

ENGLAND'S ADMIRALS.

By HERBERT S. JEANS.

Admirals all, they said their say
(The echoes are ringing still).
Admirals all, they went their way
To the haven under the hill.

But they left us a Kingdom none can take,
The realm of the circling sea—
To be ruled by the rightful sons of Blake
And the Rodney's yet to be.

NEWBOLT.

THE word Admiral comes to us through the French *amiral* from the Arabic *amir*—a lord, a chief, a prince; and it will be readily admitted that the old sea heroes to whom England owes so much are appropriately named.

Lord Howard of Effingham may be justly described as the father of the Admirals. He was not the first English Admiral nor the greatest; but, in the official sense, he stood at the head of the galaxy of great seamen whose deeds made the reign of Elizabeth one of the most brilliant in naval annals, and whose line has been continued in almost unbroken splendour to the present day. There were, of course, sea fights before the days of Elizabeth, and there were Admirals before Howard of Effingham. As early as the year 288 the Britons put out to sea in a vain endeavour to join their fleet with that of the Franks in the Mediterranean, where they were to have acted together against the

Romans. But the Romans in their usual thorough-going fashion prevented the alliance and destroyed both fleets. Alfred formed a navy to resist the Danes; and Edward III, in

1350 (at which date cannon is supposed to have been used for the first time at sea) engaged the Spaniards off the coast of Sussex, capturing 24 out of their fleet of 44 sail of large carracks. But these battles were fought in what may be called pre-Naval days. It was Henry VIII, who first made the Navy a

distinct profession and laid the foundation of the Admiralty as we know it to-day; and in the bluff King's reign (1512) and again in the days of Mary (1554), we find kinsmen of Howard of Effingham waging war at sea against the French and Spaniards, with varying success.

But it is the part which Effingham played in the defeat of the Spanish Armada (1588) that has given him his high place among England's Admirals.

He had not, perhaps, the genius and dash of Drake, nor the mind for detail of Hawkins; but he possessed other qualities which contributed as much towards the defeat of the Spanish Armada as the more showy attributes of the

Admirals who served under him. He had patience, and a lofty patriotism, and he was a good seaman.

It was Effingham who kept up the heart of the



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LORD HOWARD, OF EFFINGHAM.

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English Navy during those weary months of waiting for the arrival of the Armada. It requires a strong man to wait bravely the coming of battle. The strain of waiting is infinitely severer than the strain of battle itself—even the great Nelson was nervous and apprehensive before going into action, although his anxiety left him at the firing of the first

him, was the first to attack. In the fighting that followed, his ship, the *Ark Raleigh*, with her rudder disabled, was at one time surrounded by galleons. Escape seemed hopeless; but whilst the Spaniards were flattering themselves that the English Admiral was their prisoner, the ship's boats were suddenly and silently lowered, the *Ark Raleigh's* head was towed round until her sails caught the wind, and she slipped away too swiftly for the galleons to follow.

It was in this Naval action that the use of fire-ships was resorted to for the first time. The Spaniards, after being harried across the Channel with some loss by Howard's fleet, succeeded in reaching Calais roads, where the Duke of Parma lay with a large army which was intended for the invasion of England. It was impossible for the English to get in to them, and the question was how to get them out. A council of war was held in Howard's cabin; and, as the result of the deliberations, eight vessels, smeared with pitch and loaded with all manner of combustibles, were suddenly seen to burst into flame as they drifted in on the tide



From an]

ADMIRAL BLAKF.

[Engraving

gun—but from December to the following July. Effingham played the waiting game with patience and fortitude, notwithstanding that all things seemed to be conspiring together against him. The weather during that period was the worst that the oldest inhabitants of the Devon coast could remember. His men were so ill-clad that their clothes were hanging from them in rags, and so ill-fed that he had to spend vast sums of money from his private purse for the purchase of wine and arrowroot to combat the dysentery which broke out among them, and was carrying the poor fellows off in scores. Himself a Roman Catholic, he worked with almost superhuman energy to defend his country from an enemy who was supposed to be actuated purely by zeal for that faith. Not only did he keep the fleet together in the face of almost insuperable obstacles; but, in common with many another English gentleman, he provided several ships of war at his own expense.

When at length, on the fateful morning of 21st July, 1588, the Armada lay off the Devon coast, Howard, with the odds of 3 to 1 against

at 12 o'clock that night, towards the spot where the galleons lay thickest. The Spaniards had seen something of the sort before—at Antwerp, where a floating mine had destroyed Parma's bridge across the Scheldt, and blown a thousand of his men into the air. Panic spread at once through the entire Armada. With a cry of "The fire of Antwerp!" they cut their cables and made frantic efforts to put out to sea. In the scramble that ensued, many of the Spanish ships were burnt or blown up; others ran ashore and sank; whilst the Admiral, Medina Sidonia, with the largest and swiftest vessels of the now thoroughly conquered and routed Armada, made for the North Sea and the homeward route, by the way of the Orkneys and Cape Wrath.

Howard and Drake, with 90 sail and only 5 days' provisions, pursued them as far up the coast of Scotland as Dunoon, where they were forced to turn back from fear of famine. On the 10th August, the victorious little fleet put back into Margate, and the brave men who had come unscathed through battles and storms, were carried ashore in boatloads to

die in the streets, there being no place in the town to receive them. They were dying from the effects of the poisonous beer (beer being at that time the staple drink of Englishmen) served out to them from headquarters; and once again Howard's purse was freely opened to afford whatever relief might be possible. Not only in this way did the Lord Admiral defray public charges from his own pocket, but he also contributed largely towards the pay of certain extra officers which the severity of the operations had compelled him to employ.

