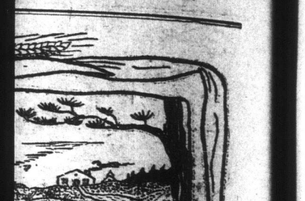

lly unbreakable, can be made
ng a welded fabric known as
rg fence in place of the net-

desirable, where several boxes
ded, to arrange molds so that
han one box can be made at
thereby expediting the oper-
nd concentrating the labor

5-foot box, ten inches wide at
twelve inches wide at top and
ches high, the cost was:
wire poultry netting 6 ft.
e at $3 00 per 100 ft.....$0.26
l cement at $2 60 ..... 0.22
rd sand at $1.60 ..... 0.14
's time at $1.50 ..... 0.38

$0.80

nly tools used were wire cut-
mmer and trowel.

GOOD HOUSEPLANT

Clivia is an evergreen, bulbous
hich is admirably adapted to
ulture. It does not, as a rule,
potting more often than once
or three years. It may be done
er the plants have flowered
to June), and before growth
ces. Years when repotting is
remove an inch or two of the
replacing it with fresh soil
plants are so seldom repotted
decided advantage to add to
shel of soil about one-half pint
meal and two quarts of finely
charcoal.

COMMON FOXGLOVE

foxglove (Digitalis purpurea)
effective when grown in
backed by shrubbery. It is
e most easily grown biennials.
own in July will bloom the
g May or June. The plants
many seeds which self-sow
as ripe and the young plants
m the following summer with-
her care. A 4-inch mulch of
rom a hardwood tree will help
the plants in good condition
vinter.

DEN AND FORESTRY

Tie Up the Dahlias.

e hoe freely about the dahlia
this season of the year and
ops to a stake firmly driven
ground. This is necessary in
prevent the tops from being
with the winds. Use quite a
e as the plants will yet grow
good deal taller. It is better
dahlias on only a few stalks—
vocate only one—so cut off all
g stalks that may have start-
n the season.

Kerosene Emulsion.

the "stand-by" preparations
destruction of many forms of
e kerosene emulsion. It has
ntage of being easily made
erials that are ready to hand,
being non-poisonous. This
on may be used to kill cab-
rms and most other insects
e soft bodies, including plant
spiders, etc. It will destroy
rms of insects that suck their
that, therefore, would not
by Paris green, hellebore, or
isons. The recipe is as fol-
ard, soft, or whale oil soap,
d; boiling soft water, one
eresene, two gallons. Dis-
soap in the water; add the
and churn briskly for five
minutes. This preparation
kept for some time. Dilute
m four to ten times the
of water before applying.
pplied with a spray pump, or
atering can may be used.

usewife will want a few small
eets for pickling, and if you
ttle strip of well fertilized
e is still time to sow and
little beets before frost.
r the soil, the faster they will
d the more tender and juicy
be.

n the spring we advised sow-
s chard, a plant of the beet
hich grows tops rather than
d using it all summer for
If you have sown a row of
will find that if you mow
down to within three inches
round as soon as they grow
you will have a nice new
at will be green and tender
reezes up.

e had enquiries as to the cure
rdinary currant worm, which
foliage from currant and
y bushes. The treatment is
the bushes with hellebore and
e ounce of hellebore in three
water. This should be ap-
a time when there will not
a rain within a day or two
it off. The hellebore is not
tic as Paris green and other
poisons, and may be used on
to within a short time be-
edible portions of the plant

ests, like our farms, are
tal. They are not only ob-
industry in themselves, fur-
vestment for capital and em-
for labor, and yielding pro-
mmense value; but they bear
relation to many other in-
a relation that is fundamen-
out a supply of logs our saw
t discontinue business, with-
r our planing mills, box fac-
d wood-working industries
must disappear. Without
cts of the woodworking in-
other branches of industry
crippled. And so on, until
actories and all occupations
ed. Forests are not only im-
commerce and industry, but
ence exercises a benign in-
n soil and climate. Then
ften the asperities of a harsh
hey aid in the conservation
re, and they check erosion.
they appeal to the aesthe-
our nature. For these dif-
sons the forests deserve to
arefully guarded by the gov-
as a great national asset.

