 'plane signals us every half-hour to report all well or give her position. At 7.36 Zaria is reported and at 7.55 a.m. she sends her arrival message for Kaduna. 8.30 a.m. she is in the air again bound for Minna, and at 9 a.m. reports all well, flying at 2,000 feet with clear sky. Minna is reached at 9.15, and after a stay of forty-five minutes for refuelling of machine and personnel, takes the air again on the longest stretch of the route to Lagos.

At the moment of writing, Oshogbo, which is one of the landing-grounds *en route*, is omitted on account of quarantine precautions.

At 10.19 a.m. the 'plane reports over River Niger, and twenty minutes later is crossing the Oro river at 3,000 feet. A message concerning rain

and low cloud at Oshogbo has been telegraphed to the Meteorological Office, and from there is handed to us for transmission to the 'plane. At 11.38 a.m. the estimated position is given as 10 miles east of Oshogbo flying above low cloud. A few minutes later the 'plane asks for a bearing, which is taken within 30 seconds. This shows her to be somewhere on a line 41 degrees east of True North, from Apapa.

At noon another bearing is given which shows the 'plane to be now on her normal track, and at 12.30 p.m. a small speck appears low down in the cloudy sky north-east of Apapa. The arrival message is sent out from the 'plane—and at 12.36 the *Delia* is gliding into the Apapa 'drome.

Air-mails from England and South Africa, from India, China and Australia are unloaded and rushed away to the G.P.O. for sorting. Four passengers and three members of the crew step to the ground and baggage removed. The Southbound Air Mail has arrived.

The work of the wireless station is not yet finished, however, for the French flying boat is now *en route* to Douala from Cotonou. Weather reports are transmitted to her and half-hourly positions received as she passes along the coast over Lakki, Forcados, Cape Formose, Calabar and Cape Nachtigal to arrive at Douala at 4.30 p.m. Cotonou, Apapa and Douala wireless stations co-operate in this flight, and at 4.45 p.m. Apapa closes down for the day.

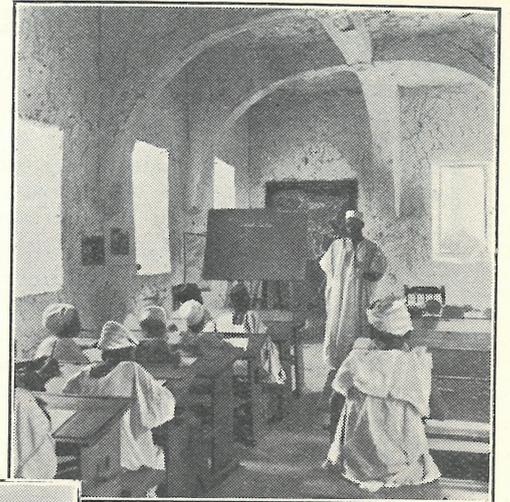
The space at my disposal being limited, I have had to omit giving an account of the day's routine work. The almost continuous reception of weather reports by land-line and wireless, the schedules with H.M. Warships, Gold Coast and French stations and other duties keep four African operators and myself fully occupied.

At the time of writing it is proposed to commence regular air-mail service to the Gold Coast within the next few weeks. Extensions connecting all West African Colonies is surely one of the certainties of the near future. In addition to the existing main wireless receiving stations at Lagos, Kano and Maiduguri, Kaduna and Oshogbo air service wireless receiving link stations will shortly be completed, with the addition of others as the air service is extended to other places in Nigeria.

Communication by wireless during the last twenty years has progressed so rapidly that the dreams of that time are among the commonplace realities of to-day. Television, that wonder of wonders, brings music and movement to our homes, and it is not too much to hope that at no distant date Nigeria and other parts of our Empire will be linked together by this magic voice and eye.

I close in a solemn note of homage to the late Marchese Marconi, who passed away this year, and ask those in this and other Colonies who are employed in wireless services to pay tribute to a man whose life-work of inspiration and achievement has given enjoyment and employment to many. His passing is lamented by all.

PICTORIAL INTERLUDE

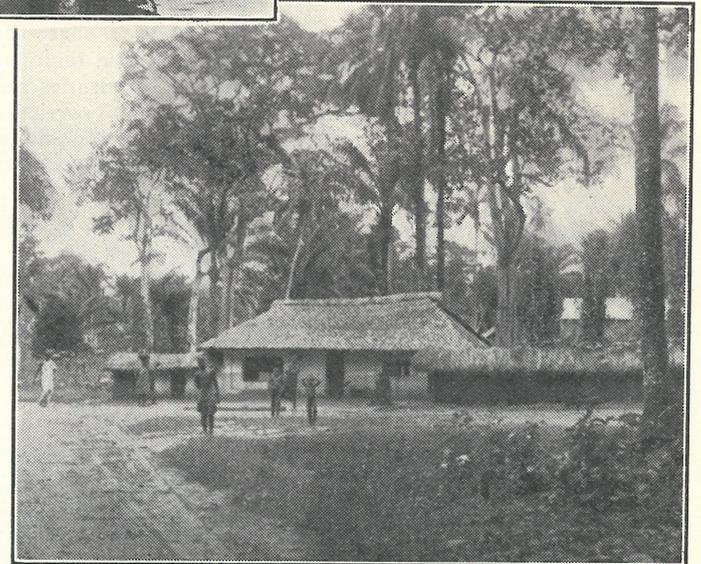


Above: A class in progress in the Native Administration Elementary School at Okene, Kabba Province, Northern Nigeria. The walls and roof are made of mud and the arches of the roof are reinforced with lengths of termite-resisting *Giginya Palm* (*Borassus Flabellifer*).



Left: A hill of red earth, about 20 feet high, built by termites at Auchi, Kukuruku.

Right: In a picturesque setting, this little shop on the way between Onitsha and Agulu provides the photographer with a splendid subject.



PATENT MEDICINES

By Dr. G. TAYLOR,
Deputy Director of Medical Schools.

BY the term "Patent Medicine" is meant any medicine held out by advertisement, label or otherwise in writing as efficacious for the prevention, cure or relief of any malady, ailment, infirmity or disorder affecting human beings, and

- (a) which is sold under a trade name or trade mark to the use of which any person has or claims or purports to have an exclusive right; or
- (b) of which any person has or claims or purports to have the exclusive right of manufacture or for the making of which any person has or claims or purports to have any secret.

The term does not, however, apply to proprietary medicines offered by reputable pharmaceutical specialists exclusively to the medical profession, and the formulæ of which are stated on the label.

It is my intention in this article to examine the claims made for patent medicines by their proprietors and vendors, and to see how far these claims are justified by experience. I will begin with the story of a personal encounter with one of these charlatans, and the result of my investigation of his claims.

Strolling down the famous Petticoat Lane in the great city of London one Sunday morning, I was struck by the large variety of articles offered for sale to the public. To those of my readers who have not visited London I had better explain that Petticoat Lane is open on Sundays to hawkers, pedlars and petty traders. At one stall I observed at least a score of different patent medicines, purporting to cure almost every known disease.

The advertisements setting out the virtues of these so-called remedies were very attractive, and the medicines themselves were tinted with pleasing colouring agents which at once attracted the eye. The owner of the stall was a glib-tongued charlatan who apparently devoted the rest of the week to the manufacture of his spurious remedies. One of his best sellers was a skin balm which the vendor stated prevented or cured chaps, chilblains, pimples and other skin affections. He claimed to share the secret of this preparation only with the Eskimoes of the Arctic regions. By the very nature of their climate, Eskimoes had been for centuries martyrs to chaps, chilblains and frost-bite. Needless to say, this particular preparation, which was offered at 1/- a jar, was purchased by the hundred by a credulous and confiding public.

As a medical practitioner I bought a jar and had the contents analysed. It was found to be composed of lard (pig's fat) as a basis, with a small amount of earthy substance absolutely non-efficacious for the conditions enumerated above. I calculated that the cost of the container and contents was at most one penny!

The foregoing is typical of the absurd claims made on behalf of the majority of patent medicines and their inability to effect a cure or even relieve symptoms. The public would, therefore, be well advised to seek proper medical aid in cases of illness rather than resort to spurious remedies which may even aggravate the conditions they are supposed to cure or relieve.

It can be honestly stated that one of the obstacles to the effective prevention of the spread of infectious diseases is the readiness with which the public resort to patent medicines.

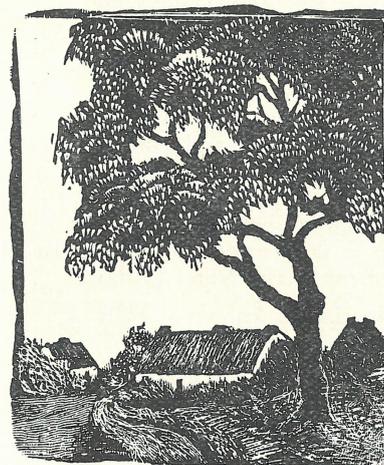
For instance, a persistent cough may indicate a tuberculous infection of the lungs. If the patient receives early treatment by a medical practitioner, it is possible that he will be cured. In any case, measures calculated to prevent the disease being communicated to others will promptly be taken and thus many lives will be saved. On the other hand, if the patient adopts patent remedies instead, his condition not only becomes worse but he, unknowingly, transmits the infection to others, usually his own immediate relations and friends.

It is not generally recognised that a person owes it not only to himself but also to the general community that any serious illness should be promptly and effectively treated. In a tropical country like Nigeria a number of diseases, such as malaria, filaria, sleeping sickness, small-pox, enteric fever, yellow fever, plague, etc., are easily communicated from man to man or from beast to man by flies, mosquitoes, ticks, fleas, micro-organisms, etc. The task of those responsible for the maintenance of public health would be rendered considerably less difficult if the public would avail themselves of the expert advice of doctors rather than pinning their faith and wasting their money on futile remedies and endangering the public health.

Many of us suffer from persistent and severe headaches, but the average layman is probably not aware that more often than not such headache is symptomatic of some serious condition. It will be seen, therefore, that attacking the headache, which is merely the effect and not the cause of the trouble, can do not good whatever. The obvious course in such a case is to seek proper medical advice and treatment.

For example, headache may be due to ocular strain, in which case permanent relief can only be obtained by treating the eyes. Again, headache may be the first symptom of some serious organic disorder, or febrile condition. By taking patent medicines in such cases, the condition may steadily become worse as the treatment of the underlying cause is entirely neglected. How can a patient have any idea of these conditions except by consulting a doctor for diagnosis and treatment?

If people would always bear in mind that prevention is better than cure, they would not hesitate to seek proper medical advice at the onset of illness rather than dose themselves with worthless preparations, with possible serious consequences to themselves and, not infrequently, to the general public.



CORRECTIONS.