In 1596, Philip of Spain was preparing another Armada for the invasion of England, and Howard of Effingham, together with the young Earl of Essex, with the reluctant consent of Elizabeth, sailed away with an expedition mainly provided at their own expense for the purpose of destroying the Spanish King's preparations. It is the first case recorded in history of a fleet sailing with sealed orders. The seals were broken off the now historic Cape St. Vincent, and the rendezvous was found to be Cadiz.

The port of Cadiz was "full of men-of-war, galleys, galleons, and merchant-men richly loaded." The great majority of these were either taken, sunk or burnt by Howard's fleet; the town of Cadiz was also taken and reduced to ashes, and once again Philip's hopes of subjugating England were rudely dispelled.

For these services Howard was created a Knight of the Garter, Lord Lieutenant General of All England, and Earl of Nottingham; and Elizabeth, who had not always treated him with the consideration due to such a faithful servant of the Crown, very truly said of him that "he was born to serve and to save his country."

Robert Blake, who was born and educated at Bridgewater, in Somerset, took to the sea at the age of 50, with the object of suppressing the Royalist tendencies of the seamen, and he subsequently became one of England's greatest Admirals. Among his most active opponents during the first days afloat was Prince Rupert, nephew of Charles I., whom he had previously met during the Civil War as a cavalry leader at Bristol. At the death of the King, Rupert had retired to Holland, where he had been fortunate enough to raise a fleet of eleven English vessels, with which

he was doing his best to cripple Cromwell's maritime commerce. Blake blockaded him in Kinsale Harbour, but the Prince managed to slip away to Lisbon, whither Blake followed. Prince Rupert, however, was here protected by the King of Portugal, who forbade Blake to attack; and, as a reprisal, the English Admiral made prizes of several Brazilian merchant ships, which he sent to England. When he was gone, Prince Rupert sailed into the Mediterranean. Blake followed him, and without ceremony attacked him in the harbour of Malaga in so effectual a manner that his fleet was almost wholly destroyed. Rupert next made for the West Indies, whilst Blake returned to England with several prizes, whereupon he received the thanks of Parliament, and was created Warder of the Cinque Ports—a distinction held to-day by Lord Roberts.

On May 17th, 1652, Blake, with 26 ships, encountered the Dutch under Van Tromp in the Dover roads, with 42 sail and a convoy of merchantmen. Blake ordered several cannon to be fired without shot, as a signal for the Dutch to pay the usual compliment of lowering their topsails in salute to the English flag. The Dutch, however, paid no heed, whereupon



From an

MONK, DUKE OF ALBEMARLE.

[Engraving.]

Blake ordered a ball to be fired, which was immediately replied to by a broadside. Blake was in his cabin drinking with some of his officers, when the Dutch Admiral's fire broke

his windows and shattered his stern. Whereupon (it is stated by an old writer) Blake, "curling his whiskers, which he was accustomed to do when angry," gave orders to answer the Dutch in their own way. A glance at his portrait, however, will shew that Blake, like most of my readers, had no whiskers to curl. But the answer was given, and so commenced the famous series of sea fights between the English and Admiral Van Tromp. Blake, although so greatly outnumbered, fought bravely from 4 in the afternoon until night, when Van Tromp retired to the back of the Goodwin Sands after having lost two ships, one of which was sunk and the other taken. In the course of the year 1652, Blake took a great number of prizes, some of them men-of-war, others merchant vessels. In the November following, Van Tromp, understanding that the English fleet was very much reduced in number, sailed into the Downs with above eighty sail of men-of-war, where, after an obstinate battle, he purchased a partial victory at a very dear rate. But Van Tromp was so vain of the little advantage he had gained, that he sailed through the Channel with a broom at his maintop, intimating that he would sweep the sea of the English ships. In the month of February, 1653, Blake went out again with sixty men-of-war, and soon after met with the Dutch Admiral, who had seventy sail, and three hundred merchantmen under convoy. A most bloody engagement ensued, which continued three days, in which the Dutch lost eleven men-of-war, thirty merchant vessels, and had fifteen hundred men killed; the English sustaining the loss of only one ship. In the month of June following, the fleets of the two republics fought again off the Ecreland; and, if the Dutch had not saved themselves on Calais sands, all their ships must certainly have been taken. In 1654, Blake sailed into the Mediterranean, where he demolished the castle of Tunis, and destroyed the ships in the harbour, because the Dey refused to deliver up the English captives. A squadron of his ships, under the command of Captain Stayner, intercepted a Spanish plate-fleet, and took the admiral, vice-admiral, and two galleons. Having received information that another fleet lay at Santa Cruz, in Teneriffe, Blake sailed thither, and, notwithstanding the strength of the place, went boldly in, burnt the ships, and came out without any loss. For this exploit, Cromwell's parliament presented him with a diamond ring worth five hundred pounds. Finding his health declining fast, he resolved to return to England, but he died of combined dropsy and a scurvy attack as the fleet was entering Plymouth, August 15th, 1658. The

funeral of this great Admiral was conducted with all possible state and magnificence. The body was deposited in a new vault, built specially for the purpose, in Henry VII's Chapel, from whence it was ignominiously removed at the Restoration, and buried in St. Margaret's Churchyard, Westminster.