Combined Strategy for the Army and Navy

"Combined Strategy for Fleets and Armies" or "Amphibious Strategy," was the subject of an interesting discussion at a recent meeting of the Royal United Service institution. The subject was introduced by a paper by Col. G. G. Aston, C. B., R.M.A., of the Staff college, Camberly, following which several well known military and naval men expressed their views. The chair was occupied by admiral of the fleet, Sir A. K. Wilson, V .C., and there was a large attendance of military and naval officers. The discussion is thus reported in the London Times of Wednesday, July 17, the meeting having taken place the previous day:

Col. Aston said that simple land strategy could be applied only in a conflict between continental countries and their immediate neighbors. Our own case was different. On account of the geographical distribution of the territory and population under our flag we might have to fight both on sea and land for our existence as an empire. Strategy for us must necessarily embrace the conduct of operations on both elements, and practically all the civilized countries in the world, except Switzerland, were the immediate neighbors of the British empire in this sense. In carrying on war the first business was to locate and aim at the enemy's vitals. The simplest, quickest, and cheapest way of doing this was by rapid invasion of the home territory, defeat of the field army, and seizure of all resources for organizing another one. Industrial countries were becoming increasingly dependent upon free communication with other countries and oversea markets. In the special case of the United Kingdom, serious interference with sea communication might bring the war to almost as speedy a conclusion as successful invasion. Financial endurance was an important factor in success and must be looked upon as a vital. In examining some of the main differences affecting the strategical employment of forces by sea and land, he observed that concentration of effort was essential to successful strategy. We had had a recent object-lesson of this in the war in the Far East, and we ought to realize the tremendous advantage enjoyed by Japan in the possession of an expert central executive, working in the name of the emperor, controlling the amphibious strategy and directing the general plan of operations, so that, be they naval or military, or joint naval and military duties, the greatest assistance could be obtained from each service in bringing about the desired result. In the committee of imperial defence we had an advisory body with expert knowledge to assist in co-ordinating our peace policy, and in war time we should presumably have some expert central executive to direct our fleets and armies to combined action. Having prepared for a combined effort by all the forces at our disposal, both by sea and land, the question arose what we ought to strike at. History taught us that the first strategical objective must be the mobile forces of the enemy. The ideal of the amphibious strategist would be, he said, to have at his disposal a large enough army to invade the enemy's country, defeat the hostile field army, and break down all power of resistance. The ideal was at present unattainable by us. Without aspiring to deal unaided with the field army of a first-class continental power, we must remember that the moral effect produced by the military forces of a power having sea command was out of all proportion to the actual strength of these forces, because military expeditions could go in an hour by sea about as far as they could go in a day by land. Sea power gave great "containing power" to military expeditions, enabling them to render immobile large numbers of the enemy's land forces, provided that the hostile country had a long and vulnerable coast line. In conclusion, he said that he trusted they would all agree about the importance of amphibious strategy as a study for the population of an empire like our own, and also that co-operation between the two services in war would be facilitated by their constant association in peace time. Of late years we had seen much progress in these matters. If each service thought how to help the other, before considering how much help to expect, then combined action in war would be assured. We wanted not only combination, but control, and we must hope that, by the time we had to fight for our existence in an amphibious war, with the hour would arise the man who could direct the whole resources of the empire to secure a successful issue. As an example of wide mental grasp of an amphibious strategical problem, he referred to a recent lecture delivered at the staff college on the question whether the Japanese should have pressed their attacks on Port Arthur as they did. All the "time problems" involved were most complicated, but the conclusion come to was that, so far as could be judged, the Japanese were right to try and make certain of the Port Arthur forces first, and then turn their whole military strength against Kuropatkin's army. It was the fashion to recommend special methods of thought to different classes in this country. Mr. Haldane advocated "clear thinking" for statesmen; the man in the street was recommended to "think Imperially" by Mr. Chamberlain; and, from the nature of the strategical problems we had to deal with in war, he thought it was desirable that the soldier and the seaman should "think amphibiously." (Cheers.)

Lord Roberts, in opening the discussion, said that he quite agreed with the concluding paragraph of the paper, that we must "think amphibiously," but we must also "think clearly" and "think imperially." Neither one nor the other would do by itself. Clear thinking ought to put us on the right lines, but unless it was guided by Imperial thinking we might go off them, and he was quite sure that the right lines could not be properly maintained unless we also learned to "think amphibiously." The difficulty which he saw in amphibious strategy was to mention a point referred to by Col. Aston, whether the right man would arise when the emergency rose. It was hard to imagine one and the same man directing operations both by sea and by land. It might be possible, certainly, but the conduct of operations by sea and by land was so very different. He fully appreciated co-operation between the two services and he was delighted to see that, at the Staff college and elsewhere, co-operation had been carried on extensively. Naval officers went to the staff college, and military officers went to Portsmouth and other places to see what was being done on board our ships. That, to his mind, was a most satisfactory method of co-operation, and it could not help, if carried on in peace time, producing good results in the event of war. He had no doubt that the decision arrived at by the lecturer at the Staff college, referred to by Col. Aston—namely, that the Japanese were right in pressing their attacks on Port Arthur as they did at the particular time, was the right one. It was certainly a most formidable task, but that they were right in undertaking it he had no doubt whatever. (Hear, hear.)