We regret that the woodcut reproduced on page 43 of "Nigeria," No. 11, was not the picture by the ex-pupil referred to at the foot of page 45, of the same issue. We now reproduce the picture that should have appeared. It is by Andy Cochrane, the ex-pupil of Tullygraulet School.

In the description of the photograph on page 23, of "Nigeria," No. 11, read "basket" in place of "bucket."

HISTORY OF TIN MINING IN NIGERIA

By H. H. W. BOYES,
Associated Tin Mines of Nigeria, Ltd.

OF the early history of Nigeria little is known. The Portuguese appear to have discovered the coast in the fifteenth century; early in the seventeenth century trading stations were established by the Portuguese and other Europeans, including British traders.

In 1879, with a view to amalgamating all British interests and creating a British province on the Niger, the United African Company was formed, being known three years later as the National African Company Limited. In 1885 a British Protectorate was notified over the coast lands known as the Oil Rivers, and in 1886 the National African Company received a Royal Charter as the Royal Niger Company.

The Royal Niger Company administered the country of Nigeria from 1887 till the end of 1899. Their policy was designed to ensure that the rich hinterland should be added to the British Empire and the prosperity of this great Dependency is due in no small measure to their enterprise. Sir George Taubman Goldie, from whose inspiration the Royal Niger Company was born, guided its policy throughout its administrative life, and he can rightly be described as the Founder of Nigeria.

The British Government took over the administration of Nigeria from the Royal Niger Company on January 1st, 1900. On the revocation of the Charter the Royal Niger Company became an ordinary trading company, and its name was changed to the Niger Company Limited.

INCEPTION OF THE PROTECTORATE On the 1st January, 1900, the Union Jack was hoisted at Lokoja in place of the Royal Niger Company's flag, and the Protectorate of Northern Nigeria came into being, with Sir Frederick Lugard as the First High Commissioner. In revoking the Charter, the Government felt that the Company was entitled to full recognition of the position which it had created for itself, and to the rights which it had acquired in its territories.

Accordingly, payment was made to the Company of a sum of £450,000 as compensation and for expenses incurred by it in connection with the administration of the country. Moreover, the Government undertook to impose royalties on minerals won between the River Niger and a line drawn from Yola to Minna, and to pay the Company, for a period of 99 years from the revocation of the Charter, one-half of the receipts from these royalties.

During the first years of the administration the Government was occupied in keeping open the two important trade and communication routes which run from Ibi and Loko into the north, passing what is now the tin fields to the east and west respectively. No time could be found to devote serious attention to the area which lay between these two trade routes, until the Government's hand was at last forced by the tenacity of the early pioneers of the Mining Department of the Niger Company.

The existence of tin in Northern Nigeria was known as early as 1885, but the exact location of the tin fields was not discovered until later.

After 1900 the Niger Company was able to devote its entire energy and resources to its legitimate sphere of trade, which was now extended to include mining. The fact that trade tin of "Straits" purity was being purchased from native traders at the Company's Ibi factory on the Benue

River was one good reason for a policy of mining development; another being the half-share interest in the mineral rights as explained above.

In 1902 the Niger Company organised the first prospecting expedition, but it was a failure and did not get far beyond Loko.

THE FIRST EUROPEAN IN THE TIN FIELDS Later in the same year the Niger Company sent out Mr. G. R. Nicolaus, a mining engineer, who made Badiko his objective. He reached Liruel-N-Delma, near Badiko, where he found a tin-smelting clan, or family, producing a curious form of ingot consisting of a number of coarse wires uniting at one end in a block of metal. Mr. Nicolaus found that the supply of their raw material was a somewhat impure black sand recovered principally from the Delimi River at Tilde-Fulani.

To Mr. Nicolaus, therefore, belongs the credit of having been the first European to set foot on the Nigerian tin fields.

In 1903 Mr. H. W. Laws (afterwards Lt.-Col. Laws, C.M.G., D.S.O.), commanded the third expedition. Laws, with two assistants, reached Tilde-Fulani, the point reached by Nicolaus, on the 24th November, 1903, and established his camp on the Delimi River close to what is now the headquarters of the Naraguta Extended Mines Ltd. This base established, the desire to exploit the country to the south—the Plateau, where the Delimi presumably had its source—was not to be resisted. Laws, accompanied by one of the assistants, Lowry, and seven soldiers marched to Bukuru.

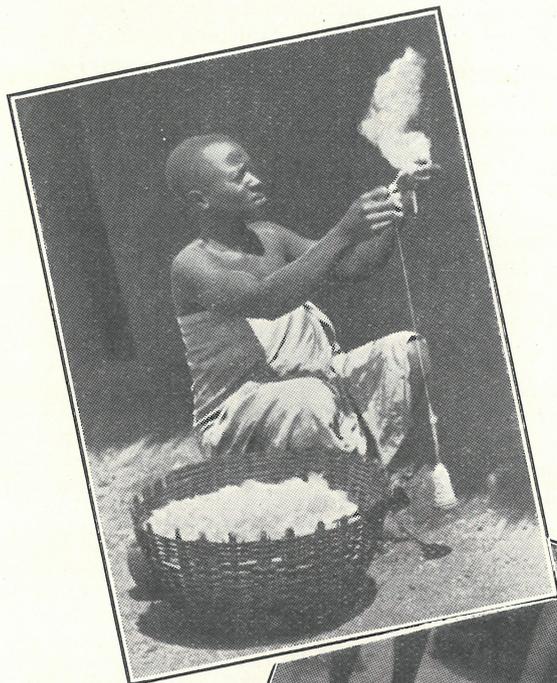
DIFFICULTIES WITH NATIVES OVERCOME There were several difficulties to be overcome in treating with the local pagans, who gave unfriendly demonstrations on various occasions. Laws, however, was able to show that, unlike his predecessors—the Fulani—who had some time before attempted to raid the Plateau for the purpose of trading in slaves and other merchandise, he was not seeking slaves or any other form of pillage, but was solely interested in the black sand which occurred in the river from the Plateau to the plains near Naraguta village. Finding that this white stranger—the first they had even seen—kept faith and maintained control of his followers, the pagans allowed him to follow the Delimi River into the Plateau for several miles.

A north-easterly line was taken from Bukuru until Foboro was struck, the return to camp being made by taking a bee-line across the Shere hills. The first penetration of the Plateau established a high reputation for the expedition. There were, however, signs that some of the less friendly towns to the south were inclined to put the power of this one white man to the test, and the expansion of prospecting operations gradually became more and more hazardous until at length Laws realised that further progress without assistance was impossible.

Prospecting had reached such a stage that for further development the final submission of the Plateau Pagan and the opening of a direct route to the River Niger became essential. An appeal was made to Government, who sent a company of soldiers from Zungeru, Laws joining them at Jemaa, Lowry having had to return earlier on account of illness.

THE BEGINNING OF AN IMPORTANT INDUSTRY The year 1903 saw the beginning of what was to become one of the most important industries of Nigeria and the sole source of the prosperity which the Plateau Province has since enjoyed.

The heart of the tin fields of Northern Nigeria is situated in this Plateau Province, which rises out of the surrounding country as a distinct plateau consisting of slightly undulating highland of an average height of over 4,000 feet above sea-level, with peaks rising to over 5,000



COTTON, POTS and PETROL-TINS

Left: Spinning cotton
at Okene, Kabba
Province.



Above: Pots for sale in the market
at Ibiaku, 12 miles north of Ikot
Ekpene. A great variety of pots
are made in this area, and these
illustrated sell from ½d. to 3d. each
—or the equivalent value in cowries.



Left: Bicycle transport of Palm Oil
in the Eastern Provinces, where vast
quantities of the oil are carried by
cyclists from the farms to collecting
depots. Much ingenuity is shown in
hammering out petrol-tins to make
them hold much more than 4 gallons.

feet. The Plateau has remained the centre of this industry, although tin was subsequently found in other parts of the Province, and also in adjoining Provinces, all such places are of secondary importance.

The Plateau was found to be populated by a large number of savage pagan tribes. The Delimi River proved to be rich in tin, and after the arrival of two more assistant engineers a new camp, named Naraguta, was made on that river and it became the beginning of the first Nigerian tin mine.

The name was adopted by the Company who afterwards purchased the property from the Niger Company. To-day it is known as the Naraguta Tin Mines, having been one of the largest producers on the field. Having demonstrated the success of Nigerian tin mining, the Board of the Niger Company, with a view to future royalties, were anxious to bring in outside capital for further development of the new industry. They therefore encouraged in various ways expedition after expedition which arrived on the field. Thus the Nigerian tin field was established.

In 1903 only 59 lbs. of tin were won, but in that and the immediate following years prospecting claimed more attention than actual mining, the conditions being very unsettled. The industry had become stabilised by the year 1910, when 774 tons were won and a Mines Department was formed. In 1915 the completion of a light railway from Zaria, on the main line, to the tin fields afforded the industry much-needed assistance in the matter of transport, while the opening of the Kafanchan-Jos Branch of the Nigerian Railway in 1927 provided a direct communication with the Nigerian coal mines near Enugu and stimulated the use of labour-saving machinery.

VEINS NEAR THE SURFACE ONLY WORKED

The mineral is oxide of tin, or cassiterite, and most of it is found in the form of black, water-worn grains of various sizes, from that of coarse gravel to that of fine sand. Cassiterite is also found in pegmatites and in small quartz veins on the younger granite. Several of these veins have been worked, but only near the surface, as it has not been found profitable to exploit them to any depth.

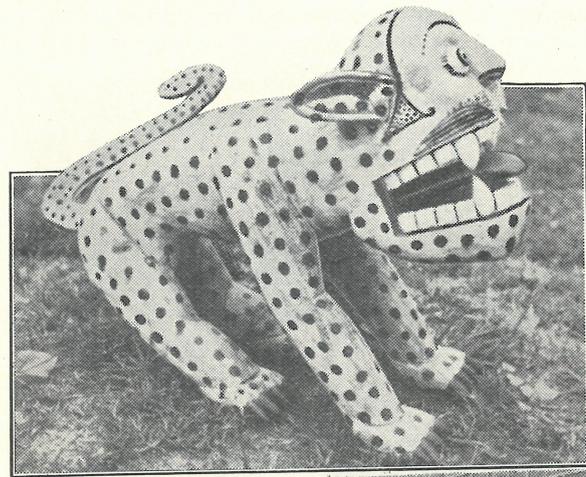
Practically the whole of the output of tin, it may be said, is obtained from deposits of an alluvial or detrital nature, chiefly the former. It has not been considered economical to smelt the tin ore in Nigeria, and it is exported in granular form packed in small bags usually weighing 70 lbs. each.

The industry made rapid strides after 1910, the output reaching its apex in 1929 at 15,220 tons.