Admiral Blake, who, before taking to the sea, had proved himself a capable soldier, was one of the most moderate of the Republican leaders. He was stated to have been entirely opposed to the execution of Charles; but he held that it was an Englishman's duty to support his country at all hazards, no matter into whose hands the Government might fall.

George Monk, Duke of Albemarle, was descended from an ancient and honourable family. Born on the 6th December, 1608, he was the second son of Sir Thomas Monk, of Potheridge, in the County of Devon, knight. Being intended for the army, he received an education suitable for such an employment, and gave early indications of his capacity for a military profession; but the following amusing incident, as narrated by Campbell, tells how he had to change his plans at short notice, and take up the profession of the sea instead.

"In the first year of the reign of King Charles I. his majesty, who had then in view a war with Spain, came down to Plymouth, in order to inspect the naval preparations that were making there. Sir Thomas Monk had a mind to pay his duty to his Prince, though his debts (derived rather from his ancestors' extravagance than his own) made him somewhat afraid of the law. To remedy this evil, he sent his son George to the under-sheriff of Devonshire, with a considerable present, desiring that, on so extraordinary occasion, he might be safe from any insult while he attended the King. The sheriff took the present, and granted his request; but soon after, receiving a larger present from one of his creditors, took him in execution, in the face of the county. George Monk, whose youth led him to think this a strange action, went to Exeter, and after expostulating with the pettifogger, who was altogether insensible as to reproaches, took his leave of him in a more intelligible language, and caned him so heartily that he was in no condition of following him." Though the provocation was great such violation of the law rendered necessary for young Monk to withdraw from the country, he therefore entered on board one of the fleet, which soon after sailed for Cadiz, under the command of Lord Wimbleton. In this voyage, at the age of 17, he served as a cadet under his near relation, Sir Richard Grenville.

Monk's service in the Navy, however, at this period lasted only three years. Return-

ing from Cadiz, he joined, in 1628, the army in Holland, and he continued to serve with the land forces with great distinction under both Charles and Cromwell until the year 1652, when, conjointly with Blake, he was appointed General of the Fleet.

In May 1653, Monk, in conjunction with General Deane, commanded the English fleet in the operations against the Dutch. At the death of the latter, who was unfortunately killed by a chain shot at the beginning of the action of 2nd June, 1653, he is reported to have thrown his cloak over the mangled body in order that the crew should not be discouraged by the sight. The engagement continued two days, and ended in a complete victory on the part of the English. The steady intrepidity displayed by Monk upon this occasion, raised him still higher in the opinion of Cromwell. The states-general having expeditiously recruited and reinforced their fleet, the two great competitors for fame, Monk and Van Tromp, again met on the 29th of July, but the approaching evening of that day, and stormy weather on the next day, prevented the final decision of this contest till the 31st. On that day, about noon, Van Tromp was killed by a musket shot, but the Dutch continued to defend themselves with great bravery till about two o'clock, when they fled in the utmost confusion. At this engagement, which lasted eight hours, the Dutch lost 26 ships.

After this, Monk again retired from the sea for a while, and returned to the Army. He was instrumental in bringing about the restoration of Charles II., by whom he was honoured with the Order of the Garter, and created Duke of Albemarle.

Six years later, war having been declared with Holland and France, Albemarle readily undertook to act in a subordinate degree in the Naval service with Prince Rupert, whom the fortune of war, and the change of parties had once more brought to England, and who had been appointed by his royal master to the joint command of the fleet. In April, 1666, Albemarle and Rupert hoisted the standard on the Royal Charles, and stood out to sea.

The French having been seen coming up the

Channel, to attempt a junction with the Dutch, Prince Rupert was detached with the White Squadron, by orders from the Lord High Admiral, to intercept them in their passage. The Duke of Albemarle, in consequence of this measure, was left with only 56 ships, and the Dutch, from their own account, hal 84. Notwithstanding this great



From an

PRINCE RUPERT.

[Engraving.]

disparity, the Duke maintained the fight for three days, with a loss comparatively small. On the evening of the 3rd day, the squadron under Prince Rupert, consisting of about 22 sail, returned from their fruitless expedition, and rejoined the Duke. On the 4th day, the battle was furiously renewed, when the English, having fought five times through the Dutch fleet, obtained a hard-earned victory. The enemy were driven home with ignominy, and the English returned with safety into port. The Duke did not long continue inactive, for, having refitted his shattered ships, he put to sea again on the 19th of July, and on the 25th, gained a most signal victory over the Dutch, under the command of De Ruyter, having taken or destroyed upwards of 20 men-of-war. The fleet returning into port about the middle of August, the Duke quitted, with the highest reputation, this last naval operation, and, returning to London, was highly instrumental in preventing the further ravages of the great fire in the beginning of September. The Duke was again called forth, when the Dutch, in the month of June, 1667, burnt several of our ships of war in the

Medway. In this brilliant and daring attack under the intrepid De Ruyter, the Dutch sailed up the Thames, where they stormed and destroyed the town of Sheerness, together with a vast quantity of Naval stores. They then turned into the Medway, where they attacked Upnor Castle, and also burnt three first-rate men-of-war, *Royal Oak*, *Royal London*, and *Great James*, all of which had previously been captured from them by the British. In this action, many of the English seamen were guilty of grave cowardice, an offence which, happily, has but seldom been brought to their charge, and for which several captains were afterwards either publicly degraded or executed. The Dutch blockaded the Thames for the space of three weeks, when they were finally driven out, mainly by the gallantry of Admiral Spragge.

