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or L. Adams, the new system, upplying resident uth Saanich. The the city limits ee million gallons bled or trebled, it aimed, prove any system when the rking order.

AFTER HIM

defenceless Frank nly having a hard world. When big. not picking at the some naughty ing him as her af-

onths for the past rus girl or burles-inced her engage-stler and each time weeks ago a little ying through Min-otch as her own, week the American orting writer just says it is impos lk of these girls e is not going

having a little free one of the "leap he is a hero, as with the one intenne American wrest-

Indian Congress

Friday, February 14, 1908

the Congress platform and quite another thing in

the market-place found too late that they had set in motion forces they were unable to arrest. They hastily changed the venue of the Congress from Nagpur to Surat, but without avail. Issue was joined the

moment the name of Dr. Rash Behari Ghose, a Bengali Moderate, was proposed as President. The Extremists were determined not to elect him, and they

sorted to the only argument they understand, the gument of force. In the free fight that ensued on

second day many heads were broken, many chairs esmashed, and eventually the less belligrent repentatives of "United India" found themselves fly-

structure in which the gathering was held. Out

he strife there emerges for once the ominous figure Bal Gangadhar Tilak, who has long bee mally in the background—the organizer and leader the Extremist section. It was Mr. Tilak's appear-ce on the platform which was the signal for the

g for safety through rents in the canvas walls of the

charge which wrecked the Congress. Mr. Tilak is a political enigma, even in a country where politics are

ten the queerest jumble of ideas. A Mahratta Brah-in of scholarly attainments, he long ago suffered a rm of imprisonment for inciting to disaffection. He feared and distrusted by nearly all sections of dian political opinion, yet he contrives to hold his we, to enlist the aid of large numbers of followers,

al principles, but to aim at destruction pure and apple. If he could not control the Congress, he was

The Moderate leaders in the Congress have wrought their own undoing. They wanted to make

the people of England think that the Congress repre-

sented the "Indian nation," though they knew in their hearts it did not. To that primary end, the outward

semblance of unity, all other considerations were sac-rificed. They knew very well the character and the intrigues of Mr. Tilak; they knew, none better—

the nature and the motive of the songs sung at the travesties of religious and patriotic festivals which he organized; yet almost to the end he was admitted to their private councils. They quarreled behind closed doors, and then asked the public to believe that the long array of resolutions which they passed in the open, without a solitary amendment in twenty these

open, without a solitary amendment in twenty-three years, embodied the unanimous opinions of "the people of India." They did not represent even their own

manimous views, for in their secret conclaves bickering has been incessant. They did not represent the views of sixty millions of Mahommedans, who have

views of sixty millions of Manommedans, who have steadily held aloof from the Congress, or of the Rajputs, or a large proportion of the Sikhs, or the bulk of the subjects of native Princes; still more, they did not represent the ideas of millions of other quiet people who hardly knew that such a consideration.

represent the ideas of millions of other quiet peo-who hardly knew that such an organization exist-The Parsees, who have had such a large share of

as attained his unworthy object.

foment agitation. He seems to have no poli-

ed to destroy it; and for the time being he

of the Congress itself? We will not unduly empha-HE fate which overtook the Indian Nasize the inferences to be drawn from an encounter which has had parallels, in times of political excitement, in all countries. But how far, in its general tional Congress at Surat is exactly what close observers of the movement have for a long time predicted, says the Lonment, in all countries. But how far, in its general methods, has the Congress proved itself capable of cx reising the boon of elective self-government? It has had no acceptable principle of representation whatever: it has had no orthodox system of electing the delegates who are supposed to voice the sentiments of that United India which it is its claim to represent; it has had no method of selecting a proportional number of men from each centre of population, and sending them to join in common deliberations. It has been a pell-mell assemblage controlled by principles far more autocratic than the British Government would dream of introducing into India. Two or three strong men hold all the rest in subjection so far as they can, and dictate to them what they are to say, and how they are to say it. As it exists today, therefore, it is not surprising that the Congress has at last found itself on the verge of dissolution. One turbulent spirit, bursting through all restraints, has brought about its temporary downfall. The whole fabric of its pretensions was shattered in a moment when a single don Times. Some of its most prominent members had been in the habit of talking moderation within the Congress and proclaiming disturbing and inflammatory sentiments outside. The younger and spirits took them at the measure of their exrnal speeches, and thus fell an easy prey to the sidious temptations of the real enemies of or-red government in India. They were incited to mpel the Congress to adopt the most extravagant d impossible demands, or, failing that, to wreck it. hese tactics nearly succeeded a year ago: this time they were entirely successful. The politicians who thought they might with impunity say one thing in