No system of indentured labour has been introduced into this industry. Most of the natives employed are not indigenous inhabitants of the Province, although some of the younger generation know no other home than the mines-field. Numbers of these work on the mines only when they want money and decide to obtain it that way. The pagans are great agriculturists and are not available for work on the mines during the farming season, many usually working for a few weeks during the time the general tax is being collected.

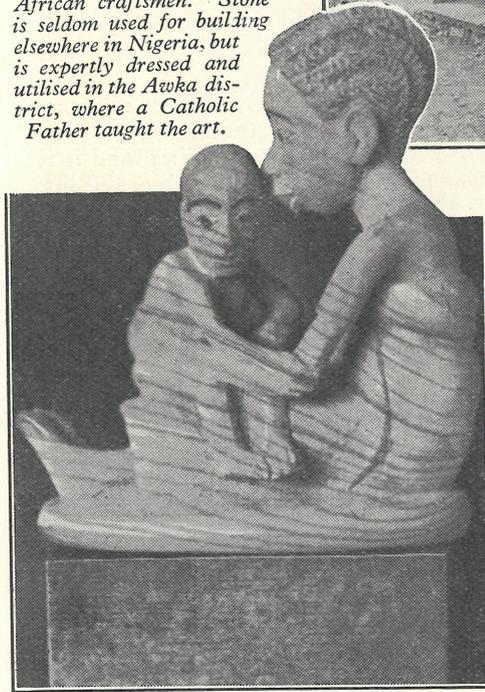
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In compiling this article the Author acknowledges a debt to the works of various writers, such as Sir George Taubman Goldie and A. C. Burns ("History of Nigeria").



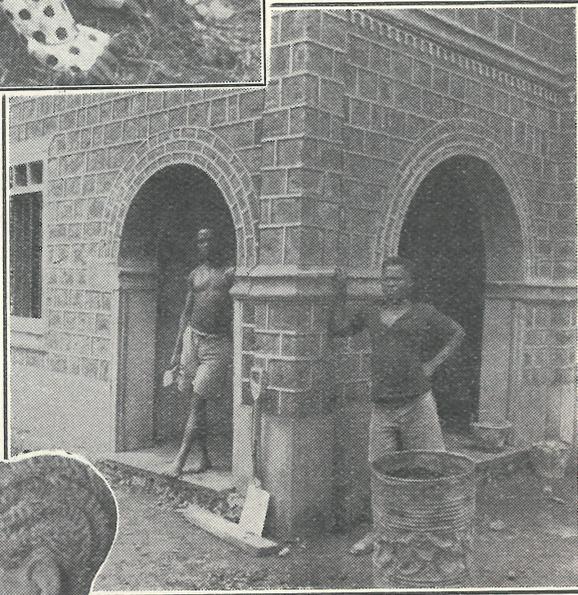
Above: A wooden animal about 2 feet high, carved and painted by Mr. Ahpan Ochuku, Onitsha Province, wood carver at Utu Etim Ekpo, Owerri Province, Southern Nigeria. This figure, and others, are used in connection with dances and festivals.

Right: Building a house with dressed stone blocks at a village near Awka, Onitsha Province—a house designed and built by African craftsmen. Stone is seldom used for building elsewhere in Nigeria, but is expertly dressed and utilised in the Awka district, where a Catholic Father taught the art.



Left: A miniature figure study, 2½ inches high, carved by Mr. J. D. Akereḍolu, Carving Master, The Government School, Owo, Southern Nigeria. The wood is the thorn of the cotton tree. The carvings of Mr. Akereḍolu, which are single figures or groups, make delightful gifts and, being small and light, they can be sent by letter-post. They vary in price from 2/3 to 5/-. The Editor points out that Mr. Akereḍolu is pleased to receive orders and enquiries.

CARVING and BUILDING

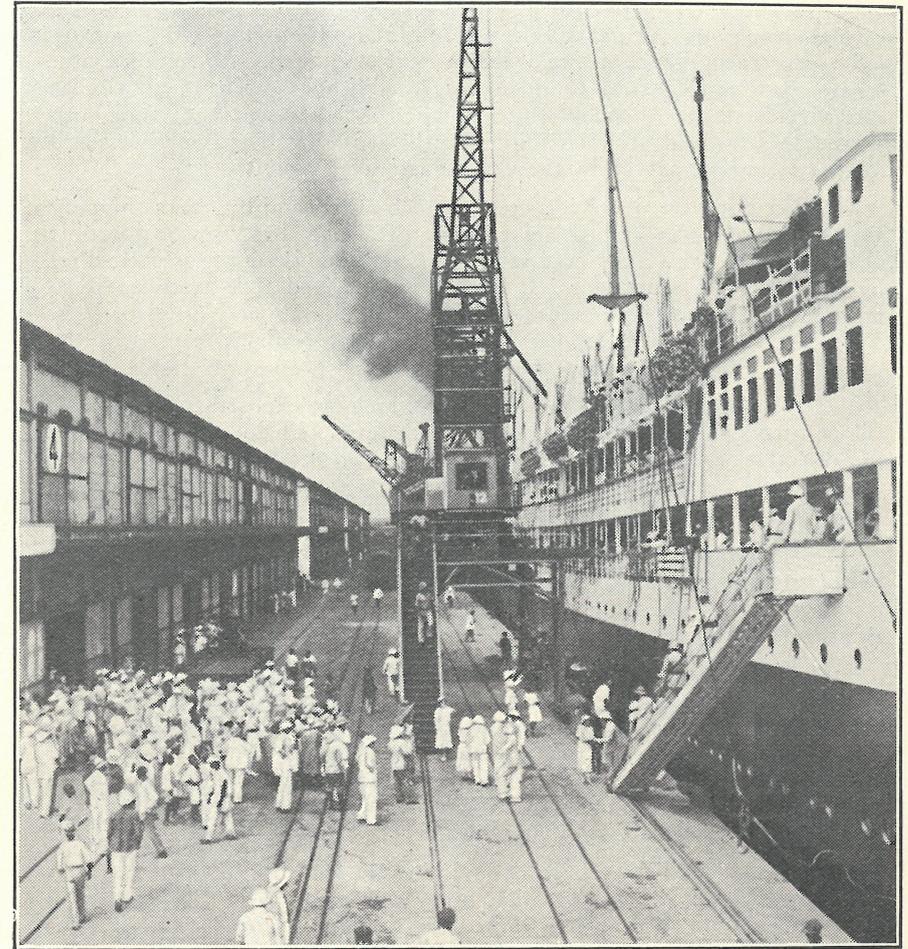


TRANSPORT IN NIGERIA

By G. V. O. BULKELEY, C.B.E.,

Director of Transport.

III.—PORT ENGINEERING



Visitors leaving the mail boat at Apapa, Lagos, just before she sailed for England at noon on a Saturday.

IN previous issues of *Nigeria* it has been seen how our Railway and Marine Services originated and have grown. It may have occurred to readers that the two principal open ports of Lagos and Port Harcourt could not have attained their present state of development without civil engineering work of some magnitude, which would not fall within the orbit of Railway and Marine activities.

The development of a primitive water-side trading place up to the status of a sheltered deep-water harbour, equipped with wharves and quays alongside which to-day's shipping can lie, and with bridges over which land traffic can pass, comprises engineering work of a very specialised nature.

The Port Engineer must possess long experience with the vagaries of tidal effect and coastal change. He must know what is likely to occur when he drives various kinds of piles into the bed of a harbour. He must be able to predict what effect a breakwater will have on the removal and subsequent deposit elsewhere of the coastal formation which the sea is endlessly effecting.

In addition to the ports of Lagos and Port Harcourt, Nigeria possesses several river ports, such as Warri, where Messrs. John Holt and Company have constructed and maintain their sheds and dockyard, and Burutu, where the United Africa Company has established and maintain similar extensive facilities. Both of these ports utilise the river bank and both are tidal, but inland. Ocean shipping calls at both. The river ports still further inland are served by the Companies' river vessels.

Other ports on rivers and creeks which are visited by ocean shipping are Calabar, Opobo and Degema, none of which has any major port engineering works. Any necessary and practicable dredging is carried on by the Marine Department. It will be appreciated that a sea coast so intersected by rivers and creeks as that of Nigeria abounds in river bars. These are shallow sand deposits, at or near a river-mouth, caused by the interaction of river tidal flow and of waves.

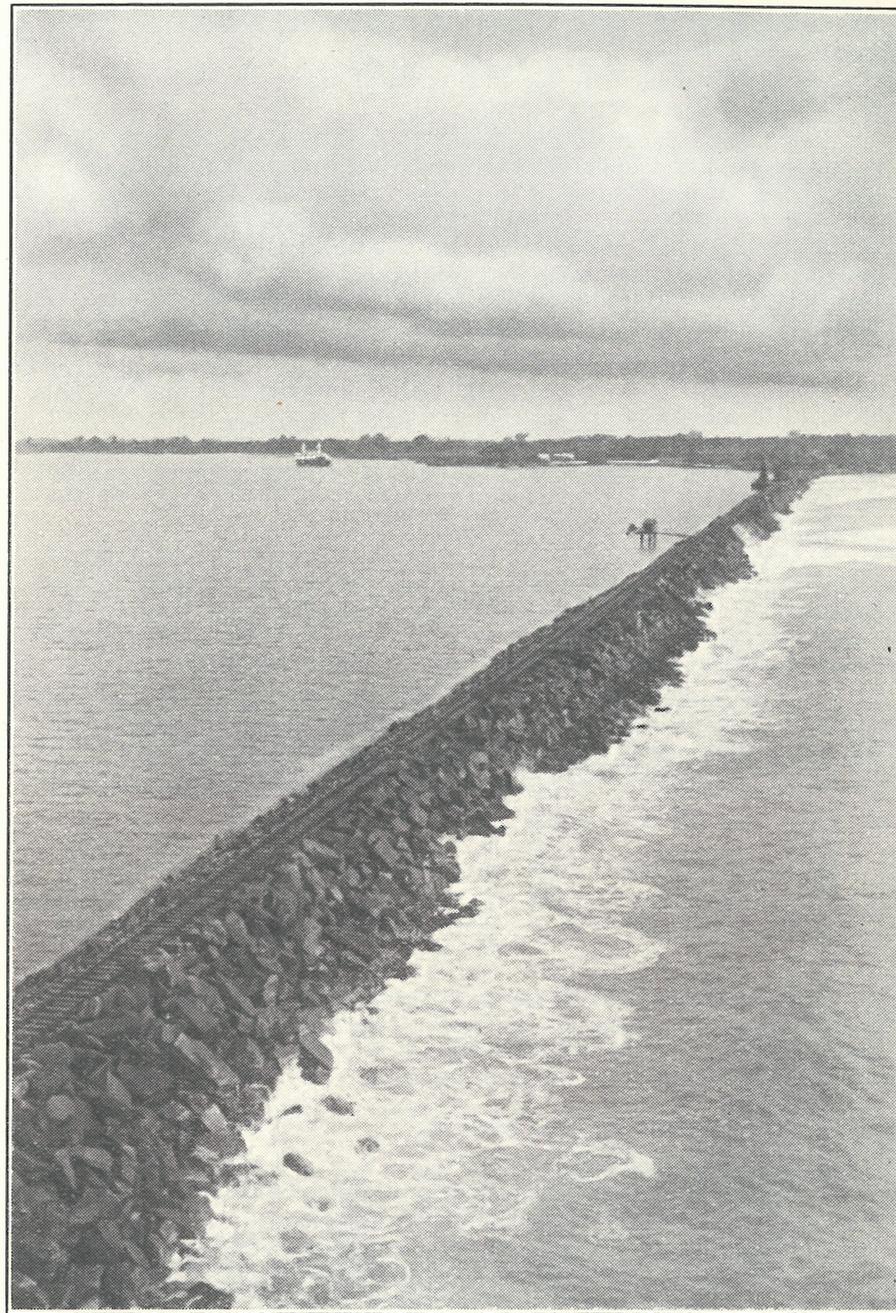
The dredging of these bars, most of which are exposed to heavy seas, is not practicable; nor would dredged channels remain as such without the directive water current scour afforded by breakwaters such as exist at the Port of Lagos. Such breakwaters are very expensive to construct and maintain and are unlikely to be provided elsewhere than at Lagos.

