CURIOUS LIGHT PHENOMEN

Queer things still happen at sea. Every

now and then a vessel master reports the ob-

servation of some phenomenon that defies ex-

planation in the light of our present knowl-

edge, and forcibly writers such as Poe, who

have found the sea a particularly available

published by the Danish Meteorological Insti-

tute, appears a report from the master of the

Danish East Asiatic Company's steamer Bin-

tang, Captain Gabe, of a singular luminous

phenomenon observed on the surface of the

water when the ship was passing through the

Strait of Malacca in June, 1909. At 3 a.m.,

June 19, he was roused by the second mate

and went on the bridge, where the mate had

been watching the phenomenon for some min-

utes. The latter reported that he first saw

light-waves traveling in the water from west to east. Gradually the light-waves took the

form of long arms issuing from a centre,

around which the whole system appeared to

rotate. The centre, which seemed to lie on the

horizon-the other half of the system not be-

ing visible-moved from right astern to the

starboard beam. When the captain came on

deck the phenomenon resembled the beams of

a revolving light, with a pretty fast rotation;

brilliancy and in speed of rotation, and at last

disappeared when the centre was right ahead.

The phenomenon lasted about fifteen minutes.

breadth of the rays along the side of the ship

being about six feet, and that of the interven-

ing spaces twice as much. The light was evi-

dently in the water, as it did not light up the

deck nor the side of the ship more than the

common phosphorescence of the sea, of which

there was a good deal. The rays were curved

with their concavity in the direction of the rota-

The captain was especially struck by the

fact that the larger spots of phosphorescence

in the sea appeared to light up more brightly

as the rays reached them, and to fade out in the

dark intervals. When the centre was right

abeam the rotation was so fast that the rays

passed about once a second. When the rays

were no longer visible the bigger spots of

phosphorescence for some time lighted up at

regular intervals, as if they were still passed

by the rays. Gradually this decreased, and

the phosphorescence shone as usual in the bow-

water and along the vessel's side. The look-

out and the helmsman also observed the phe-

collected a few reports of other observations

somewhat similar to the above. A similar case

was reported in the Annalen der Hydrographie

und maritimen Meteorologie, 1899, p. 483, as follows. On November 21, 1897, the German

ship Arethusa encountered a curious illumin-

ation of the sea after midnight, when in the

The Danish Meteorological Institute has

The system was perfectly regular, the

The system moved forward, decreasing in

the light itself not being visible.

In the Nautical-Meteorological Annual,

theatre for mysterious happenings.

OF THE INDIAN SEAS

Bay of Bengal, lat. 14.2 degrees N., long. 96.5

degrees E. As far as the eye could reach the

surface of the water shone with myriads of

lights in a hazy atmosphere. The ship's log

says: "It was a splendid but also an uncom-

fortable sight." At 2 a.m. it began to rain, and

the phenomenon suddenly disappeared. The

wind was south-southeast and east-south-east,

A more recent case was reported by Capt.

Breyer, of the Dutch steamer Valentijn. At

midnight, August 12, 1910, this vessel was

near the Natuna Islands, in the South China

Sea. The course was magnetic south, the

speed eight knots. Suddenly the easterly hori-

zon became illuminated with a light which

commenced to oscillate rapidly and regularly.

The phenomenon soon passed into a rotation

of flashes above the water. It looked like a

horizontal wheel, turning rapidly, the spokes

being the rays of light running over the water.

The rotation was against the sun and very

regular, one ray passing every half second.

The bundles of rays diverged very little and

were not curved. The centre could not be dis-

cerned as an isolated point. Gradually the

rays grew clearer and somewhat narrower, un-

til the source of light appeared to be beneath

the ship. The water around the ship seemed to

be in rapid oscillating motion, and it was as

bright as at full moon (the moon had set at

10 p.m.). This lasted about five minutes; then

the rotation recommenced with the centre on

the opposite side of the ship. The rotating rays gradually decreased in brilliancy and

breadth, and at 12.40 a.m. the phenomenon had

quite disappeared in the northwest to west.

In this case the ordinary phosphorescence of the water was not observed. The sea was

rather smooth and the air clear. The phenom-

enon was observed by the captain, first and

second mates, and first engineer, and on all of

them it made a somewhat uncomfortable im-

been reported to the Meteorological Office at

London by the captains and officers of British

enon can be given. It is well known that in

many marine organisms the capacity to pro-

duce light is awakened by sudden movement.