Admiral Sir Cyprian Bridge observed that the change in the economic condition of various countries, alluded to by Col. Aston, was a matter which certainly ought to be taken into account when considering imperial or amphibious strategy. It was generally taken for granted that during the great war in the latter part of the 18th century was entirely self-supporting in the matter of food. That was not the case. The figures relating to the indispensable importation of food stuffs were large, though, of course, they were not on so enormous a scale as at the present time. However, they ran into many thousands of quarters. The continental nations were now, with few exceptions, also dependent upon foreign importations of food. He did not think there was one military nation in Europe, not even Russia, that was not to some extent dependent upon foreign and transoceanic importation for no inconsiderable portion of the food of its people. That was a novel condition of affairs. These changes in conditions did not affect the fundamental principles of war or strategy, because no changes in conditions could affect fundamental principles. At the same time, they were not things to be left out of sight. He was one of those who believed that, if they boiled down naval warfare and strategy until they got its most solid constituent, they would find it was essentially a matter of sea communications. He very much doubted if there was so much difference between the communications of an army and the communications of a fleet as was sometimes supposed. If they could persuade the people that there was a considerable amount of similarity between the land and sea forces when operating against an enemy, there was much more likelihood of getting the people to consider them. Col. Aston had appealed to Clausewitz and to the dictum of the great Napoleon. It was a remarkable thing, especially in these days, that we so frequently appealed to the opinion and conclusions of foreign military officers upon purely naval or maritime questions, and so rarely appealed to the opinions of our own countrymen. The ideas of Clausewitz were put into actual operation by Nelson when Clausewitz was a boy in his teens, and the maxim of Napoleon that the "enemy's masses" were the things to go at was also carried into effect, and frequently embodied in well known sentences, by Nelson, several years before Napoleon gave utterance to it. We should know the maxims and conclusions of Napoleon and other great soldiers and sailors, but there was no reason why we should forget those of our own admirals and generals. (Cheers.)

Brigadier-General Sir H. Rawlinson remarked that nothing was more noticeable in the Russo-Japanese war than the sequence with which the naval and military manoeuvres were carried out by Japan. The two services worked in close touch with one another for their mutual benefit. How was this brought about? It was by the institution of what was called the imperial headquarters, which took into consideration the naval as well as the military strategy, and carried through the principles which were initiated by the general staff. They really were a general staff for the navy, and the army together. We had in this country the same sort of thing in the imperial defence committee, but that was a consultative and not an executive body. The imperial headquarters in Japan were an executive body, and we might naturally hope that our defence committee would become executive in case of war. We wanted a school in which to train our officers in matters concerning both the naval and military officers at the staff college, and he had also brought the college into touch with the war course college at Portsmouth, and inaugurated a system of education which, it must be hoped, would be of assistance to officers of both services. (Hear, hear.) But more than that was wanted. If we were to have such a general staff as the Japanese had in their imperial headquarters, and to produce the right man when the hour came, he thought that the enlargement of the defence committee, of some kind of off-shoot of it, was necessary. (Hear.)

Mr. Julian Corbett referred to the constitution of the council under which our wars were fought in Pitt's time as bearing a close resemblance to the committee of defence as it at present existed, and there seemed no reason why that committee should not be developed into a grand general staff which would exactly suit our feelings and our traditions.

The Hon. John Fortescue referred to the younger Pitt's way of managing naval matters and to the results of some of the expeditions despatched by him. Whether we should ever get an executive council such as Sir Henry Rawlinson asked for was, he thought, extremely doubtful, but, if we got a civilian who did no worse than Hawkesbury, it would not be so bad.