The consternation that prevailed among both land and sea forces was so great, that Albemarle's orders were but imperfectly obeyed, or the mischief occasioned by this enterprize would have been soon checked. It is said of him that, when the Dutch were preparing to land near Chatham, an officer of rank remonstrated, in gentle terms, on his imprudently exposing his person to unnecessary danger; his answer was characteristic: "Sir, if I had been afraid of bullets, I should have quitted the trade of a soldier long ago." Albemarle's long continued exertions, both of body and mind, induced a most rapid decay, and brought about his death on the 3rd of January, 1669, in the sixty-second year of his age. His body lay in state many weeks at Somerset House, and was afterwards interred in Henry VII's Chapel, Westminster.



JONES MINOR'S CANING.

BY THE REV. A. N. MALAN, D.D.

Author of "Uncle Tomser," etc., etc.

THE boys of Ferndale School had re-assembled after the Summer holidays, and some excitement was aroused by the announcement that a new Master had come, who was to give lectures in Natural Science.

The new Master's name was Orlando Richard Spencer Stone. He was over fifty, his hair was red, his face was the colour of sand; and as he signed his name, *O. R. S. Stone*, it did not tax the intellect of boyhood very severely to decorate him with the nickname, *Old Red Sandstone*. It fitted him like a dress-coat cut by a fashionable tailor.

"What is Natural Science?" asked Jones Minor of the Lower Third.

"Oh, I don't no" replied his chum; "stuff they make things of."

"Do you think we shall like it?"

I fancy Jones Minor thought it had something to do with treacle. But no matter. Whatever it was, Jones Minor was in luck's way for a first introduction, since the Upper and Lower Third were put down for Natural Science at 10.45 on the second day of term.

Jones Minor was asked at dinner that day, what Natural Science was like.

"Not half bad," he glibly replied; "you have a lot of bottles and things, and make an awful stink—jolly good! Then you mix things, and bust them up—fizz—bang! It's better than Greek, any day!"

The other classes had their turn, and some of the more intelligent juniors were aware that Chemistry was the subject of instruction. Jones Minor's account gave a fair notion of the general manœuvres, though he was hardly specific enough in his explanation. The Science Master put in his monthly report that he "lacked a clear grasp of the subject." We thought that remark rather rough on Jones Minor. He was only a beginner, and, being always bottom of the class in every subject, he could not be expected to pose as a genius. He deserved encouragement rather than rebuff.

On the whole, Natural Science was tolerably popular among the boys of Ferndale.

The Sixth were allowed to make experiments in the laboratory on half-holidays, until they took to playing Guy Fawkes' tricks, and blew themselves up, and nearly burnt the place down. Then it was thought advisable to stop the privilege. The damage done was serious. One boy had his eyebrows singed, and narrowly escaped losing his sight. Coats and trousers were blotched with yellow, like leopard skins. A whole regiment of bottles and valuable apparatus was ruined by the explosion. As a consequence the Natural Science lectures were discontinued, and we had to do Greek instead—much to Jones Minor's disgust.

Without wishing to be impertinent, I honestly think that Mr. Stone was hardly up to his work. He seldom seemed at home with his experiments. He burnt his fingers and broke his glasses, and when he told us of the wonderful things he was going to show us, they did not come off. His failures gave us a very poor opinion of the Laws of Nature.

He gassed away about the behaviour of different elements under certain conditions, and said they were bound to do this and that. But when he proceeded to prove his words, the elements stoutly refused to do anything of the sort. Something invariably went wrong, to prevent the desired result.

Then he took refuge in the chalk and blackboard, and the greater part of the lecture was given up to cabalistic equations about CO_2 and H_2SO_4 , in which we did not take the smallest interest.

"Old Red" left at the end of the term, and Mr. Gibbs, Master of the Fifth Form, undertook the Science lecture in the following winter term. He was beyond doubt a very learned man. He marshalled an array of letters after his name, which monopolised no small portion of the alphabet. F.R.G.S., F.L.S., etc., etc. "Frogs and Flies," we called him at first; and afterwards, "Plagues," for short.

Mr. Gibbs had a long face. His head rose abnormally into a peak. He had prominent ears and short legs. The necessities of the story demand these minute particulars of the

learned gentleman. He was to lecture on Geology. From the very first Jones Minor took a dislike for the lessons. His antipathy increased as the term proceeded, until he conceived a positive hatred of the subject. He wept passionate tears over it more than once, when obliged by way of punishment, to transcribe one hundred times the words, *Palæozoic, Stratigraphical Metamorphism*. The lectures involved endless use of chalk and blackboard. Notes had to be copiously taken down in class, and copied out in play-time. No wonder Jones Minor objected.

It was small consolation that the study supplied him with a new vocabulary for profane purposes. "Come here, you young bivalve mollusc," he would say to a smaller individual than himself; "You think yourself a Carboniferous Epoch, but you're only an Anticlinal Axis? Yah! I'd sooner be a pre-historic porpoise than a muschelchalk nodule!"

Mr. Gibbs could make nothing of Jones Minor. He tried kindness—he tried severity. He offered him a chocolate cream for every fossil in a collection of twenty that he would name correctly. Young Jones could not spot a single specimen. His fingers were inked above the second joint from excessive impositions. Before he had finished writing one, he got another twice as long. Like the snow in Ovid's place of exile—before one fall had melted, another came, till two years' snow accumulated—it was no exaggeration to say that, before one week's layer of ink had been removed from Jones Minor's fingers by pumice-stone on bath-night, another layer had formed upon them.