Thus disturbance by the blade of an oar pro-

duces luminescence in the sea-commonly

called "phosphorescence," though phosphorus

has nothing to do with it. Also the wind rip-

pling the surface of the water evokes the same

luminosity from myriads of minute protozoa

and crustacea, and the crests of the ripples are

marked with light. The luminous rays seen

in the cases above described appear to have

marked lines of disturbance in a sea abounding

in organisms capable of phosphorescence, in

other words, long and regular waves, having a

systematic movement of rotation. Such waves,

however, appear to be altogether anomalous.

-Scientific American.

Similar observations have occasionally

No complete explanation of the phenom-

its force 4, and the weather cloudy.

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COLOMIST

MR. ROOSEVELT AND THE MIDDLE AGES

Mr. Theodore Roosevelt, reviewing in the Outlook H. O. Taylor's new book on "The Mediaeval Mind," says:

'The greatest mediaeval effect upon the thought of after time was produced, not by the schoolmen, but by works that they would hardly have treated as serious at all-by the Roland Song, the 'Nibelungenlied,' the Norse and Irish sagas, the Arthurian Cycle, including 'Parsifal'; and modern literature, on its historical side, may be said to have begun with Villehardouin and Joinville. None of the leaders of the schools are today living forces in the sense that is true of the nameless writers who built up the stories of the immortal death fights in the Pyrenean pass, or of the search for the Holy Grail.

"There are keen intellects still influenced by Thomas Aquinas; but all the writings of all the most famous doctors of the schools taken together had no such influence on the religious thought of mankind as two books produced long afterwards, with no conception of their far-reaching importance, by the obscure and humble authors of the 'Imitation of Christ' and the 'Pilgrim's Progress.' In the thirteenth century the spiritual life in action, as apart from dogma, and as lived with the earnest desire to follow in the footsteps of the Christ, reached, in the person of St. Francis of Assisi, as lofty a pinnacle of realized idealism as humanity has ever attained.

"The minute that a man in the Middle Ages began to be free in any real sense he tended to become an outlaw; and, moreover, the men who were most intolerant of restraint in matters physical and material made no demands whatever for intellectual or spiritual freedom. The ordinary knight or nobleman, the typical 'man of action' of the period, promptly resented any attempt to interfere with his brutal passions or coarse appetites; but, as he had neither special interest nor deep conviction in merely intellectual matters, he was entirely willing to submit to guidance concerning them.

"King Louis one day propounded to Join-ville, in the interests of the higher morality, whether Joinville would rather have leprosy or commit a mortal sin; to which Joinville responded with cordial frankness that he would rather commit thirty mortal sins than have

"Now, in addition to being a most delightful chronicler, Joinville was an exceptionally well-behaved and religious baron, standing far above the average, and he was very careful to perform every obligation laid upon him by those whom he regarded as his spiritual advisers. The fact simply was that he had no ridea of the need for spiritual or intellectual independence in the sense that a modern man has need for such independence."

Pastor—I was so sorry for your wife during the sermon this morning, Doctor. She had such a dreadful fit of coughing that the eyes of the whole congregation were fixed

Doctor-Don't be unduly alarmed. She was wearing her new hat for the first time.—

GREAT PROGRESS WITH THE INTERNAL COMBUSTION ENGINE

From many points of view the next few years are likely to be very important as regards the gas and oil engine industry, and it is therefore to be expected that progress during the past 12 months should have been considerable. Indeed most of the leading manufac-turing firms have had an exceedingly busy year, says the London Times. A period of prosperity is of more than ordinary value here, as admittedly the internal combustion engine will occupy an increasingly important position in the future, and its rapid development necessitates a correspondingly increased amount of experimental work, the cost of which the manufacturing firms are better able to bear when their ordinary business is more profitable.