The chairman, in proposing a vote of thanks to Col. Aston, said that the paper had been so carefully prepared that there was little in it to criticize. There was no doubt he touched the two services in order to get the most of them. Unless there was more than willingness on the part of the army to help the navy, or of the navy to assist the army, we should not get the best result. There was always a tendency he thought he might say, from the naval side, when asked to make great sacrifices to aid the army, to say, "I have my responsibility for my ships, and if I do this or that, I do not quite know how far it will go." Naval commanders did not know enough about what went on ashore to understand what the first step might lead them into, and no doubt there were similar difficulties felt by military men is assisting or meeting the requirements of the navy. The importance of working together was very great. We had had a certain amount of joint operations between the navy and the army in the last few years—the landing of troops on the coast of Essex by the cruiser squadron, and so on—but he thought that the time had now come when there should be annually joint operations of our naval and military forces. (Cheers.) He saw no difficulty in planning such operations. The worst result would be that they would make a few mistakes. (Laughter.) What was wanted was to get the army and navy to work together, the generals and admirals to understand one another, and that could never be done without their making mistakes together. The first thing to do was to give them problems to work out, and it did not matter whether they made mistakes or not. Everybody would learn something from them. Our naval manoeuvres in the past used sometimes to end in fiasco, but now every year they were learning more and more from them, and he felt sure that if joint operations of this sort were started a good deal would be learned from them, and that very soon closer relations would be established between the two services which could not fail to be of great benefit. (Cheers.)

Lord Roberts moved a vote of thanks to the chairman, and said that he agreed with Sir Cyprian Bridge's remarks as to the lines of communication of the navy and of the army being similar, and he was certain that the changed conditions of warfare applied as much to one service as to the other. It was impossible to examine a sketch of a naval battle of recent years and come to that institution and look at the plans of the battle of Trafalgar, or to compare the plans of a battle on land of our times with those of Waterloo, without seeing what an extraordinary difference had taken place in the conditions of warfare, both on land and sea, during the last 100 years. It was long-reaching weapons which had brought this about, and no doubt we should have longer-reaching weapons as time went on. We must be prepared to meet these changes, but he believed that the army and navy, as regarded all matters of war, were very very similar. Whatever council of war, such as had been referred to, there might be in the future, he hoped that the admirals and the generals in command would be allowed to act as they thought right. He should very much like, if he had the command of an army on land, to have Admiral Wilson as his coadjutor on the sea. (Cheers.)

The Man-Eaters of the Deep Feared and Hated by Every Sailor

Imagine a whole school of 4,000-pound monsters swimming at railroad speed. And with vast jaws armed with twelve rows of triangular teeth that spring erect like snake-fangs when prey is struck in a lightning dart. Such are the voracious and dreaded ocean tigers, the largest of the man-eating sharks, feared and hated by *every seaman afloat.*

Last year the British cruiser Eurydice was at anchor off Santa Lucia in the West Indies, and a party of marines were disporting themselves in the sea around the great armored walls. The water was most inviting for a swim, and Petty Officer Henry Pell was giving an exhibition of fancy diving to his mates. His record was a full minute under water. They watched him swim downward into translucent depths, and glance along the mighty steel hull nearly six fathoms below, feeling the velvety moss and weed as he went.

"Sharks!" The word struck terror; the mere sight of racing, knifelike dorsals threw the helpless men into a panic. But they were soon out of harm's way swarming up the sides of the vessel. This took but a few seconds. Henry Pell was still below. He had left the weedy hull, however, and was swimming away from her under water.

Suddenly he paused, about to rise. Something vague and big took shape—a shadow or a blur at first against the lovely blue. Then a mighty dun-colored form, tiger-swift in movement, manoeuvred so rapidly with the peculiar side or lateral swing of its great tail that the man seemed to meet the awful creature face to face. He could almost have touched the sharp, upstanding dorsal fin.

Pell knew he was in frightful peril. With sudden resolution he shot up, and as he did the terrified monster—sharks are notoriously timid—swung its huge tail and swept away in a perfect cyclone of mud and sand.

Once on the surface the man beheld, as he knew he would, a little flotilla of the fateful triangular fins. He was perhaps 20 yards from the cruiser and saw a boat being lowered. Surely and with much deliberate splashing he began his return. Now and then he would pause to look behind and saw always the looming shadow of the giant that had located him first. A most ferocious creature. Now and then it would spring level with him, but at a respectful distance on the side—an apparently effortless bound—rolling its hideous white belly to bring the little gray eyes to bear upon its living prey. Pell was fast losing his self-control; he was tiring and crying out to the men in the approaching boat. The immense shark, now bolder, more determined, was lashing right around him with incredible speed, churning the blue sea at the surface and narrowing the circles at each revolution. A terrible situation for a helpless man!

Once—twice—thrice it flashed its vast jaws, only to dart back as Pell splashed with the fury of desperation. But the boat was alongside. A dozen eager hands seized the swimmer, while others attacked the monster with boathooks and bayonets.

But it was not to be denied. Even as Pell was in the very act of being hauled over the side the creature made one last plunge through the water, dyed with its own blood—and snapped of the man's left leg just above the knee. Not all the efforts of the surgeons of the Eurydice could save him. Pell died next day.