So, at present, port-engineering work of a major nature is confined to the Port of Lagos, together with a deep-water quay and coal-shipping facilities at Port Harcourt, which, being some miles up the Bonny River, needs no protective works.

The Port Engineering Department has its headquarters at Lagos. It is consultative in respect of port works other than those at Lagos and Port Harcourt, which latter are under the direct supervision of the Port Engineer, who is also in touch technically with the Consulting Harbour Engineers in London. The Port Engineer describes the gradual elimination of the old Lagos Harbour Bar and the substitution of a deep-water entrance channel as follows:—

“ Whilst it remained in its natural state the entrance to Lagos harbour was encumbered by a bar which underwent constant changes both in configuration and depth, and limited the draught of vessels entering the port to from nine to fourteen feet. This meant that the port was not available for ocean-going vessels, and prior to 1916 all passengers and cargo for Lagos had to be conveyed over the bar in branch boats, the transshipment taking place either in the open roads outside Lagos harbour, or, if the weather was rough, in the Forcados River, some 130 miles to the east.

“ The changes in the bar were produced by a combination of the physical conditions of swell, littoral drift, and fresh-water discharge, and although each of these was liable to appreciable seasonal and annual variations, generally speaking the changes followed a regular cycle. The complete cycle naturally covered a period of years and comprised the gradual forcing of the deep-water channel over to the east, by the action of the swell, and the deposit on the windward side of the entrance of the littoral drift of sand from the west. On the occurrence of a pronounced eastward trend to the channel, combined with a fresh-water discharge of



Part of the East Mole, Lagos Harbour, that helps to direct the flow in and out of the Harbour. The big stones have been brought from Abeokuta, 60 miles inland.

sufficient volume, the windward spit would be breached and the cycle completed.

“ The problem which faced the Consulting Engineers, Messrs. Coode, Son & Matthews (now Messrs. Coode, Wilson, Mitchell & Vaughan-Lee) when they were called upon to prepare a scheme for the improvement of

the entrance so as to permit ocean-going vessels to enter the harbour was therefore twofold—

- (1) To stabilise the direction of the channel ;
- (2) To increase its depth.

“ In order to stabilise the direction of the channel the Consulting Engineers decided to utilise the fresh-water discharge or outgoing current and so direct it that, instead of dissipating itself to the eastward directly it left the harbour mouth, it should be carried seaward so as to form a permanent breach in the windward spit. With this object in view the construction of the East Mole was commenced in 1908, and as early as 1912, when the work had reached a length of only 5,900 feet, a more or less stable channel had been established.

“ The next step was to increase the depth in the channel, and to do this it was necessary in the first place to afford protection from the action of the swell and the littoral drift of sand from the west. It was felt that if this was done it would be possible, in conjunction with dredging, to create and maintain a deep-water channel on the correct alignment. With this object in view the construction of the West, or Windward, Mole was commenced in 1912.

“ As this work progressed the deep-water channel gradually took a more westerly trend, and it was to correct any undue tendency in this direction, and to direct the channel into the most effective position for the escape seawards of the outgoing waters, that the West Training Bank was designed, the construction of which was commenced in 1915.”

That the anticipations of the Consulting Engineers have been justified, and that the works have led to a gradual and progressive improvement of the entrance channel, is clearly indicated in the following table :—

Years.	Minimum Draught.	Maximum Draught.
1907-1912	9' 0"	16' 6"
1913-1918	12' 0"	21' 0"
1919-1924	20' 0"	23' 0"
1925-1927	23' 0"	25' 0"
1928-1935	25' 0"	25' 0"
1936-1937	25' 0"	27' 0"

The maintenance of the Apapa deep-water quay and transit sheds ; the Customs wharf and transit sheds ; the Carter Bridge ; the civil engineering maintenance of the marine dockyard and kindred matters are the responsibility of the Port Engineer at Lagos. Also the maintenance of the deep-water quay and transit sheds, the coal shipping jetties and the marine dockyard works at Port Harcourt.

Harbour dredging at the Port of Lagos is carried out by the dredgers of the Marine Department to three-monthly programmes jointly decided upon by the Director of Marine and the Port Engineer.

CALABASH CARVING AS A CRAFT FOR SCHOOLS

By MISS D. I. HUME GRIFFITH,
St. Andrew's College, Oyo.

WE are constantly being reminded in various ways of the need for keeping African arts and crafts alive through the medium of the schools. This article is the result of research and practical work done by a group of students of St. Andrew's College, Oyo, during the first term of the year, under the instruction of a local calabash carver, each student making notes and drawings alongside practical work in the weekly lectures.

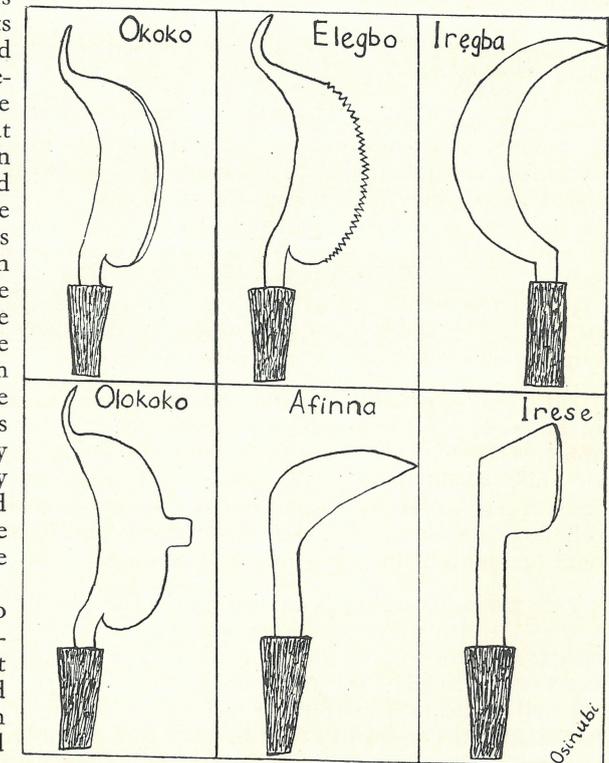
The information thus gained is put together here in the hope that it may encourage some who read to start this very interesting craft in their schools, if they have not already done so.

It recommends itself, apart from its artistic value and practical utility, because the expense involved is so slight that any school, even if unassisted, should be able to undertake it. The calabashes can be grown in many cases in the school farms and the knives can be made by a local blacksmith at a very moderate cost (thirty knives were made locally at 4/- the lot). They were made from old matchets which were broken or otherwise useless.

There is no great strength needed, but the right control of the hand and arm. Though this needs a good deal of practice at first, it is soon acquired, and many fascinating designs and ideas can be expressed on calabashes.

There are six knives used, and for beginners they are best used in the order which follows.

Okoko.—This is used for scraping the hard outside cover of the calabash in order to remove it completely before making any designs. It must always be used as a first process, unless the knife *Irese Afinna* is to



make the patterns. As the use of the latter involves more skill, beginners should always use *Okoko* for their first attempts.

Elegbo.—This is used to complete the process begun by *Okoko*, and the thin straight lines made by it are considered a pattern in themselves. The result is simply a plain calabash.

Iregba.—This is used to smooth the rough edges round the calabash. Notice the specially-curved part of the knife. It is used on all calabashes to round off the circular edge and give them a finish.

Gangan Afinna.—This is used for making designs of all kinds after the hard cover has been removed by *Okoko*. It is a remarkable knife for the amount it can accomplish and the fineness of line and pattern it can produce. It is used much more freely than either *Irese Afinna* or *Gangan Olokoko* for designs.

Irese Afinna.—This can only be used on a calabash which has not had the hard outside cover removed, and it makes beautiful raised patterns, notably animal figures and birds.

Gangan Olokoko.—This seems to be used for making only one design, called *Okegbere*.

A class of beginners would do well to start in the following way: the calabash must first be well scraped with *Okoko*, the knife being well sharpened (a sharpening stone and water should always be to hand in every lesson). The water should be freely applied as the calabash gets dry. *Okoko* is held firmly in both hands (by the handle and the pointed end of the knife) and the calabash grasped strongly between the feet in a standing position. When the hard cover has been removed in this way, either *Elegbo* can be used as a finish in itself or *Gangan Afinna* for the making of real patterns. There is no drawing of any kind to be done for this, the designs are worked out as the carver proceeds.

It is not possible to describe the tremendous variety of patterns which can be made with this knife, but these can best be studied by getting a supply of calabashes already carved for the school museum. Work with this knife would occupy a class for a full term, or more. Pupils could then proceed to study a selection of calabashes which had been carved with *Irese Afinna* and try their hand at that. The knife *Gangan Olokoko* could be omitted altogether in the early stages.