tensions was shattered in a moment when a single Mahratta shoe came hurtling through the air. It is no part of our intention to express gratification that the Surat gathering has had such a ridiculous termination. It is rather a matter to deplore. The Congress is essentially sectional, but, after all, it represents in some sense the articulate portion of a preponderating section of the Indian communities. No one wishes to see any body of in-telligent Indians deprived of the opportunity of making their opinions and desires known. No one—except Mr. Tilak and his allies—wishes to stiffe discussion, or to refuse a fair hearing to reasoned and reasonable views. But, if the Indian National Congress wishes to rehabilitate itself in public opinion, it must abate its arrogant pretensions, and it must reduce its programme to limits that are possible. Before confidence can be accorded to it, there must be a purking of its ranks of the men who are not constructive, politicians whether the properties are the constructive politicians. structive politicians, who are not genuine seekers for the redress of grievances, but whose sole aim is the subversion of the existing order of things. This the Moderates now promise; but Lala Lajpat Rai althe Moderates now promise: but Lala Lajpat Rai already talks of reconciliation, and it remains to be seen how far the severance is permanent. There is no room within the Congress both for the Moderates and for men who have been airing such noxious doctrines as the Extremists have of late been disseminating. Moreover, those who remain in the Congress fold must learn that their responsibility as public men does not terminate when they step down from its platform. They cannot be Moderates in from its platform. They cannot be Moderates inside and Extremists outside, as some of them seem to have thought in the last few months until a to have thought in the last few months until a bitter awakening came. The responsibility for the orgy of sedition which set Eastern India and the Punjab aflame does not rest upon the Extremists alone. It lies almost equally upon those nominal Moderates who, with unguarded tongues, helped to foment discontent, and upon those others who were content to stand silently by when a word of protest might have checked the evil work. The fruits of that reckless campaign are still being garnered; we have what is probably an example of its consequences in the recent outrage at Goalanda, when Mr. Allen, a Civil servant who had incurred the quences in the recent outrage at Goalanda, when Mr. Allen, a Civil servant who had incurred the displeasure of the disaffected, was shot at the rail-way station. Until the Moderates cease from participation in interpretable to the control of the disaffected of the disaffected. ticipation in intemperate agitation, until they finally cut themsels is loose from the emissaties of disorder, they cannot expect to be regarded with respect and attention. When they do that, they will be listened to agreed, but, as Mr. Morley told them, they must not "ask for the moon." India is not yet fitted for any general form of elective self-government, and the period when her peoples will be so fitted is not even in sight. That is no reason, however, why thoughtful and prescient Indians should not busy themselves in the task of making such self-governticipation in intemperate agitation, until they fir attention. When they do that, they will be listended to agrees, who have had such a large share of control in the Congress, possess in proportion to their numbers the most extraordinary influence of any race of the control in the Congress, possess in proportion to their numbers the most extraordinary influence of any race of the period when her peoples will be so fifted is not existing, for their eare hardly a hundred thousand of them in the world. Parsees apart, the organization is almost entirely Hindu; among Hindus it is largely Brahmin; among Brahmins it illustrates that singular tendency by which lawvers and politics seem inseparably associated. The Congress, at its best, has certainly expressed the aspirations of a considerable number of able indians; but it has never really spoken, as it has claimed to speak, for all India. For years it has unconsciously mocked its own demands, which it presses with such insistence on the Government. It clamors for a constitution, but it has not dared to frame a constitution for itself. It prates of the elective principle into its own crele would be to commit an act of self-destruction. Apart from the question of the choice of a president, the dispute at Surat appears to some extent to have taken the form if a quarrel as to whether a resolution should be passed in favor of what is called "colonial self-powernment" or of some undisclosed method of administration which would practically eliminate British control. Yet what lesson are we to learn of the fit-mess of Indians for self-government from the example

OVER-LEGISLATION AND ITS EVILS

RESPECTED correspondent, Mr. William Tallack, gave expression in our columns on Saturday to a complaint made by many besides him as to over-legislation and the evils which rarely fail to accompany it, says the London Times. He has in his mind chiefly measures passed with the best of intentions and in many respectively.