The past year has been by far the most important ever experienced in the history of oil engine manufacture, and this importance is of course chiefly marked in the case of the Diesel engine, or at any rate the Diesel type of oil engine. The development of this motor has been uniformly progressive, as regards both its industrial applications and the technical advances which have been made in its construction and design. The tendency with all internal combustion engines is towards the adoption of the two-cycle principle, and it is natural, therefore, that particular efforts should be made in this direction with the Diesel engine where the operation is much simpler. During the past year some very large two-cycle Diesel engines have been installed, mainly in electric generating stations—one of 2,000 to 2,400 h.p. by Messrs. Sulzer Bros. being, perhaps, the most notable. Though there has been some tendency to undue caution in this country, engines of 1000 h.p. of this type have already been put in service, and this marks a notable advance on the previous year. The horizontal Diesel engines is making some headway in Germany, a motor of this type up to 1600-2000 h.p. having been built, and many are under construction at Nuremberg. Although none has yet been erected in England, it is understood that there is every probability of some being ordered in the next month or two, and it is interesting to note that the Westinghouse Company have constructed a horizon-tal Diesel engine which gives every promise of success. Much progress has been made with Diesel engines of the high speed type of which many have been built in recent months, particularly for coupling to electric generators, and with their obvious advantages it is probable that they will continue to gain favor. In this country the number of orders for

Diesel engines in 1911 has been remarkable.
The Diesel Engine Company of London have had a very gusy year, and in addition to Messrs. Wilans & Robertson, and Messr. Mirrlees, Bickerton & Day, who have been engaged in the manufacture for many years, the Westinghouse Company and other firms have also taken up the construction. A most interesting feature in oil-engine development lies in the fact that several firms are now engaged in the manufacture of what is commonly described

as a semi-Diesel engine, and both Messrs. Petter, of Yeovil, and Messrs. Ruston, Proctor & Co., of Lincoln, have built such motors which appear to be very satisfactory. Both types give results as regards fuel consumption which are approximately equal to those of the pure Diesel engine, and though nothing in the way of large powers has yet been attempted, for relatively small engines the comparative simplicity and proportionately low price are likely to have a favorable influence on their application. The former firm have developed a vertical type, while the latter are manufacturing a horizontal motor. Both engines employ a lamp for starting purposes.

Marine Applications

Turning to the question of the employment of the internal combustion engine for marine work, the progress made with the Diesel engine has been reported fully in the columns of the Engineering Supplement during the past year. Engines for at least a dozen tank steamers are in course of construction up to 2500 h.p., and it is expected that several will be ready for their trials very shortly, one of the earliest probably being the boat recently launched by Messrs. Barclay, Curle & Co., in which the engine power will be 2400 h.p. The large three-cylinder double acting engine, nominally of 6000 h.p. but actually a great deal more, has been completed at Nuremberg and already run satisfactory tests, while the engines of 1500 h.p. and 1000 h.p. for vessels of the Hamburg-American Line and the Woermann Line respectively have both gone through severe trials. In Sweden, Holland, Belgium, and France large Diesel marine engines are now in course of construction, while the completion of a 2000 h.p. single-cylinder engine at Messrs. Sulzer's works shows the trend of probable development during 1912. In this country the Admiralty have on order an engine of 5000 h.p. which will be installed on an existing cruiser, and another of 1000 h.p. which will be employed in conjunction with steam turbines in a most interesting manner.

As regards oil engines of other designs, the Bolinder type has received wide application for small vessels, being made up to 500 h.p., while in Germany some progress has been made with the Junker engine, which it is stated is to be adopted for a Hamburg-American liner. This motor works upon the double acting principle, but it is doubtful if it will be found particularly suitable for marine work owing to its great height, although no doubt the horizontal de-sign which has been adopted for stationary engines possesses some favorable features.

One or two interesting installations have been made during the year with suction gas engines for marine propulsion, the most nota-ble being the Holzapfel, in which an engine of 180 h.p. was installed, together with a gas producer very similar to the land type. The results obtained with this vessel have been up to the expectations of the builders, and it is probable that further steps will be taken on

a larger scale.

CAMERA IN THE JUNGLE

A graphic idea of the life of the Indian jungle is given by the films taken by Mr. Cherry Kearton, now being displayed in London. Nothing from an ant to an elephant seems to have escaped the vigilance of the nature watcher, and the moving pictures of big game are of a kind which no other photographer has ever secured. Mr. Cherry Kearton is the only man who has ever turned the handle of a cinematograph camera on lions. and tigers in the wild state, but the dangers he has encountered are scarcely more remarkable than the patience he has displayed. His wonderful series of films includes a tiger, taken from a distance of fifteen yards, and his brother, Mr. Richard Kearton, told with what difficulty this was secured, for the heast, after making a furtive and momentary appearance, became alarmed at the noise of the machine. For a long time the operator was kept waiting, but the creature eventually deserted its cover, and its stealthy prowl across the forest clearing is now shown to English audiences.