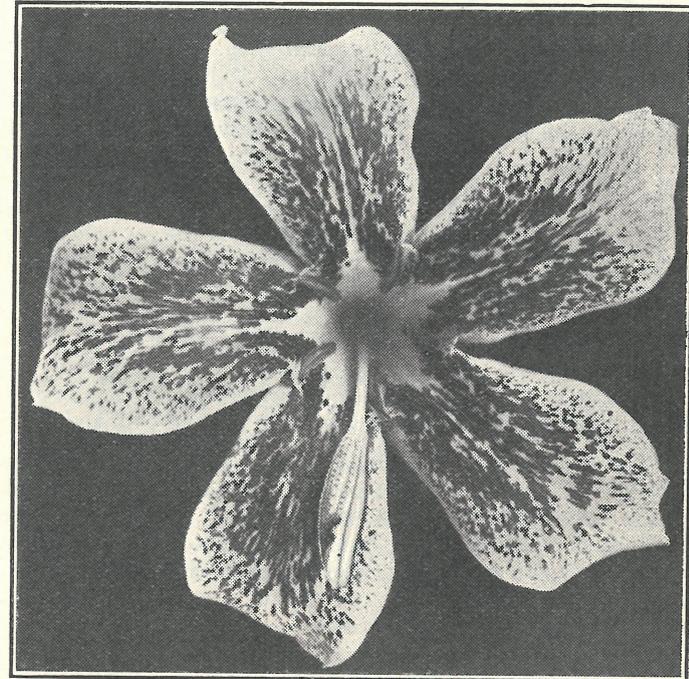
If calabash carving is carried on in the district near the school, by far the best plan would be to get a local carver to come in regularly once a week for a term to give the pupils first-hand instruction. A small group, once having mastered the art, could then teach a fresh group the following term and so keep the craft going on in the school from year to year. Boys from Standard I upwards could be very well employed in this craft, while the girls were having sewing lessons. It is common to see little boys of about six and seven years engaged in learning the different stages from their fathers or elder brothers, as it is handed down in the family usually.

What is written here is no more than an introduction to the whole subject, but perhaps it will arouse further interest in one of the most fascinating of African crafts, and inspire some readers to pursue the subject further and develop it in the schools to a really fine degree.

GARDEN NOTES

HOW TO MAKE USEFUL OBJECTS FOR THE GARDEN

By E. H. DUCKWORTH,
Inspector of Education.



The flower of a *Randia*. Several varieties of *Randia* grow in the bush and are worth cultivating in the garden. Juice from the fruit of the wild *Randia* is used for body-painting (*Uri drawings*). The flower in the photograph measures six inches across. It is funnel-shaped and the petals are cream-coloured, marked with brown, and the scent is very powerful. Propagated by cuttings of mature wood taken in March. Good specimen bushes can be seen near the vestry door of the Colonial Church, Lagos, and in the District Commissioner's garden, Uyo.

(1) SNAILS AND CRICKETS

Most gardeners are troubled by these pests, and it is not an uncommon sight to see young plants protected with old cigarette tins. Yet far better protectors can be made from a sheet of thin zinc. A large sheet of thin gauge zinc can be purchased from hardware stores for about 4/6, and this is enough to make 70 to 80 very efficient protectors. The zinc can be cut with a pair of hand metal-shears. Shears in the 8" size cost about 2/2, and are very useful for cutting petrol-tins, corrugated iron and other thin sheet metal. At Abeokuta it is possible to buy native-made shears. In Lagos, shears can be purchased from the various tool dealers in Broad Street.

Unroll the sheet of zinc on the floor and, with the help of a wooden straight edge and the tang end of a file, mark out the sheet into pieces measuring $10\frac{1}{2} \times 4$ ". Use the shears to cut the sheet into the measured portions; then bend each one into the form of a cylinder. Since the zinc has a certain amount of spring in it the pieces can be clipped, one over the other, and stored in a very small space.

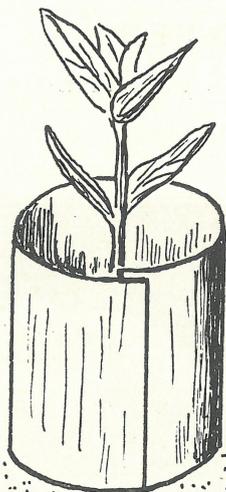


Fig. I

After planting out seedlings, put a cylinder round each plant (Fig. I). The cylinder will give protection from the wind, heavy rain and the sun—and almost complete protection from crickets and snails. Crickets do not think of jumping into the cylinder, while snails do not like crawling over zinc. It is possible that zinc has some chemical reaction with the snails' slime, and this may be the deterrent. If a plant should be attacked by a snail, look for the enemy in the morning inside the cylinder. As a rule it will be found hidden in the soil within.

Since the cylinders are not soldered, and have a cut up the side, they can be left round the plant as long as necessary and removed sideways without damaging the upper branches or foliage. Zinc does not rust progressively like the tinned steel of cigarette-tins. Zinc protectors, once made, can be used over and over again.

(2) CRICKETS IN SEED BOXES

A cricket established in a seed-box presents a special problem. It cannot be dug out without disturbing the young plants. A simple method of killing the pest is to put a few lumps of calcium carbide in the hole, add a little water and quickly cover the hole with a flat stone. The acetylene gas generated usually kills the cricket, but does no harm to the plants. The residue of slaked lime is also harmless to plant life.

(3) GARDEN LABELS

Good garden labels can be made out of sheet zinc. Obtain a sheet as described in the first paragraph and paint one side with white cellulose paint. When the paint is dry, mark out the sheet and cut it up into rectangular pieces measuring $1\frac{1}{2} \times 4\frac{1}{2}$, punch a hole at one end and the label is ready (Fig. II). Writing on the label can be done with an ordinary pen and nib, using waterproof Indian ink. Such labels will remain legible for about two years out of doors in Nigeria.

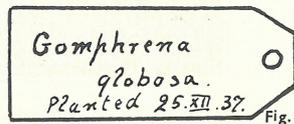


Fig. II

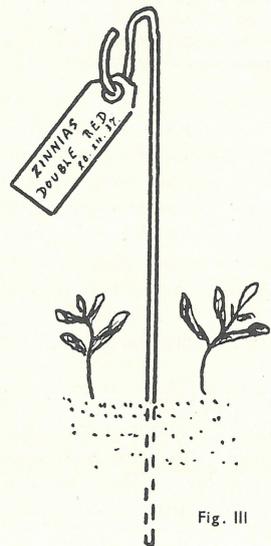


Fig. III

(4) WOODEN TUBS FOR CAMOUFLAGING PETROL-TINS

Petrol-tins make excellent receptacles for growing specimen plants and decorative palms, but are not things of beauty unless given a little attention. To prepare

a petrol-tin for garden use, cut out the top with a pair of shears and use a hammer, in conjunction with an anvil or a flat stone, to eliminate the sharp edge. Slash several holes in the bottom to provide for drainage, and before filling with soil put a layer of stones in the bottom to keep the drainage free. If the tin be given a coat of green paint it will look quite respectable, but a very pleasing effect is obtained by constructing wooden containers just large enough to hide the tin.

Such containers make a handsome addition to a veranda or living room. Two types, "A" and "B", are illustrated (Fig. IV and Fig. V). Type B calls for a little more skill in carpentry than Type A.

Type A. Before cutting up any wood it is advisable to make a paper pattern of each side. If difficulty be experienced in obtaining wood

in wide enough pieces it can be overcome by joining two or more boards together. Petrol-cases are suitable if used in this way. The container has a bottom fitted $2\frac{3}{4}$ " from the ground. This bottom is made of stout pieces of wood with spaces between to allow water to drain from the tin.

In fitting this bottom, take great care to see that it allows a petrol-tin to go into the container and come with the top edge of the tin level with, or a little below, the top edge of the container. When finished, the container should be painted or treated with a wood preservative such as Solignum.

Type B. The strips of wood A, B, C and D (Fig. V), and the four others not seen in the diagram, are $\frac{3}{4}$ " thick and $2\frac{3}{8}$ " wide. They form the top and bottom rails of the panels and are mortised into the corner posts. The boards that form the panels measure $13\frac{7}{8} \times 10 \times \frac{5}{8}$ " and can be nailed in position after

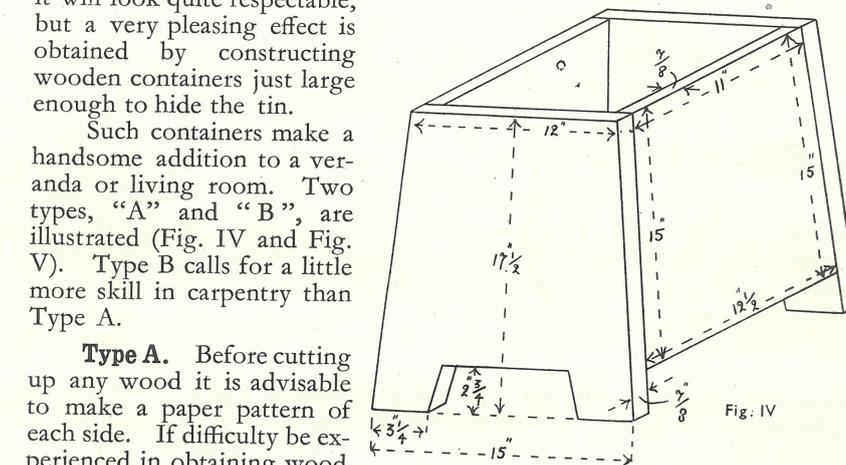


Fig. IV

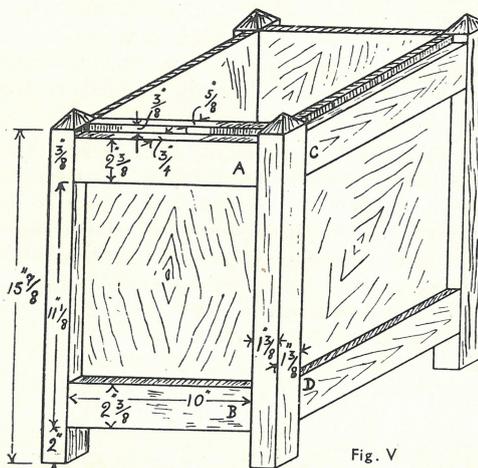


Fig. V

the posts and rails have been fastened together. Note that the outer faces of the rails must be flush with the outer faces of the posts.

A bottom should be fitted of the form described for Type A, and the same precaution should be taken, so that when a petrol-tin is put into the container it is entirely hidden.

If containers be made of Iroko, Mahogany or Opepe they form handsome pieces of furniture. Petrol-tins holding growing plants can be put into them or taken out as required.

The two drawings (Figs. IV and V) are in isometric projection, not views in perspective.

NOTES ON THE NATURAL ORDERS—PLANTS

By G. B.
Of Oyo.

[N.B.—A furlough comes between the introductory note in No. 7 issue of the magazine and a continuance of the series.]

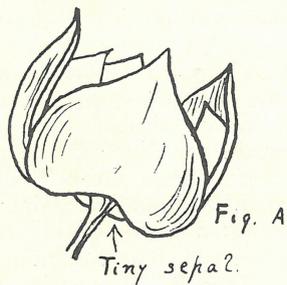
1. The Soursop Family (Natural Order: *Anonaceæ*).