The Drill-Sergeant never missed the face of Jones Minor at punishment parade on Thursdays, when he called the roll of delinquents; he uttered Jones Minor's name with a sneer of contempt, adding, "Of course!" It was war to the knife between Mr. Gibbs and Jones Minor. The Sergeant was popularly known as "Anzon Ips." It was his mode of giving the command, "Hands on Hips." He was short and corpulent. The habit of throwing out his chest in the smart slimness of early manhood had developed downwards in the march of years, adding weight, if not dignity, to his military presence.

Popular opinion certainly supported Jones Minor's contempt for Geology. It was all chalk, gibberish, and copy-book. Gibberish was bound to be the language of a Gibbs. He took a delight in the unsavoury stew. He mouthed out his polysyllables with cold deliberation. He gloated over the discomfiture, and revelled in the weariness, of his miserable victims. He compelled some outward aspect of decorum by interminable impositions, but

there was always a smouldering menace of insubordination which portended mischief.

Matters came to a crisis at last. One day "Plagues" had drawn a variety of fossils on the black-board to illustrate his next lecture. Jones Minor happened to go into the class room, and he saw the scheme of torture ready prepared. He stood a moment staring at it. He turned his head sideways and smiled. He seemed to be really interested. Then he took up a piece of chalk, and made some additions to the diagrams. When he had finished, the effect was remarkable. He eyed it with approval, and then ran off to tell us what he had done.

"I say, you chaps, I've been helping Plagues at his diagrams."

"You have?"

"Yes. I have. Why shouldn't I? I can draw a jolly sight better than he can."

"Don't swagger."

"Oh, it's a fact—there's no swagger about it. Come and see."

We went and saw. There was an ovation of merriment very flattering to Jones Minor's vanity. In the height of the din Mr. Gibbs entered the room. He banged his note-book down on his desk, to emphasize the command of, "Silence!"

We subsided into model attention at once and the lecture began. There was a preliminary dictation of notes, which we took down in subdued excitement, wondering when he would refer to the black-board. Presently he said:

"You now understand that the different systems have their characteristic fossils. I have drawn diagrams of some prominent examples, which you must copy in your notes."

Then he turned right about, and looked at the board. He peered at it closely, with evident surprise. To prevent misunderstanding I will try and give you a view of the board as Mr. Gibbs prepared it, and also a view showing the additions of Jones Minor.

When Mr. Gibbs had finished his scrutiny, he turned round and faced the class. An ominous silence reigned—a fit of anomalous industry pervaded the room. Every pencil was busy, every head was bowed over a note-book. Some supported their brows with the left hand, and through spaces between finger eyes stole furtive glances at the master. It was a positive relief when at last he spoke. Had the silence been further strained, some one must have burst.

"An act of audacious impertinence has been perpetrated!" he said—and paused.

"Who did it?"

We all looked up, and Jones Minor said "Please, Sir, I did it."

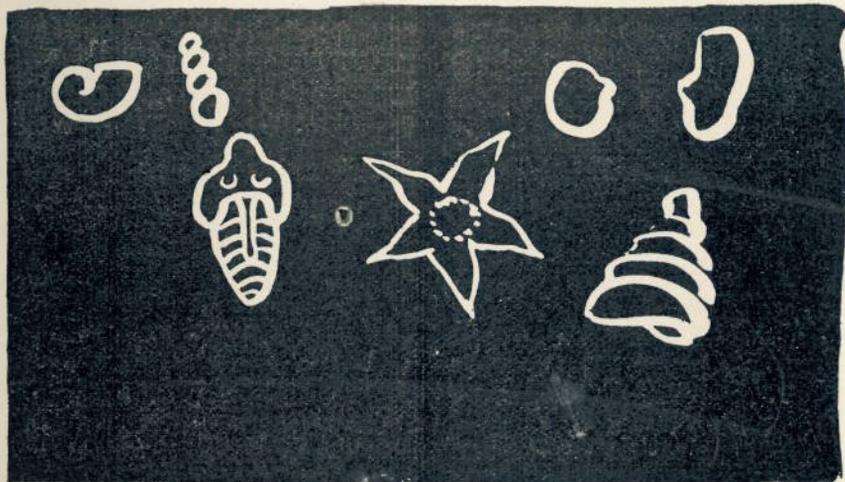
"I thought so," said Mr. Gibbs. "Take the duster and remove your additions."

The Master waited till the operation was finished. Then he put in a few touches, to complete the restoration of his diagrams, and proceeded with the lecture as though nothing had happened.

We were taken aback. We had expected

tion of a prisoner. Someone volunteered the answer, "Let him off this time, Sir."

"I don't know about that," said the Master; "I was once a boy myself at school, but I cannot recall such a flagrant piece of impudence being perpetrated towards a Master. If such a thing had occurred, I should certainly have expected the culprit to be



thunderbolts of wrath, but Jupiter had stayed his hand. However, towards the close of the lesson there were rumblings in the firmament. Mr. Gibbs spoke.

"Jones Minor has been guilty of gross impertinence. If I report him to the Headmaster, he will be flogged. I think he deserves a flogging. What do you think?"