These horrible creatures attain an enormous size—up to forty feet, or as large as some whales. I have seen a specimen taken off the Great Barrier reef thirty-six feet long. It had eaten a horse thrown overboard from the P. & O. Mersby steamer; and its serried rows of fangs were the most awful sight I have ever beheld. Some of them were nearly two inches long and two and a half wide.

But the sharks of the dim past were far more terrible. Teeth four inches wide and five inches high have been dredged up from the shore of the Pacific between Polynesia and Chili. A man-eater so provided would have thirty of these fangs in the front row, with twelve rows altogether. And in the Museum of Natural History you will see teeth equally formidable, telling of extinct terrors of the sea, and found in the tertiary deposits of Charleston, S. C. Their owner was probably 125 feet long. Such tremendous monsters undoubtedly once existed in countless hordes, and swam over what is now the coast line of Southern California.

Still, the ground shark of the North Atlantic, a ferocious and bloodthirsty twenty-footer, is sufficiently terrible. It is truly fearless of men, and the New Bedford whalers will tell how they have pierced specimens through and through with their lances, yet the monsters refused to leave a dead whale which they were furiously rending to pieces.

A terrifying thing indeed is the obstinate daring of a hungry shark. Once in Jamaican waters I saw one of the big "blues" attempt to seize a jewfish which had been hauled alongside the schooner. The shark seized it by the side and tore out a great strip, receiving at the same time a terrific blow in the head from an eighteen-inch sheath knife lashed to a pole. The blade was buried to the haft, yet the shark returned to the attack again and yet again. Once I saw its wicked eyes roll upward—the only sign of injury. At length it made off at a twenty-knot gait through water faintly tinged with its own blood, and swiftly pursued by its ravening kind. For sharks have no more fellowship than starving wolves or hyenas. And the moment one of their own is wounded they will turn and tear him to pieces.

Every one knows how greedy are these tigers of the sea. Masses of old rope and even chain; steer hoofs and skulls with blunt horns attached; empty meat cans that have been punctured, condemned and cast overboard; men's shoes and clothing of sinister import; empty bottles; horse hair and sealskins—these are but a few of the surprising articles found in the stomachs of these repacious scavangers.

And they have a marvelous scent—the "carrion sense," as baffled naturalists call it—and will follow a ship as a hound follows its quarry in a way that utterly mystifies seamen and landsmen alike.

I have spoken of the sailors' hatred of sharks, and it manifests itself in the devising of diabolical traps. The hands of a West Indian liner were one day irritated by a twenty-footer that had followed in their wake for 300 miles, until he fairly got on their nerves. Of course, he was far too immense to be hauled in in the ordinary way, so, after consultation with the cook, the following plan was tried:

A big brick was heated to redness in the galley stove and then buried in the hissing heart of a mass of salt pork. This was made fast to a steel hook that would have held a whale and then the bait was shot overboard attached to a steel cable.

As they thought, the monster leaped right out of the water to receive the deadly titbit in his cavernous maw. For a few seconds he was awash like a small island, darting thi sway and that and then the trouble began. A small craft would surely have been wrecked by his awful paroxysms. The seas grew white with foam, and the glint of his giant tail on the waves could have been heard miles away. Even as it was the seamen feared the tremendous strain would do serious damage. But the wild ebulations of fury grew sensibly less, and in twenty minutes or so the vast body came to the surface inert and still.

West Indian waters, by the way, are grievously cursed with sharks round about the turtle slaughter houses of Jamaica. They fairly swarm on the reefs and vary in size from little fellows of ten feet to enormous whitish creatures—the true man-eaters—from the outer Gulf. These glide in and lurk in deep water, accompanied by their jackals, the long, lithe, black-barred variety known as the "tiger shark."

All over the island you will hear terrible tales of tragedy about the sharks which lurk in the breaking seas of the fringing reefs—artful and calculating, as though possessed of true reasoning powers. Some of them are as large around as a good sized horse, and dangerous and thrilling sport is had with them by the adventurous, for whom big game hunting at sea has an irresistible fascination.

The fishing tackle consists of five hundred feet of stout Manila cable, a length of steel chain and some steel swivel hooks five inches across, and with a ten-inch shank. A fish bait is used—a twelve-pound grouper perhaps, and it may take a force of twenty strong men to play the giant fish and haul on the cable. As you might suppose, the fearsome sport has known many tragedies.