The most alarming experience, however, which ever fell to the photographer was an unexpected pursuit by a rhinoceros. Dormant on the ground, the animal's back had appeared to be nothing but a knoll of earth until Mr. Kearton was too close to have any chance of safety save in precipitate flight. Other films come from Borneo and Africa, and among the the most interesting are some showing an ourang-outang at play in its native forest and a male hornbill feeding its mate; whom he has imprisoned in her nesting hole lest she should abandon the eggs. In another room at the Queen's Hall are exhibited many of the still photographs taken by the brothers, these including birds, beasts, insects and reptiles.

A flashlight picture of an African lion is perhaps the most remarkable thing in the exhibition. The camera had been placed by a water spring where the beasts were accustomed to drink after a kill, and the photograph shows plainly the lion's look of surprise and suspicion at the sudden lightning. Mr. Kearton subsequently found that the animal had turned on the apparatus and done considerable damage, but the plate itself was untouched. Nothing more beautiful in the way of bird pictures can be imagined than those which Mr. Richard Kearton has brought from his recent tour in Norway, and the value they possess as illustrations for the teachin atural history are very great.

Relations of Britain and Germany "Windermere," the special correspondent "touches the whole question of national honor of the Montreal Star in London, writes as folinterest, because it has always been both prac-

lows under date of February 12: One of Canada's good friends in the British House of Commons is Mr. C. S. Goldman, the wealthy Unionist member for Falmouth and Penryn in Cornwall. He married a daughter of Viscount Peel, who for many years was the esteemed and potent Speaker of the House of Commons, and his brother-in-law, the Hon. George Peel, is much concerned with enterprises in the Eastern provinces such as the Trust and Loan Co. of Canada. Many of the representative Canadians who were here last summer met Mr. Goldman and his wife, and will watch with interest the progress of the movement he initiates in the new number of the Nineteenth Century for a better understanding with Germany. time is ripe for the reconsideration of the problem, for the sober minded Englishman has been gravely disturbed by the disclosure that all unknown to him Germany and England were last August on the very verge of a war which might well have set the whole civilized world ablaze.

England will not desert France-that is quite certain. England will not abandon her Empire status-that also is certain. Germany as we all recall set herself athwart the Empire ideas of the Englishmen when in 1898 she refused to admit Canada's right to give preferential duties to British goods and in consequence England has had ever since to go without a commercial treaty with Germany, and her trade is left at the mercy of a year-to-year resolution of the German Bundesrath. Germany has probably learned the lesson of 1898 and would now welcome a rapproachment with Canada if she could get anything like France has secured by the Franco-Canadian treaty. She certainly would not attempt anything so mad as interference should England make up her mind to follow the example of Canada, Australia, New Zealand and South Africa, and institute preferential duties in favor of the goods of the British Dominions.

All this should make for a friendly understanding, but the approaches made by the Asquith ministry indicate plainly enough that Germany will not so much as discuss any question of the limitation of armaments. Mr. Goldman has intimate German associations and he speaks what he knows when he says that for Germany the question of armaments organization and efficiency at the root" and suggestions of a limitation of armaments avor to every German whatever his politics as the product of hypocrisy." What then remains? How can British statesmen ease the strain of Anglo-German rivalry, the main source of European unrest and the root cause of war scares? Upon this point Mr. Goldman writes with weight.

He turns especially to Mr. Bonar Law, as leader of the Unionist party in the House of Commons, and he does so with effect as Mr. Bonar Law by his first Parliamentary speech as leader awakened the sympathy of Germany as Sir Edward Grey failed to do. "I can," he said, "imagine few calamities which would seem so great as war, whatever the result between us, and the great German people," and he added, "I never believe in these inevitable wars. If war should ever come between England and Germany, which heaven forbid, it will not I think be due to irresistible natural laws. It will be due to the want of human wisdom." This attitude has had its effect on Germany, and one may read many warm tributes in the German press to the statesmanship of Mr. Bonar Law.