This group of plants is the lowest in the scale of dicotyledons. In West Africa there are nearly one hundred indigenous species, grouped into twenty genera, and there are several introduced species of special interest.

One of these latter, frequently found in gardens, is the Soursop (*Anona muricata*). It is a native of tropical America and was brought to West Africa from the British West Indies in comparatively recent times. It is easily grown from seed and should be propagated widely because of its refreshing fruit.

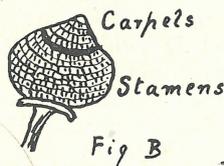
An examination of the Soursop will show the chief characters of the order. It is a medium-sized tree with greyish-coloured bark. The leaves are simple and entire, and are arranged alternately in two rows to left and right on the branches. When crushed, they give out a strong aromatic odour. This is due to the presence of volatile, or essential, oils in the leaf cells.

At first sight the flowers are peculiar, but on examination all the five parts of a complete flower will be noticed. The corolla consists of six

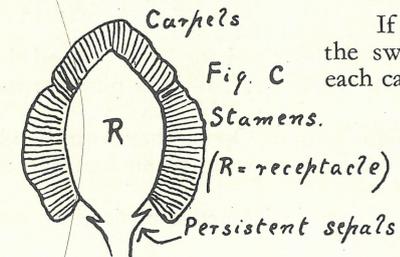


thick, fleshy petals, three forming an outer whorl and three others alternating with them to form an inner whorl. The outer whorl is green on the outside and the inner whorl is a pale yellow. The calyx may easily be missed, but it can be seen under the corolla as three small triangular sepals pressed closely to it.

The male organ of the flower (the *Andræcium*) consists of numerous short-stalked stamens thickly set on the lower part of the receptacle. On the upper part of the fleshy receptacle is the female part of the flower (the *gynæcium*, or pistil) consisting of numerous free carpels (*apocarpous*) closely packed together and having a sticky outer surface.



After fertilisation, the petals fall away and the stamens wither, but the carpels swell and grow big, joining together to form the fleshy fruit. The receptacle also grows and forms a core to the fruit.



If the fruit be cut open longitudinally, the swollen receptacle can easily be seen and each carpel can be marked by the large black seeds, which are the developed ovules of the one-ovuled carpels. The outer covering of the fruit has numerous small projections, each of which represents an original carpel. In some species

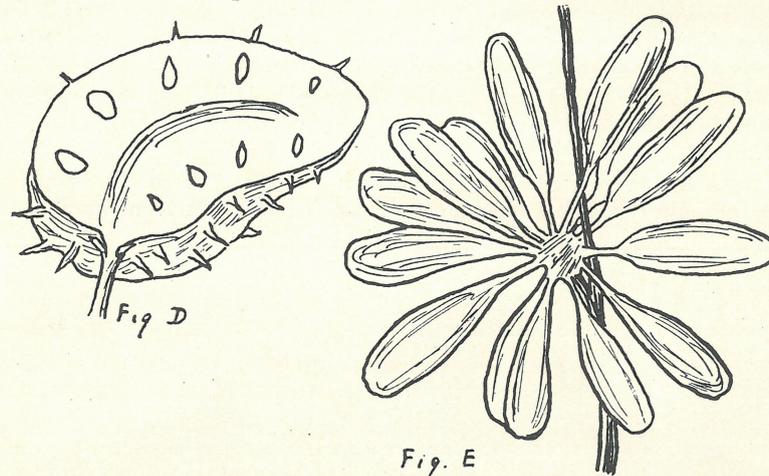
of anona, instead of these small projections there are well-marked sections.

All the members of this Natural Order are either trees or shrubs. Some are large trees, and of the shrubs some are erect and some climbing.

The commonest example in the Savannah country is the Wild Custard Apple (*Anona senegalensis*; Yoruba=Abo). It is a straggling shrub, or small tree. Both the flower and the fruit are smaller than those of the Soursop, but the same special characters can be observed.

The fruit is edible, but not very enticing. The leaves, bark, and roots are used medicinally in various parts of Africa. (See the *Useful Plants of Nigeria*, p. 49.)

Two other members are in common use in the Yoruba Country for the making of the concoction given to babies known as agbo—*Uvaria Chama* (Yoruba=eru-iju), and *Xylopiæ æthiopicæ* (Yoruba=eru). *Uvaria* is quite common in the bush, growing outside towns. The petals are not so fleshy as those of the anonas, and more nearly resemble the petals of ordinary flowers, but the essential organs (stamens and pistil) are similar to those of the Soursop.



The fruits of these two genera, however, are very different in outward appearance. After fertilisation the carpels develop separately, and do not coalesce into one massive fruit. In *Uvaria* the fruits look like a bunch of small black bananas.

Mention should be made of another introduced species of *Anona* which is sometimes seen in Nigerian gardens—the Sweet-sop or Sugar-apple (*Anona squamosa*). By some, the fruit is thought to be inferior to the Soursop. In India it is known as the Custard Apple.

There is an unfortunate confusion of names here, because in the West Indies the Custard Apple is the allied species, *Anona reticulata*. In India this is known as Bullock's Heart. It is better for us in Nigeria to keep to the West Indian names—Sweet-sop for *Anona squamosa* and Custard Apple for *Anona reticulata*.

The most beautiful of the *Anonaceæ* is the Orchid-flower tree (*Monodora tenuifolia*), which is very widely distributed throughout the forests of Nigeria. In the Southern Provinces it is usually in full bloom in March, and is a very striking picture with its whitish-yellow, purple-spotted outer petals.

The pistil is very different in this genus of the *Anonaceæ*, for instead of a number of separate carpels closely packed together on the receptacle, the carpels unite to form a one-celled ovary with *parietal placentas*. The plant is easily propagated from seed.

Note 1.—Beginners are often confused with the terms pistil and carpel. The pistil (sometimes called the *gynacium*) is the name given to the whole of the female organ of the flower. It is made up of carpels, just as the corolla is made up of petals. The difficulty arises because in many flowers the carpels are united, more or less, into a single whole.

For example, the pistil of the orange flower appears as one organ, but actually there are a number of carpels fused together in their stigmas, styles, and ovaries. You can often tell the number of carpels by cutting the ovary transversely and counting the number of cells. In some flowers—*e.g.* Hibiscus—the stigmas are separate and you can tell the number of united carpels in that way. The cohesion of the carpels is an interesting study, but cannot be pursued in this article.

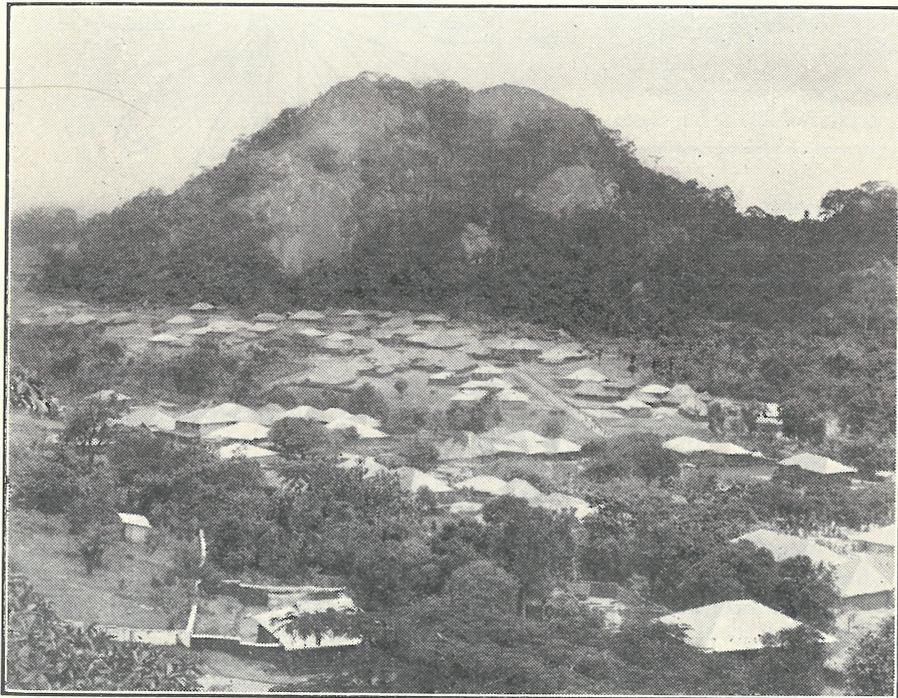
Perhaps it should be mentioned that when the carpels of a flower are more or less united, the pistil is said to be *syncarpous*, and when the carpels are completely free (as in the *anonas*) the pistil is said to be *apocarpous*.

Note 2. Reference was made to the essential oils in the leaf of the Soursop. It should be noted that there are two classes of oils in plants.

(a) essential, or volatile, oils, which, because they are volatile, give odours—sweet or otherwise—to flowers and other parts of plants. Such oils can be distilled from plants and in the case of sweet-smelling oils are dissolved in alcohol and sold as scents.

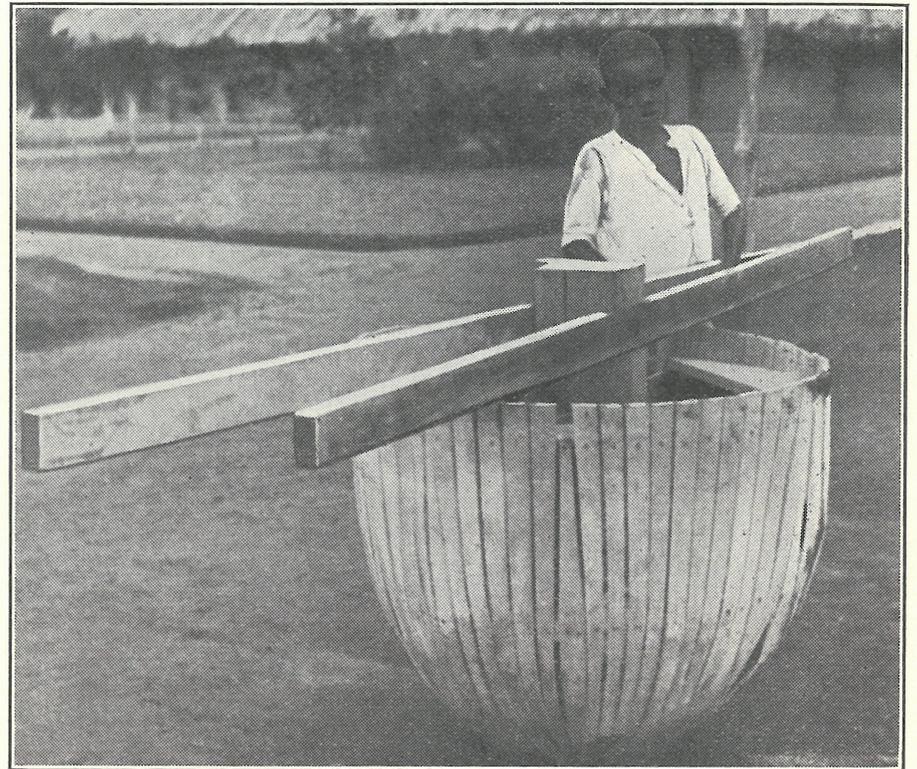
(b) Fatty or fixed oils, which are not volatile and are obtained, principally from seeds, by pressure—*e.g.* palm-kernel oil, ground-nut oil, coconut oil, etc.