This was a strange move in a war game—taking counsel with the enemy for the execu-

soundly flogged. ("Oh, Sir!") The offence is two-fold. It was outrageous of Jones Minor to tamper with my diagrams—it was impertinent of him to draw caricatures of me. Under some conditions, no doubt, it is a mark of celebrity to be publicly caricatured. Our eminent statesman are so treated in the pages of the London Charivari. But I cannot regard it as a compliment that Jones Minor should think me worthy of his artistic skill.'

Here Mr. Gibbs paused, and looked hard at Jones Minor, who fidgetted and blushed, and evidently felt uncomfortable. Presently the Master continued his address.

"I should like to make out a case for Jones Minor, because I doubt if he has the brains to do it for himself, and he will need some skill in special pleading to save his hide, if I report him to the Headmaster. Let me assure him that, if he thought to annoy me by his impertinence, he has signally failed. I cannot help my appearance. I am as nature made me. If I were a caricaturist I might be tempted to represent Jones Minor as a tadpole on his hind-legs—thus—"

Mr. Gibbs turned round and drew a comical little figure on the black-board. It elicited roars of laughter, and made Jones Minor redder to the verge of apoplexy. The Master eyed him with unmoved countenance.

"Look at Jones Minor. He seems disturbed in mind. His face does not command its usual expression of calm stolidity. While often reminding me of a dumpling, it now suggests a ripe tomato. What ails the child? He looks as if he were going to cry. Does he resent my taking liberties with his appearance? I am only following the example he set me. Is he struck with penitence, or does he fear the punishment in store? Is he suffering from a derangement of the liver? Shall I mix him a dose of Eno's Fruit Salt?"

By this time the class was convulsed with such a tempest of laughter, that further remarks were rendered inaudible. Mr. Gibbs raised his hand, and waved Jones Minor towards the door. He was not slow to take the hint. Gathering up his books he fled from the room. The merriment gradually subsided, and the Master made a few concluding remarks.

"I do not think Jones Minor will meddle with my diagrams again. Boys, I am aware that my lectures are dry—I wish it were possible to make them otherwise. We cannot always expect Jones Minor to enliven the lesson. The Science of Geology can only be studied at a disadvantage in the lecture-room. If I could take you to some interesting locality, and give you practical insight into the arrangement of strata, and help you to search for fossils, the exercise would stimulate your zeal. But book-work divorced from field-

work must prove dry. Yet, if you can digest what you hear, you may lay a foundation of high value for future research. Anyhow, the Headmaster has assigned this branch of study to me, and I am bound to carry it out to the best of my power. You may go."

Mr. Gibbs rose in our estimation over that lecture. The way he paid off Jones Minor showed a variation in the penal code effective and pungent. It made us cautious of provoking similar treatment. To have the laugh of the class turned upon one is not pleasant. Jones Minor felt the mortification of that scene acutely. We called him *Eno*, in remembrance, and he writhed under the allusion. He was careful not to offend Mr. Gibbs again, and the Geology lessons, deprived of their chief element of interest, dwindled into the dulness of skimmed ditch water.

Anson Ips was amazed at the absence of Jones Minor's name from his list on two successive Thursdays. He said nothing the first time, but on the second Thursday he asked for an explanation. One of the unruly squad said, "Call him *Eno*—he'll tell you."

Now Jones Minor felt a pardonable pride at having escaped a second penal drill. It prompted him to go and watch the performance, that he might gloat over the thralldom of the convicts on parade. He sauntered about their neighbourhood, and passed gibes by wireless telegraphy to the victims, which called forth demonstrations of threatened vengeance. Anson Ips observed the breach of discipline in the ranks, and detected the cause.

"Now then, Master Eno," he cried, "none of your larks, disturbing the squad. Why are you not among them? Eh, Master Eno, come and explain."

Jones Minor came—but resentment boiled in his breast to avenge insult. When two yards distant from the Sergeant, Jones Minor lowered his head like a ram, and rushing with full force he butted the warrior in the mid-region of the waistcoat. A roar burst forth like that of a wounded bull. Anson Ips was on his back, windless and wallowing. When he had recovered, his fury knew no bounds.

Dismissing the squad, he seized Jones Minor by the nape of the neck, and shook him till his teeth chattered. Then he marched him off straight to the Headmaster—with the result that Jones Minor had HIS CANINE after all.



How MAGAZINES are ILLUSTRATED

By HENRY EDWARDS.

NO matter where we turn in the Magazine world nowadays, we find copious and excellent illustrations; from the old-established weeklies, the Graphic and Illustrated London News, and their newer rivals, the Sphere, Tatler, and King, and other similar journals, to the hundreds of monthly magazines of the "Strand," "Windsor," and "Pearson's" type. If we take an old copy of say the "Graphic"

in use, but the great majority of illustrations are produced either by the *Line* or *Half-Tone* process, and so we will confine our attention to these two in the present article.

The line process was discovered about seventy years ago, though it was not brought to perfection for many years after that date. The process as now employed is as follows:—

The original drawing is made by the artist, in Indian ink on white card. It is generally



LINE PROCESS.

or the "Strand," and compare it with one of their recent issues, we cannot but be struck by the remarkable change which has taken place in the style of illustration during the past ten or fifteen years. This is entirely due to the rapid strides which have been made in the direction of photography, and the transfer of photographs and drawings direct to the plate from which the printer can produce a perfect picture. These processes have now almost entirely displaced the woodcuts, which up to twenty years or so ago were the only illustrations known which could be used in the ordinary printers' machines.