Professor Schiemann, the Kaiser's wellknown confidential adviser on "Weltpolitik," commenting on Mr. Bonar Law's recent Albert Hall speech, writes as follows in the Kreuzzeitung: "The man is undoubtedly a leader such as the Unionists have never had before. Sharp as splintered steel, thoroughly well informed, and master of language without resort to pathos, the future Prime Minister of Great Britain is a man with whom the world will have to reckon."

Mr. Goldman does well then to appeal to Mr. Bonar Law. The issue of peace and war lies he believes in his hands and the hands of the Unionist party, for reasons which those who can take a dispassionate view of the present condition of British politics will hardly dispute.

'The Unionist party," says Mr. Goldman "has every reason to sympathize with German aspirations, for it endorses most of the essential principles of the German people. It believes in the tariff as the basis of national life it believes in a Colonial Empire as part of the full development of a people, for it has always been the great instrument of Imperial expantical and patriotic. It also believes in the elevation of the condition of the people, and is consequently most firmly opposed to those low conditions of life abroad which enable foreign and sweated goods to take the livelihood from our own workers. Furthermore the firmness of the Unionist party on the question of defence make it certain that no negotiations with Germany will lead it into the one error which would certainly prove fatal to those negotiations-the relaxation of our naval and military preparations, or an attempt to deal with Germany on those lines."

This then is the proposed new basis of agreement with Germany: (1) That the natural and legitimate desire of Germany to expand her commerce and population into other parts of the world should be recognized as far as is compatible with vital British interests; and that we should express the belief that such an expansion would in many ways be to our interest. (2) That we should recognize that a restriction of German commerce and the consequent failure to improve the condition of the German working classes is of no business advantage to us, and makes directly both for under selling in this country and for a war which will burden British industries and working classes for years, even in the event of success. (3) That as a corollary of these views we indicate our readiness to assist Germany whereever we can to attain her colonial outlets, and give a promise that when Imperial tariff system is established her products shall in no way be penalized to the advantage of other external powers; on the understanding, of course, that she likewise will indicate her readiness not to discriminate against British Empire goods. English statesmen of both parties must take their share of blame for the present unfortunate relationship between Germany and ourselves, and there is a growing belief that the time has come to offer a reasonable accommodation with our greatest commercial and naval rival. She claims her "place in the sun, and there would seem to be no vital British interest at stake in giving it to her. It is either that or a terrible world conflict with dire possibilities to us as well as to Germany.

The Musician-"Hang it, Blink, don't you realize that one of your shoes squeaks in B sion; it believes in the doctrine of the national , flat and the other in G major.?"-Life

SPARROWS LEARN CARARIES' SONG

That social influence, in the form of imitation, rivalry, or in whatever other ways social influence may exert its effect, does play a role in shaping the early responses of certain animals, comes out clearly in the work of Conradi at Clark University. This investigator reared English sparrows in the presence of canaries, keeping them from birth separate from their own kind, writes Professor J. B. Watson in Harper's Magazine.

The first sparrow was captured when one day old, and was reared by a canary fostermother. During the growing period this sparrow was isolated from all other sparrows and placed in a room containing about twenty canaries. The native characteristic "chirp" first developed. As time went on this was given less and less, being gradually replaced by the "peep" which is natural to the can-

The sparrow improved in his vocal efforts by this kind of training, gaining the confi-dence finally to chime in when the canaries would burst into song. A second sparrow was captured when two weeks old, and was reared in a room with the canaries. The regular sparrow chirp had of course already developed by this time. After being with the canaries for a time he developed a song which more or less resembled that of the canariesit was certainly something very different from the ordinary song of the sparrow. Dr. Con-

"At first his voice was not beautiful; it was hoarse. It sounded somewhat like the voice of the female canaries when they try to sing. He sang on a lower scale; he often tried to reach higher notes but he did not succeed. Later he learned to tril in a soft musical mav-

"In both these cases the call notes of the canaries were adopted. These two sparrows were then taken from under the tutelage of the canaries and placed in a room where they could hear the song and call notes of adult sparrows. For the first two or three weeks the integrity of the song and call notes learned from the canaries were maintained. At the end of the sixth week however they had lost practically every vestige of the acquired canary song.

"We had a fine sunrise this morning," said one New Yorker to another. "Did you see it?" "Sunrise?" said the second man. "Why, I'm always in bed before sunrise."-N. Y.