On one occasion the line, with criminal thoughtlessness, was made fast to a sentry box, where a stalwart guardsman sat sheltered from the fierce tropic sun. An eighteen-foot shark was struck, and the moment he felt the pull of the hook he darted seaward like an arrow.

Warning came to late to the sentry! With a ripping noise the massive shelter on the wharf was torn from its screw fastenings and went flying into the sea, guardsman and all. Whether the monster returned on its tracks and devoured the man will never be known. But his body was never found.

Lower a bait among these reefs, and in a few moments you will have conjured up a score of these terrible monsters, that pass and repass like phantasms of some marine nightmare. And as they sheer off, disappointed, as silently as they came, their huge bodies will cant over a little to bring the hideous little gray eyes to bear upon the watcher's boat.

With two companions I one day hooked a sixteen-foot man-eater in deep water beyond the reef, and before we could put strain on the cable he had it out. We could only lie down in the boat to render it more stable when the shock came. I kept a knife in the bow, ready to cut in case of imminent danger; and one of us steered with an oar. With a jerk that nearly stunned us, the boat shot ahead into a fifteen-knot gait. We feared the great shark would sound and so capsize us. Efforts to haul him back only made him turn like a flash and almost jerk the boat completely over.

Had I not seen the steam launch of the public health officer coming to our rescue I would certainly have cut the cable, for otherwise we would surely have been carried out to sea. Even after we were made fast to the big, powerful launch, the unseen monster towed it backwards until the line broke.

Such episodes are common enough in the West Indies. I have seen a furious shark deal a stout dinghy a blow with its tail that would have stretched any man out dead. The hard oak was riven and splintered, and then the shark turned to lift the heavy craft two feet out of the water and bite at it savagely, leaving several serrated teeth broken off in the keel.

The jaws of that specimen would easily have slipped over a man's head and shoulders. It contained the usual dreadful battery of twelve rows of teeth—big, triangular and sawlike. The outer row stands erect, while the others lie flat against the jaw, ready to start on end like a tiger's claws when striking at prey. Certainly, the larger sharks are not to be played with safely, even from a boat.

A few years ago a well known marine sportsman was fishing with a large party of friends from a small schooner. As the fish did not bite, however, the host got into a dory and rowed away a couple of hundred yards to try his luck anew.

Presently an unearthly scream caused his friends to look up in alarm. They beheld the solitary man striking madly at something and shouting desperately for help. And then the huge dark bulk of a shark rose up out of the sea and fairly fell on the little craft, smashing it like an egg shell and seizing the man as it sank, before the very eyes of some twenty horror-stricken spectators.

And the size of some of these "white" sharks, often seen in American waters, is something enormous. The crew of the sixty-ton schooner Virgin killed a huge specimen some years ago off Cape Cod. When lashed by the head to the windlass bitts, the great creature was actually longer than the vessel itself.

The biting power of such a shark is nothing short of marvelous. I have seen an Australian specimen bite two inches deep into planks of ironwood, which, as the name implies, is almost as hard as iron itself. An ugly beast with ugly ways, hated and feared by every man afloat, there always has been and ever will be war to the knife in the most literal sense between seafaring men and these tigers of the sea.

Feathered Foes to Man's Safety—Ostrich's Kick Often Fatal

Thrilling adventures with lions and other beasts of prey, and hair breadth escapes from the fangs of poisonous serpents have been told and retold, so that the very thought of these creatures is synonymous with danger, but who would imagine that there are many species of birds which are almost quite as dangerous to limb and even life? writes Olcott Perry, in the Sunday Magaine.

Teeth and antlers are lacking among birds, but they have other means of offence and defence which are fully efficient. If caught unarmed by an infuriated ostrich or cassowary, a man would indeed have short shrift. One sidewise kick from the terrible hoof of the former, or a straight ahead rip with the four-inch sharp inner claw of the latter bird, and he would be killed instantly. The thighs of these birds are as thick and as muscular as those of a horse, and they are incomparably lighter and quicker on their feet, the mincing, dainty pace of an ostrich hinting of powers of speed which any horse might envy. The cassowary's kick starts from about the height of a man's face, the bird leaping upward and slightly forward as it strikes, and full two hundred pounds of bone and muscle back up the stroke. If struck fairly a man would be almost cleft in twain. Even a glancing blow has been known to break a strong leg and disable a man for weeks. Luckily for their keepers in zoological gardens, these birds are easily confused when excited, and run hither and thither, kicking out aimlessly, otherwise many men would now be dead who have only a stiff arm or a scar or two to show as a result of the bird's attack.