the best of intentions and in many respects excellent, but so drawn as to produce "cruel injury" and to result in "tyrannous inflictions," generally altogether unforescen. The Factory Acts are found to debar or trammel, in some of their late developments, harmless minor industries. The Workmen's Compensation Act is alleged to encourage carelessness. It also handicaps workmen getting on in years; employers are shy of taking on or keeping men whose footing is less sure than it was, whose eyesight is impaired, if they are answerable for all injuries. Our correspondent holds that we are "over-inspected and over-legislated." It is no adequate answer to our correspondent's complaints to say that the output of Parliament has of late been much less than it was; that, to take the last four much less than it was; that, to take the last four Sessions, the public Acts passed were only 36, 23, 58, and 56, which are figures much smaller than the records of many previous years. The decline in the volume of legislation is largely delusive. Parliament is more and more content to turn out a mere legislative shell; its contents are to be filled in by perman-ent officials who give effectiveness to what, as it comes from the hands of Parliament, was little more comes from the hands of Parliament, was little more than a series of abstractions, certainly no fully workable measure. To take an example from the legislation of last session, the Criminal Appeal Act may prove to be a veritable revolution in criminal law, or it may turn out a measure of little consequence for good or evil, the deciding factor being in no small degree the nature of the rules which are now being framed. The effect of the Public Trustee Act small degree the nature of the rules which are now being framed. The effect of the Public Trustee Act could not be known until the elaborate rules made under it were published. To refer only to the Statute-book is to pass over the Orders in Council, which are to all intents and purposes enactments. Our correspondent adverts only to public Acts. His case is strengthened by the fact that private Acts may is strengthened by the fact that private Acts may confer upon municipalities or corporations large pow-ers over the individual citizen. That the volumes of statute-books are of late thinner than some of their predecessors is no proof or presumption that the Legislature has been less busy than in days when there was much less delegated legislation than there is now. Worse than over-legislation by Par-lignment is the same vicesses he had to be a conliament is the same process by bodies or persons much less exposed to criticism and presumably less competent.

Our correspondent refers, but not adequately, to some examples of what may be called the back wash of benevolent legislation; the social disturbance necessarily caused by large innovations, and resulting cessarily caused by large innovations, and resulting in serious injury to classes whose interests were insufficiently considered by Parliament. We take an illustration from a kind of legislation for which much is to be urged. There are grave evils con-nected with certain home industries. They lend nected with certain nome industries. They lend themselves to sweating and oppressive practices. Upon the younger members of families they may be the occasion for exercising gross tyranny. Here and still more in some of our colonies governments and legislatures are being pushed on by trade unions to put down with a heavy hand such forms of industry. Inspectors are upward to be vigilar in unions to put down with a heavy hand such forms of industry. Inspectors are urged to be vigilant in detecting and punishing offenders. This zeal is not all progress and gain. Behind such measures comes a back wash in which are submerged people who kept afloat; homes held together are broken up; those who maintained themselves are forced to ask for charity. We take another illustration, also from industrial legislation. There is a large volume of enactments which prescribe for all tration, also from industrial legislation. There is a large volume of enactments which prescribe for all classes, including adults, a particular course of conduct and pronounce their contracts to the contrary to be of no avail. One may assume that the legislature has always in view a distinct evil which needed correcetion, there is, unfortunately, generally another side than the beneficient one to this legislation. One is pretty sure to discover upon careful inquiry that such prohibitions have destroyed or impaired some useful private arrangements. The good which the particular act has done is duly paraded by its authors. There may be little said as to its indirect effects, and only careful search may reveal them.

be little said as to its indirect effects, and only careful search may reveal them.

Mr. Tallack favors a heroic, or, to describe it more accurately, a chimerical, remedy. He would have the legislature sit not so often as it does; he thinks that "it might be a national advantage if parliament could occasionally be prorogued for periods of five years or longer." He might have referred as precedents to the practice of the legislatures of the States of America, many of whom meet only at intervals of two, three, or four years; the community, it is sometimes said, feeling safer when they are not in session. Perhaps there is no room at present for practical suggestions of any kind. We have no such resources as are found useful in America when the governors of states veto-by the score unnecessary or crude measures. The termitations for indulating the control of the score unnecessary or crude measures. useful in America when the governors of states vetoby the score unnecessary or crude measures. The
temptations to indulge in over-legislation are too
strong to be resisted, and we must endure in patience the evils which our correspondent laments.
Still it may be worth restating a suggestion which
has often been made, though so far with small effect, that there should be some closer supervision
of the merely mechanical parts of legislation, some
better guarantee than now exists that obvious ambiguities or contradictions shall be removed, at all
events when the ambiguity is not intentional and
designed to avoid a clear expression of opinion as
to an awkward point. Another suggestion may be
restated; that minor defects disclosed in the working of acts should be automatically brought to the
motice of parliament with a view to their correction. ing of acts should be automatically brought to the notice of parliament with a view to their correction. We recall these suggestions, together with the complaints of our correspondent with little hope that they will be much heeded. Statutes may be the fairy tales of democracy, the expressions of deepseated beliefs and hopes. They are that and much more, they are the outcome of a wide and varied desire for changes in many directions, the outcome of struggles between classes, treaties of peace often at the end of home hostilities. It is not an empty paradox to say that a good many peace often at the end of long hostilities. It is not an empty paradox to say that a good many persons who protest in general terms against overlegislation and over-inspection are, in regard to particular matters, their own hobbies and causes, the most active in bringing about these evils.