Note 3. A very pleasant way of using the fruit of the Soursop is to press the pulp through a fine sieve and use it to flavour blanc-mange.



Part of the town of Ikari, Ondo Province, as seen from the rest-house. This town has been well-planned and is very progressive. In the old days of war the people used to take refuge on the hill-top. Ikari is on an important line of communication between Lokoja, Ado-Ekiti, and Owo.

PALM OIL EXTRACTION THE CONSTRUCTION OF A CONCRETE MORTAR FOR CRUSHING PALM NUTS



Wooden mould used in the construction of a concrete mortar for crushing palm nuts.

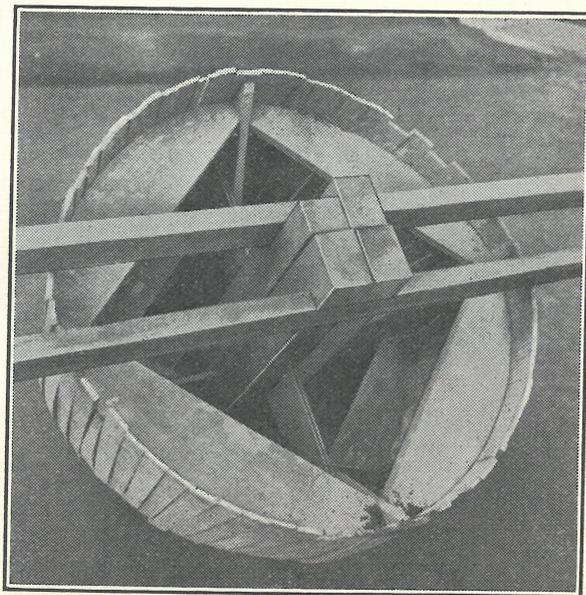
PALM oil presses are becoming very popular and many farmers and a few schools have invested in these labour-saving machines.

The use of a press involves the preparatory work of boiling and crushing the nuts. The crushing of the nuts after boiling is often done by women in small wooden mortars. Some owners of presses use an old steel barrel, cut in half, but Mr. R. Wadsworth, P.W.D., Uyo, has designed a mortar that is very cheap and easy to make and is much more efficient than either of these forms.

The mortar is made of cement and formed in the ground with its top edge 6 inches above ground level. The shape is shown in the sketch. The correct formation of the inside surface is obtained by the use of a wooden mould as shown in the photographs. The stages of construction are as follows:—

- (1) Dig a hole of suitable size and shape. Make it larger than the mould by $6\frac{1}{2}$ inches all round.
- (2) Place the mould in position after treating the outer surface with palm oil to prevent the cement sticking to it.
- (3) Fill the space between the mould and the sides of the hole with a cement mixture of 1 part cement, 3 sand, 6 gravel.

The mould photographed from another angle. This mould is used to construct the concrete mortar illustrated below.



- (4) After a few hours, pull out the mould and allow the cement to set.
- (5) Wet the surface of the concrete and finish off the inside of the mortar to a smooth finish with a mixture of 1 part cement and 3 of sand.

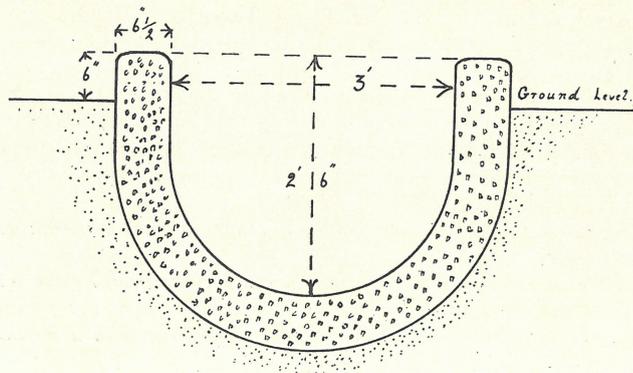
A mortar of this type has been constructed at the Elementary Training Centre, Uyo, and can be seen in use by local farmers nearly every day of the week.

The nuts, after boiling, are shovelled into the mortar, and four men or boys with long, heavy sticks can quickly and with little labour pound up a large quantity. Since the top of the mortar is only 6 in. above ground-level, and 3 ft. in diameter, it is possible for all the workers to stand round it and use their labour to full effect.

The shape of the mortar ensures the nuts falling into suitable positions to receive the successive blows from the sticks.

The original mortar has proved such a success that many of the farmers round Uyo are making reproductions of it for use on their own farms. The construction of the wooden mould presents few difficulties and is not beyond the capacity of any carpenter of moderate skill.

The mould, once made, can be used over and over again.



Sectional sketch of the concrete mortar described in this article.

NATURE NOTES

AN OIL-PALM TREE WHICH HAS TWO STEMS

IN the Ishan Forest, where wild oil-palm trees abound, one finds an oil-palm tree with two stems. The main stem, after reaching a height of about 16 to 18 feet, grows another branch.

The strange thing about this oil-palm tree is that one of the stems bears superior fruits to the other. The fruits of the one which bears the superior fruit are richer in oil, but have very small nuts. Such fruits are found in some rare oil-palms trees which the natives call *ogiedin*, meaning king of oil-palm fruits.



The other branch-stem resembles the common oil-palm trees and its fruits are also like their fruits.

Can anyone tell why this oil-palm has two stems and why the fruits of each stem differ in the richness of oil and size of nuts?

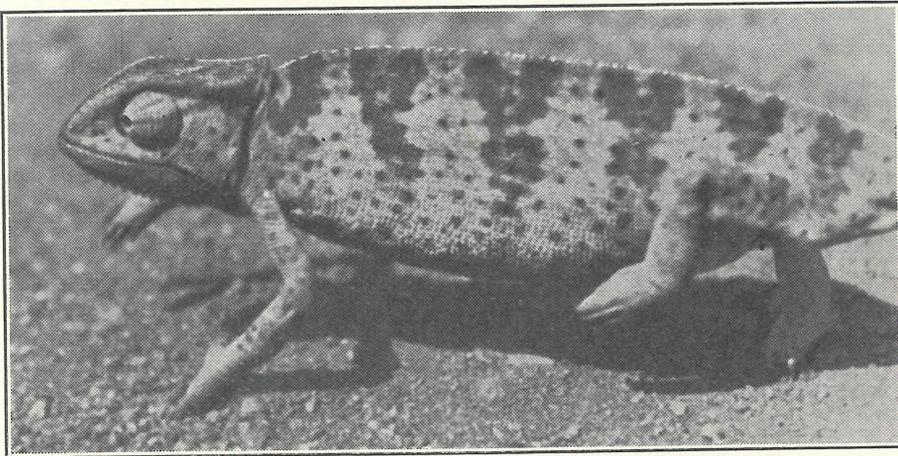
Such an oil-palm tree can be found in the bush at Idumebo, a village in Irrua District, and in the bush lying between Opoji and Ekpoma Districts.

R. M. OJEZUA,

Government School, Ewu.

THE CHAMELEON

THE chameleon is a very curious animal—and here are some of the strange things about it. It can change the colour of its skin. It cannot move rapidly, but only very slowly—notice that the toes of the feet are not all separate. It can hold on with its tail. The eyes can be turned in almost any direction and their movements are independent of each other—the movements of your own eyes are not independent. Finally, and not the least curious thing, is that the tongue is nearly as long as the body and is sticky at the end.



There must be some reason for these curiosities in its structure and behaviour. Can you think of one? What about something to do with food?

Chameleons are quite harmless and should not be killed.

A. J. CARPENTER,
King's College, Lagos.

BOOK REVIEWS

“*Omu—An African Experiment in Education.*” By J. D. Clarke, Superintendent of Education. (Longmans. 6/-.)

NOTE the title—“*An African Experiment in Education,*” not an experiment in *African Education.* This is a valuable contribution to educational theory and practice in general, not only to the education of Africans. Something new and very good indeed out of Africa!

Our present system of education in England is only about a hundred years old. Last century, our educationists were struggling in the dark following ideas, many of which proved unsound. It was during this period, when we were still uncertain of the best principles, that European education was first brought to Africa.

Many of the ideas that were brought out by those pioneer educationists have since been modified or discarded in England, but the African is proverbially conservative and clings to those ideas as if they were the essentials. Where education has been long-established in Africa, therefore, a mass of tradition and prejudice hinders the introduction of the better

ideas, which have emerged little by little from the sea of errors and are now the accepted basis of educational theory.

We must, therefore, look to some area previously untouched as a field in which ideas, proved to be thoroughly sound in Europe and other parts of the world, may be tried out in Nigeria with some hope of success. Omu, a remote corner of Yoruba, has provided such a field, and Mr. J. D. Clarke has made full use of his opportunities.

He has followed the trend of educational progress in England, and experiment all over Africa, has adopted all that is best and added much of his own. You must read this book, with its delightful illustrations, to understand his ideas and methods, but you must visit Omu or meet Omu boys really to appreciate his success.

No-one should miss reading this book, and no-one who gets an opportunity of visiting Omu should miss it!

A. HUNT-COOKE.

“*Okha Edo vbobo.*” By Jacob U. Egharevba. Specially authorised by Uku Akplokpolo Akenzua II The Oba of Benin, Benin City. C.M.S. Bookshop, Lagos, 1937. VIII, 111 pp., 15 photographs.

THE book under review is a Second Edition of a collection of stories of which the author had printed, on his own press, a limited number of copies. It had been out of print, but now it appears again, enlarged and with the most useful addition of some good photographs, most of them taken by Mr. E. H. Marfleet.

Its contents are of great variety and interest; myths, like that of the creation of the world, and traditional legends such as those concerning the giant Aruanran or the master-robber Atakparhakpa alternate with simple folk-tales as the one dealing with the Cripple and the Blind Man (which has just been published, with some other stories by Mr. H. L. M. Butcher, in the journal *Africa*, 1937, X, 3, in July).

All these things are told in the simple, straightforward chronicle style found in the same author's *History of Benin* (Ekherhe vbe ebe itan Edo, C.M.S., Benin City, 1934) and should give additional information on many of the men and things mentioned in it. The book provides ample and entertaining reading and helps to evoke a lively picture of Old Benin, rich in marked characters and dramatic incidents.

The author is to be congratulated on his tireless efforts on behalf of Edo literature, and it is hoped that we may look forward soon to other writings from his pen.