No matter how furiously an ostrich attacks, a man can guard himself with ease if he keeps his head and uses the ostrich shield skillfully. This indispensable instrument resembles a pitchfork in appearance, with two tines which are made of wood and covered with short sections of ordinary garden hose. When the bird rushes up, the man simply holds out the instrument so that the neck of the ostrich is held between the two tines. Unable to get closer, the bird does not kick, or even if it should, the blow is spent harmlessly in mid-air. The neck is the only vulnerable point as the man could not hold back the bird for an instant by pressing against the body. The three hundred pounds of sheer weight would bear down the puny form of the keeper instantly. But with the neck in the cleft of the fork, the bird is helpless and dances about in fury.

When confined by themselves, cassowaries are usually of mild and quiet temper; but their full strength is revealed when, for purposes of medical treatment, they are entangled in a strong net and thrown. Three men sometimes have their hands full to keep the giant bird quiet; although it is a strange thing that when once the cassowary is conquered, and when it sees that it has no chance against such overwhelming odds, it submits to the inevitable and offers no resistance to the examination of either its throat or eyes, as the case may be. But these birds are never naturally vicious, and attempt to defend themselves only against an imaginary danger. A female cassowary will often become so tame that the keeper can go to her and simply by stroking her plumage and pressing downward get the bird to squat without difficulty, uttering at the same time deep gutteral grunts of satisfaction at the apparently pleasant sensation of the caressing hand of the keeper.

It is very different with these birds when they are fighting among themselves which they occasionally do, especially at the breeding season. Two male birds will approach each other in slow, roundabout fashion, each fully aware of the power of his opponent to do harm, and each looking for an advantage, like skilled wrestlers or boxers. At last when within striking distance one will make a quick motion and instantly both will have leaped upward, kicking simultaneously. If they miss their blow, the unexpended force will carry the bird almost completely over, landing on its back on the ground. If it cannot rise quickly and get into into fighting position before the other bird strikes again, it stands a chance of getting badly injured. The culmination of these encounters can only be guessed at, as in captivity when two birds begin thus to fight out their quarrels they are instantly separated and doomed to solitary confinement until their tempers have cooled.

Cassowaries have a keen spirit of play, and if a peacock or other bird happens to fly into their inclosures they will chase it about playfully as long as the intruder will run from them, but they never appear to use their power in such cases to kill the bird they are playing with, as they could easily do if they wished. Once a peacock with full train of feathers and apparently a heart which knew no fear turned upon the cassowary and leaped again and again at the head of the great bird, blinding it with its streaming feathers and buffeting it with bill and spurs until the cassowary fairly turned and ran. When running at full speed these birds present a curious appearance, their long loose plumage waving in the wind like long hair at every stride.

Hawks and eagles are by no means easy birds to handle, and the larger owls can cripple a man's hand for life if seized carelessly. When once an eagle or horned owl has secured a firm grip with its talons, they sink to the very bone, and sometimes cannot be removed without actually amputating the bird's foot. When cornered and all hope of escape is cut off, an eagle throws itself upon its back, and, drawing up its feet, waits for the attack. And with bare hands it is indeed a risky thing to come within a foot of the bird when in this fighting pose. The strong curved mandible is ever ready for use, and the eight talons can strike like lightning, and in any direction at the will of the bird.

Curiously enough, the herons assume the same pose when wounded and unable to escape. They turn flat upon their backs and although an inexperienced person may be inclined to laugh at danger from such a bird, yet the creature is far from easy to secure. The talons are of course nothing but short, blunt claws; but the slender toes have clinging power, and instantly become entangled in anything they touch. Herein lies the danger, for as soon as the bird has seized the object of its attack, it holds fast, and deals blow after blow with its powerful beak, which, through great experience in spearing fish, is skilled in the work. These jabs, coming quickly one after the other, leave one no time to dodge. Strange to say, these and many other birds seem to know instinctively the weakest point—theeyes—and always aim for that.

The bird most to be dreaded in this respect is the snake bird of Florida, a slim headed, evil looking creature which gets its name from swimming below the water with all submerged except the snakelike head and neck. It secures its prey by following it in its own element and suddenly impaling the fish on the needle like points of its beak. So in captivity these birds are to be dreaded, as they will sit quietly on their perch for hours, never moving a muscle, until an unwary keeper or perhaps another bird comes within range, when there is a sudden flash of the beak and the damage is done. One keeper has many times had narrow escapes from these birds, and once the aim was accurate enough to make a large blood clot form in the corner of the eye. Snake birds are not pleasant neighbors, interesting as their habits are, and it is seldom that one can be found of sufficiently good temper to risk confining it with other birds.