DESPERATE DOINGS OF WOLF HUNTERS

The wolf hunters who went into the Kipewa district looking for excitement have struck more ex-citement than they bargained for, says the Montreal

Witness.

The news, which was brought to Montreal by Mr. Byron Brooks, who was himself one of the party, spread like wildfire through the C.P.R. offices, and it is expected that Sir Thomas Shaughnessy, who is now in New York, will be quite upset with anxiety when he gets word of what has happened and realizes the danger now being brayed by the party. when he gets word of what has happened and realizes the danger now being braved by the party. Mr. Brooks had not much time to go into details, for he gave out his interview at the Windsor Street station, as he was running from the "Soo" train, just in, to the New York Central train just going out.

From what he said at first it appeared that after getting on the track of the wolves, and finding a deer they had killed, the party suddenly made the horrifying discovery that a body of huge wolves was stalking them.

ing them.

Without giving them time to dig entrenchments, or even fling up a slight stockade, the wolves, with soul-piercing yells, hurled themselves upon the party, soul-plercing yells, hurled themselves upon the party, but were received with such a banging of guns that they became alarmed and drew back. Finally, however, one of them closed with Narcisse, the guide, who, despite the fact that he kept stabbing at the beast with his knife, looked like going down before the animal, when J. A. Hope, of the C.P.R. gallantly were the the receive and dispatched the animal with a went to the rescue, and dispatched the animal with a

rifle bullet.

At this point in the story Mr. Brooks said he had been talking about a lynx all the time, and it wasn't the wolves which stalked the party, but the lynx.

"But you said something about a big band of

"I know, I know!" shouted Mr. Brooks. He was standing on the platform of the train, and he shout, because the train had already started. "I said we found a lot of wolves, and after stalking them—do you hear?—after we stalked them, we killed two. Got that right? We—killed—two—wolves—and—one—lynx! It was the lynx that attacked Narcisse, and—

The nest of the sentence was lost

A Trip to Glacier



HE most accessible glaciers on the North American continent lie in the southwestern part of Canada, just over the United States boundary. Recognizing the fruitfulness of this region for the geologist, the Smithson-ian Institution several years ago supported an expedition headed by Dr. William H. Sherzer, professor of natural science at the State Normal College, Ypsilanti, Michigan, explore the glaciers for scientific data. A full re-

port of the expedition, after the working out of many observations and drawing of valuable conclusions, is just published in the series of "Smithsonian Contributions to Knowledge."

This series of "contributions" includes publications most vital to the purpose for which the institution works, "the increase and diffusion of knowledge among men." Through it have been given to the world the results of original researches containing new facts and conclusions at the time of their publication not known to the scientific world.

In the report of Dr. Sherzer are abundant original data and observations on glacial origin and action. Five glaciers are described: The Victoria and Wenk-chemna glaciers in Alberta, and the Yoho, Asulkan, and the great Illecillewaet, discovered in 1883, in Bri-

They are in a region of climatic extremes, ther mometers having recorded as high as 110 degrees at Griffin Lake and as low as 49 degrees below zero at Calgary. Blowing from the warm currents of the Pacific, over the Gold and Coast ranges come occasionally the "snow-eating" Chinook winds, dry and balmy, given the name from the tribe of Indians near Puget Sound, by early Hudson Bay trappers and voyageurs. These winds constitute one of the meteorological peculiarities of this continent, and by scientific study have been determined to be part of a great "whirl" due to an intricate series of influ-

It may be a matter of surprise to many, suggests Dr. Sherzer, to learn that four or five days of com-fortable railway travel places one in the midst of snow-fields rivaling in size and grandeur those of Switzerland, that the ice bodies descending from these fields may be studied from modern hotels as a base, and that one may safely ride a horse to the very nose of each. For trips on the ice to the passes and neighboring peaks, experienced Swiss guides are available during the summer months. So far as is known there is here the most magnificent development of gladers of the later. of glaciers of the Alpine type on the American