No doubt many of our readers have often speculated as to how these beautiful results are obtained, and will be interested to learn a few of the details of the wonderful processes employed.

There are a number of different processes

made considerably larger than the desired illustration, and consists entirely of black lines, the shading being produced by fine clear lines, and not by tints.

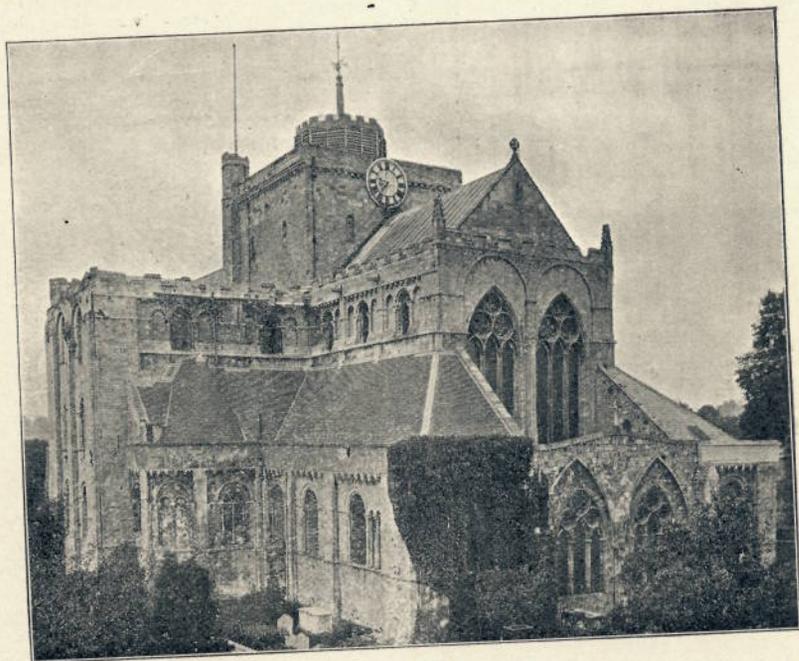
Let us now follow this drawing through the various stages until it becomes a relief block, ready for the printing press. First then we enter the studio where the drawing is photographed. The cameras are very large, and have lenses costing fabulous sums. In front of one of these the drawing is placed, and the light of a 10,000 candle power electric light thrown upon it. It is then focussed by working the camera back or forwards on the platform to which it is connected. The plates are sometimes as large as 24 x 24 inches. After the exposure is made in the ordinary way, the plate is taken into the dark room and developed and intensified so that the lines are transparent on a solid black ground,

The next step is to sensitise a plate of zinc with a polished surface, by coating it with a solution similar in appearance to that used for coating a photographic plate, but consisting of a mixture of glue and bichromate of potash. The latter has the property of becoming insoluble when exposed to the action of light. This plate is dried by heat, and then placed behind the negative in the same way as the sensitised paper is in the ordinary printing frame used by photographers. After due exposure to the powerful electric light the zinc plate is washed in warm water and the glue coating melted off in all parts except

that is, the regular standard height of printers' type. It only remains now to print a proof from the block to make sure that it is in good order and despatch it to the printer.

We have now followed the process of producing a "line block" through its various stages, and the speed with which these numerous processes are gone through is little short of miraculous. The writer has known a drawing to be put in hand at 2 o'clock in the afternoon, and the finished block to be packed up and despatched the same evening.

It will be seen that by this process only *black* and *white* can be produced, so that it is



HALF-TONE PROCESS.

where the light has made it insoluble. The picture now remains in lines of glue on the zinc. The next process is that of etching (from the Dutch "etzen" to eat), which consists in washing the plate in a dilute nitric acid solution, which eats out the unprotected parts, and leaves the protected lines in relief. This process is continued in various baths, and with occasional rolling with a roller charged with oily ink to increase the resistance of the lines to the acid, until these are quite high above the level of the surrounding metal. After this the process is mostly mechanical. Flaws are removed with a graver, and any large open spaces are scooped out to an extra depth. The plate is then cut to shape and mounted with small nails on an oak block to make it exactly "type-high,"

not applicable to wash drawings, photographs, or any designs which have any greys or tints in them, in other words, any half-tones. To meet this difficulty a very ingenious device is made use of and called "half-tone engraving." This process is very similar to the line process, but when the photograph is placed in front of the camera, a screen, consisting of two sheets of glass ruled with fine lines, and placed with the ruled sides next one another and lines intersecting at right angles, is placed between the lense and the plate. This has the effect of breaking up the picture, or all of it that is not quite black, into innumerable dots. These dots vary in size according to the amount of light which comes through them, and thus the lights and shades of the picture are reproduced.

The number of lines to the inch in these screens varies according to the purpose for which the block is required. Thus for printing in a newspaper, the *Illustrated Mail* for example, a comparatively small number of lines would be used, called a "coarse grain," and for fine Magazine and book illustrations as many as 200 to the inch, or a "fine grain." These screens are very expensive, costing £50 or more sometimes, as they have to be ruled with a very accurate machine with a diamond point, and a large number of screens would have to be made to get one without a flaw.

When the negative is obtained the rest of the process is exactly the same as the "line process," except that copper is generally used, being harder than zinc and giving cleaner results, and that special care has to be taken to get the "high lights" etched out so deeply that the printer's ink shall not fill up the small crevices between the dots.