Parrots and macaws are terrible biters, and some of them are treacherous—tame and confiding for a long time, and then without apparent reason becoming quarelsome and dangerous to handle. To see a macaw bite through a good sized piece of wire is enough warning to anyone to be careful about handling these birds carelessly. Even the tiniest parrakeets and love birds can nip hard enough to draw blood, although it is seldom that these little fellows attempt to bite the persons with whom they are familiar.

Some birds have the power to move their mandibles independently to a slight extent, and they make the most of this in defending themselves. A gannet or gull has serrations along the edges of the back, and when it has secured a good hold, it shuts the mandibles tight and saws back and forth, cutting deep and making a ragged wound which heals very slowly.

Who would be afraid of a goose? Do we not jeer at a child for running and screaming with fright when an irate gander is in pursuit? But if the jeering person would sometimes stand up to the attack of a wild Canadian gander when it was fully angered at the danger of its nest or mate being disturbed he would change his mind about the offensive powers of these birds. The wing of a wild goose is possessed of great muscular strength, as indeed it must be to carry its owner safely over the hundreds of miles of land and water which it traverses every year. Stand near a nest of these birds, and the male will at once approach, hissing, and with head held low along the ground. Breaking into a run with ever quickening momentum, it comes on full tilt, with wings half expanded, and when about six feet away half leaps, half flies, straight at one's head. Clinging with the beak, it rains lightning-like blows with the bony bend of the wing.

I have seen a keeper knocked flat and helpless for a half hour after such an attack, and have heard of a number of cases where a person's arm or rib was broken by a goose or swan. One has no conception of the force with which the blows can be delivered until he has felt them rattling on his own ribs and has pocketed his pride and fled in all haste. These are brave birds, and defend their homes and mates against anything, with equal fearlessness.

Has Praise for Canada's Resources

Toronto Telegram: "As Americans, we congratulate Canada upon the wonderful development of its illimitable resources, and desire to co-operate with Canadians in their new field of activity."

So said John Hays Hammond, president of the Mining Institute, in his speech at the reception at the Parliament Buildings last night. He was replying to the speeches of Acting-Lieut.-Governor Moss, Hon. Frank Cochrane, Minister of Mines, and Acting Premier Foy, each of whom heartily welcomed the distinguished visitors, and declared that all interested in Canada would look forward to the outcome of their visit.

John Hays Hammond first paid a high tribute to Canadian engineers. He said he had had opportunities of sizing up mining engineers from all parts of the world, and the results of his experience and observation had led him to regard the Canadian mining engineers and the graduates of the Canadian engineering schools as the peers of those of any country in the world.

Touching on the reciprocal relations and duties of Americans and Canadians, he declared that the two peoples were tied by indissoluble bonds that no tension of commercial rivalry, no agitation of political demagogues, could sunder. It was their bounden duty no less than their material interest to discourage, if they could not prevent, the agitation of the political demagogue, or of the sensational press on either side of the line.

Mr. Hammond sounded a warning note against flotation of worthless mining companies, against over-capitalization and undue booming. It tended to discredit mining engineers.

Speaking as a Canadian who went to New York 30 years ago, Dr. James Douglas, a past-president of the Institute, entered a strong protest against the subsidizing of railroads in Canada. That was one feature that had always struck him as objectionable. In the United States they had never experienced difficulty in getting money with which to build a railroad if from an economic and commercial point of view a railroad was required. When they bought the votes of a district by subsidizing a railway they introduced into their politics the very worst possible element of corruption. As a Canadian, he thought a protest should be made against the practice. On the other side of the line they were suffering from congestion on their railroads, but that state of matters would never come in Canada so long as they continued the nefarious method of depending on the government for assistance instead of depending on themselves.

Capt. Hunt, another ex-president, said Canada was big enough to be an empire in itself.

Over 200 ladies and gentlemen attended the reception.

In a paper on "Some Reflections on Secrecy in the Arts," at the afternoon session, Dr. Jas. Douglas made a strong plea for less secrecy and more trust and interchange. He declared the progress of science would be more rapid if the barriers of secrecy were broken down. The day would come when absurd secrecy would be vanished. From the standpoint of public policy, he said, the question was well worthy of consideration, for if they could banish secrecy in every industrial establishment of any magnitude which in its own interest was carrying on technical research and encouraged its technical staff to confer with other technical staffs, science and arts would progress more rapidly than if one huge corporation controlled any one industry. He believed that such consolidation of mind and high impulses would carry them farther and faster along the road of human progress than all the money that all the trusts could contribute to scientific research to bring about.