H. J. MELZIAN.

Books for Schools and Colleges

An English Pronouncing Dictionary. Dr. Daniel Jones. Dent, 7/6. Gives the pronunciation of 54,000 words by means of the International Phonetic Transcription. Students at Agege Elementary Training Centre report that they found this book very interesting and useful.

A Contemporary History for Students Overseas. A. B. Therbald. 167 pp., with maps. Longmans. Price about 2/-. Excellent for teachers and Middle School pupils who want a clear idea of world movements from the Great War to the present day.

New Era Geographies, Book II—Australia, Asia and Africa. Scarson and Evans. 320 pp. Johnston, 2/10. Straightforward style, excellent

maps and diagrams, up-to-date, with valuable climatic and other statistics. Marred by inaccurate and derogatory clichés such as "Real continued effort . . . is almost unknown amongst West African natives," and "The Negro has given little attention to Art."

A Basic Phonetic Reader. Professor A. Lloyd James. 198 pp. Nelson, 3/6. An outstanding discussion of the pronunciation of Basic English, followed by the pronunciation of the 850 Basic words, with nineteen well-chosen passages printed with the ordinary Latin print parallel to the International Phonetic transcription. Accents, as well as pronunciation, indicated in the transcription. A book of importance to all seriously interested in English teaching. We understand that a set of gramophone records to illustrate the book is being prepared.

Verse Time Books of Dramatic Poetry and Speech Training. W. J. Glover. Eight books, 48 to 64 pp. George Philip and Son. Paper cover, 9d. each. Anthologies of verse suitable for Elementary Class I upwards. Excellent material and guidance for the teacher, both in the Poetry lesson and in Speech Training; something useful to replace the bad old types of Reading Aloud and Recitation lessons we still hear from time to time.

Common Errors in Gold Coast English. Brown and Scragg. Approved by the Education Department of the Gold Coast. 99+vii pp. Achimota Press, 2/6. In practice this is very nearly a *Common Errors in West Coast English*. All Elementary and Higher Elementary Teachers will find it extremely useful.

An Every Day English Course for Foreign Students. C. E. Eckersley. Longmans. viii+212 pp., 2/6. Although written chiefly for foreign students learning English in England, this excellent course should be useful in most Middle Schools and Training Colleges.

Tales Retold for Easy Reading. Oxford University Press. Ten titles issued at 8d. or 10d. each. Suitable for classroom libraries, for pupils who have achieved a vocabulary of 1,500 words by means of an efficient English Course such as Faucett's or West's.

Our Changing Times. Edited by C. K. Ogden. Nelson. This is a series of readers of Historical or Scientific interest written in Basic English, suitable for classroom libraries, Higher Elementary or Middle.

The New Method English Library. Longmans. Five titles issued, at prices from 9d to 2/-. Another excellent series of readers for the classroom library, from about Elementary Class III upwards.

Simple Science in Simple English. Oxford University Press. Six books issued at prices from 6d. to 1/-. Based on a standard vocabulary of 1,500 words, and specially written for bi-lingual schools in Africa, these books can safely be recommended for the study of Elementary Science, and as supplementary readers, for Elementary and Higher Elementary schools.

Supplementary Practice Arithmetics. H. J. Lacombe. Books I to III, 5d. each. In many of our Elementary schools children do far too few sums, and so never attain reasonable speed and accuracy. These Arithmetics should help teachers to cure this.

Discovering History. General Editor, C. S. S. Higham. Book I, Founders of Cities, 1/6; Book II, The Heritage of Greece and Rome, 1/9; Book III, Men who made Britain, 2/-; Book IV, Makers of the Modern World. Longmans. Though this four-year History Course is written for English schools, Books I and II at least would be a useful addition to any

Elementary School library as a supplementary reader for pupils' use and as a guide to teachers in making the History lesson alive.

Home and Overseas Geography. C. J. Bool. Pitman. Book I, People Far and Near, 2/-; Book II, The World at Work, 2/3. These books have proved an excellent supplement to Batten's Handbook for use in Elementary schools. Most of the stories, of course, need to be re-told from a West African point of view.

The Kingsway Atlas. Edited by George Philip. Paper cover, 48 pp. of maps, 4 pp. of models, giving latitudes and longitudes. Evans, 1/6. The physical, political, climatic and population maps are clean, bold, and up-to-date. Edited primarily for English schools, but as good an atlas for the money as we have seen.

The Editor has also received a large number of specimen Supplementary Readers for use in conjunction with West's and with Faucett's English courses. Prices range from 4d. up to about 1/-. While pupils cannot usually afford to buy supplementary readers in addition to class readers, it should now be possible for school and class-room libraries to be stocked with really useful and interesting books for a very inconsiderable outlay.

F. A. A.

The Dryad Press, 42 St. Nicholas Street, Leicester, publish numerous books on craftwork, such as weaving, dyeing, book-binding, leather-work, metal-work, and wood-work. The following recent publications have been received from this Press.

The Junior Basket-maker. By Charles Crampton. 42 pp., illustrated. About 1/6. The book gives clear directions for making many types of basket.

Dryad Leaflet, No. 97—A Doll's House Living-room. Price 6d. The leaflet describes the making of toy furniture in paper and cardboard.

Weaving Patterns of Yesterday and To-day. By Violetta Thurston. 42 pp., illustrated. Price 2/6. The drafts are intended for table looms and foot-power looms. Dryad Handicrafts, Leicester, supply looms of many types. They vary in price from a few shillings to £10 15s. 0d.

Hand Puppets and String Puppets. By W. S. Lanchester. 35 pp., very fully illustrated. Price 2/6.

The Art of Wood-working and Furniture-making. By A. Gregory. 7/6. Numerous drawings and photographs. 130 pp. The book gives excellent designs for making a great variety of furniture. School wood-working shops would find this book very useful and many professional carpenters would find it of great value. It describes the making of tables, chairs, cupboards, sideboards and many other articles of household use.

* * * * *

Simple Chemistry. By F. Fairbrother. Published by G. Bell & Sons, Ltd., 1937. Price 3/-. 226 pp., fully illustrated. This book is very suitable for Nigerian Middle Schools equipped with a science laboratory. It covers the Chemistry section of the General Science Syllabus, Classes I-VI. Mr. Fairbrother has taken a leading part in developing the teaching of General Science in English schools.

E. H. DUCKWORTH.



A MARKET STALL, ONITSHA.

Most of the goods on this stall have been imported and include electric torches, rubber balls, mirrors, caps, bangles, and other things.

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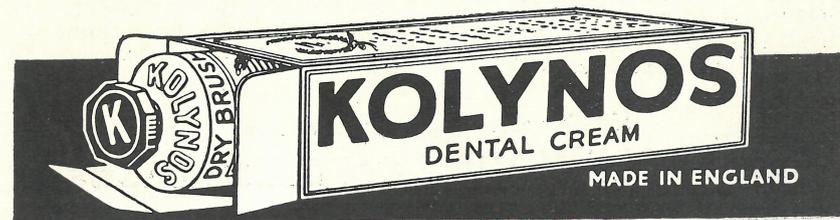
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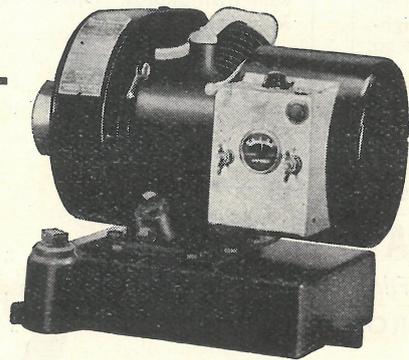
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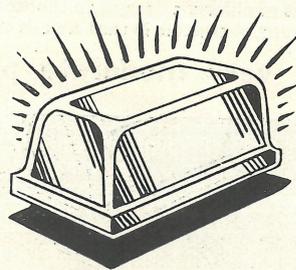
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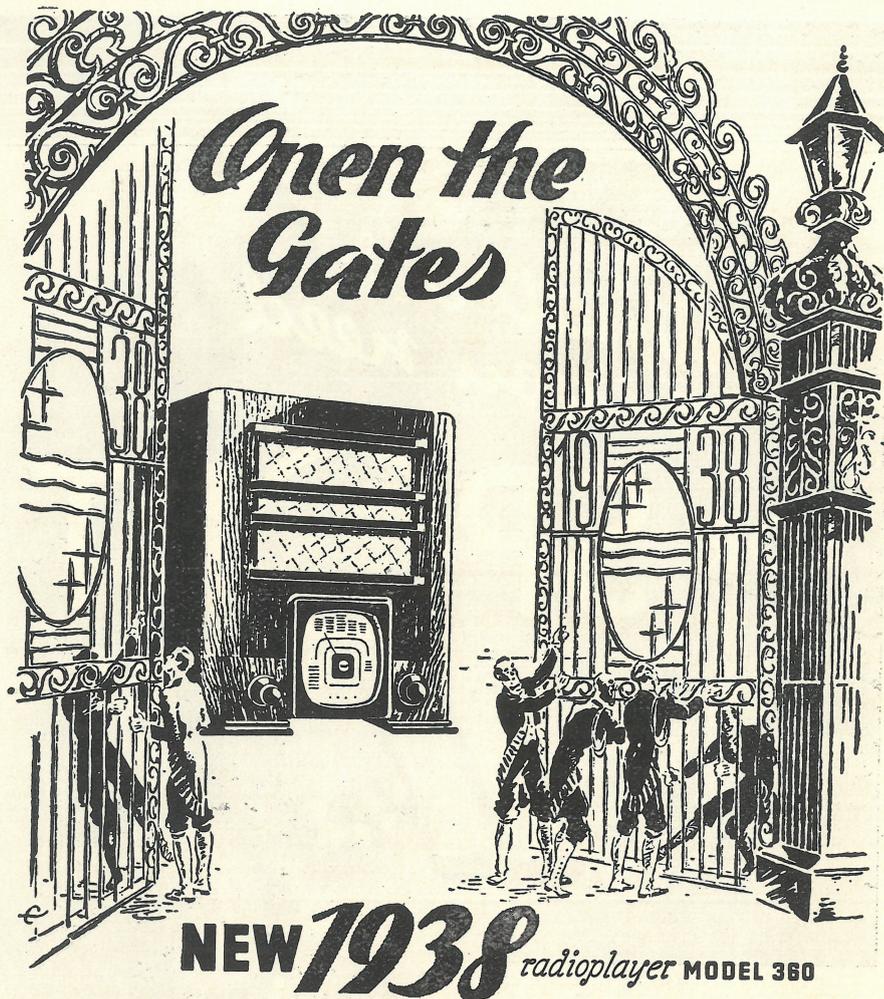
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and Printed by A. BROWN & SONS, LTD., London and Hull, England.