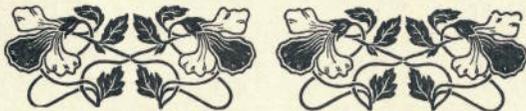
When the plate is finished it is cut out and mounted in the same way as before described, a proof printed and examined, and if any fault is found it goes to an expert engraver who touches it up with a graver and finishes it.

The two illustrations which accompany this article give a very good idea of the two processes. A careful examination of the photograph will reveal the fine dots of which it consists, and a microscope will enlarge them so that the picture will almost disappear, and a number of disconnected spots will be all that can be seen.

The effect of the development of these processes has been to open up a wonderful field for magazines and periodicals of every description, such as was never dreamt of in the days of "wood-cuts;" and it has also had

a marked effect on the paper making and printing industries. Special papers have been made to give the best possible results from the half-tone blocks. These are coated with a chalky substance, which fills up the pores of the paper and presents an absolutely smooth surface so that every dot may have its full value, and no more than its value. A finer quality of ink has been made so that it may distribute perfectly evenly over the surface of the blocks; and machines have been perfected for giving an absolutely firm and true pressure when printing, so that now the best results can scarcely be distinguished from photographs.

The latest development of the half-tone process is in the direction of colour printing. If it is desired to reproduce a water-colour sketch in its original colouring it is first photographed in the same way as an ordinary half-tone subject, but with a sheet of coloured glass inserted in the camera. This is repeated three times, with a glass of a different colour each time, these colours being such as to neutralise all colours except yellow the first time, red the second, and blue the third. From these negatives, half-tone blocks are made as before described, and when the three blocks are printed over each other, the first with yellow ink, the second red, and the third blue, these—being the three primary colours—blend, and reproduce the colouring of the original. This is a delicate process, and the colours must be exactly right each time, and must be printed exactly over each other or the result is not perfect; but when these conditions are fulfilled a wonderfully true and beautiful picture is obtained. It is a very expensive process, but is largely used for coloured plates and advertising pictures.



ANECDOTES.

Truly Irish.

"Pat, you're drunk."

"It's a lie, and you wouldn't dare say it to me if I was sober."

"Shure, and if you was sober, you'd have the sense to know you was drunk."

* * *

Story about Schwab.

Charles M. Schwab, who now receives a salary of £200,000 a year as manager of the American Steel Trust, when a boy attended the village school of Loretto, Pa., and in Loretto they still tell the story of young Schwab and the brick. It seems that the schoolmaster was an ardent geologist.

He had ordered one day that each of the children should bring to the school a specimen of some sort, and these specimens he would designate and describe one by one.

Accordingly on the appointed day a great quantity of stones were brought to the little building, but young Schwab's contribution to the pile was a broken brick. In due course the master took up the specimens.

"This," he said, "is a piece of feldspar from the crossroads.

"This is a piece of marl from the meadow.

"This is a piece of argillaceous sandstone from the quarry.

"And this," he thundered, taking up the broken brick, "this is a piece of impudence from Charlie Schwab."

* * *

Beyond Endurance.

The slender woman faced the burly burglar's deadly revolver, without a tremor of terror, for, as is well known, the weakest are often the bravest.

"Tell me where the money is hid," he hissed most truculently, "or I'll fire!"

"Never!" she answered, determinedly, and with a marked accent on the "r." "Kill me, if you will, but I will never reveal the hiding-place of my husband's hard-earned hoard! Villain, do your worst!"

"I will!" snarled the scoundrel, baffled for the moment but not beaten. "Tell me, instantly, or I'll drop this big woolly caterpillar down your neck!"

In three minutes more he had bagged the booty, and was splitting the midnight darkness in a north-easterly direction,

"Let's Awa'."

An amusing incident illustrating the expansiveness of hunting happened a short time ago. Some servants were exercising three horses and some of the hounds from the Hunt kennels, when an inmate of the district asylum appeared on the scene. "Eh, sic bonnie dogs," exclaimed the man who was supposed to be daft, "sic bonnie dogs! An' what dei keep they for?" It was explained to him that they were kept for hunting the fox. "An' sic bonnie horses—are they for hunting the fox tae?" He was told that they were, whereupon he asked the value of a horse and of a dog, and having been informed he next wanted to know the value of a fox when caught. "Oh, about tenpence!" was the reply. "Mercy me, tenpence!" said the "daftie," "three hundred pounds chasing tenpence! Let's awa'!"

* * *

Familial Cattle.

A Texas farmer says:—"My cattle will follow me until I leave the lot, and on the way up to the barn-yard in the evening stop and call for a lock of hay." Smithson says there is nothing at all remarkable about that. He went into a barnyard in the country, where he had not the slightest acquaintance with the cattle, and an old bull not only followed him until he left the lot, but took the gate off its hinges and raced with him to the house in the most familiar way possible. Smithson says he has no doubt that the old fellow would have called for something if he had waited a little while, but he didn't want to keep the folks waiting for dinner, so he hung one tail of his coat and a piece of his pants on the bull's horns and went into the house.

* * *

"Kings."

The pupils in a school in Dunster were asked to write original compositions on "Kings." The prize was carried off by a bright youth, who perpetrated the following:—

The most powerful king on earth is... Wor-king
The laziest Shir-king
A very doubtful king... .. Smo-king
The wittiest Jo-king
The leanest Thin-king
The thirstiest Drin-king
The slyest Win-king
The most garrulous Tal-king