Glaciers Generally Receding

Claciers Generally Receding

The glaciers generally were found to be still in retreat, the Wapta, at the head of the Yoho valley, having exceeded its average of the last three years by a few feet, while the Illecillewaet at Glacier. House receded but one-third of the average which it has maintained during the last seventeen years. The Asulkan, in an adjoining valley, which had been advancing for about two years, has remained practically stationary during the last year. The Victoria presents an oblique front of nearly half a mile, and its lower eight hundred feet, completely veneered with rock, has pushed out into the valley at a comparatively recent date. The Wenkchemna glacier, in the Valley of the Ten Peaks, formerly called Desolation Valley, proved exceptionally interesting because of its almost unique character, only one other of the type—the Malaspina in Alaska—having been described. The Wenkchemna consists of a sluggish ice mass, relatively short but broad, formed by the lateral coalescence of about a dozen short ice streams, each of which retains its identity more or less perfectly entirely across the glacier, and maintains its own nose and motion independently of its neighbors. To those who do not fully appreciate all the factors of the problem it is frequently a matter of surprise that a glacier in one valley may be in retreat while that in an adjacent valley may be advancing, as has just been the case in the Asulkan and Illecillewaet valleys; but in the case of the Wenkchemna there is still more varied behavior in streams that are side by side almost throughout their length.

Interesting facts as to just how glaciers flow are

varied behavior in streams that are side by side almost throughout their length.

Interesting facts as to just how glaciers flow are set forth. "Flow" is a good word to describe their motion. Glacial ice, to all appearances solid, is under certain circumstances plastic, and if a river of water can be conceived that moves in inches instead of miles, such a river would resemble very closely a glacier. The experiment of setting up eighteen metal plates in a direct line across the Victoria glacier, a third of a mile, showed a total movement in 423 days third of a mile, showed a total movement in 423 days

varying from 76 feet in mid-stream to about an inch on the sides, an average of a little over two inches a day near the centre and dwindling toward each bank. This means a flow in the swiftest part of about 66

On either side and in front of each are the usual glacial moraines or mounds of broken rock and gravel, either pushed up or deposited by the ice in melting the control of ing. The constant race between the melting forces and the flow of the ice stream, to determine whether the great mass shall invade new territory or be ed to give ground is not the least interesting Measurements in every case were made from sta-tionary marks to the nose of the glaciers, resulting conclusions, above stated, that some were advancing and others receding.

Complete Surveys

Complete surveys

Complete surveys were obtained of each glacier from the high neve fields, where the snow, avalanched two thousand feet from the mountain peaks, first begins to compress into glacial ice, along the compast mass itself, several miles to the rounded nose, and its drainage stream running down usually to a lake and then off in a river. The term "ice waves" seems a strange one vet that is a correct description. seems a strange one, yet that is a correct description for the rolling masses of ice that take from 36 to 40 years for a complete oscillation. Data interesting to geologists were obtained in regard to the flowing of one ice river into another. Likewise the significance of border of the contract of the cance of bands of dirt across the ice face, and of cance of bands of dirt across the ice face, and of zones and stripes less regular in their formation, was worked out. The twistings and turnings of the ice strata, the intrusion of dykes, the making of crevasses, and many other phenomena, in some cases very similar to the action of the earth's crust itself, were recorded and studied.

Make-Up and "Flow" of the Glaciers

Particular investigations made of the structure of gladial ice revealed microscopic granules not welded together but closely locked. Each granule is a tiny ice crystal belonging to the hexagonal system of minerals, and in quantity, has a rich blue color, by, transmitted light. Considering the hexagonal shape of the ice granules, the glacier can "flow" in many directions without breaking the crystals, and upon this Dr. Sherzer bases his conclusions as to the movement of the glaciers. He says "that under certain conditions and within certain limits ice is cap-Particular investigations made of the structure tain conditions and within certain limits ice is cap-able of behaving as a plastic body, that is, capable of yielding continuously to stress without rupture" but "the plasticity of ice a crystalline substance, must be thought of as essentially different from that manifested by such amorphous substances as wax or asphaltum."

Causes of Exquisite Coloring

Causes of Exquisite Coloring

The causes of the exquisite richness and variety of coloring seen in glaciers and glacial lakes which can not be reproduced in a colored photograph, and which eludes the brush of the most skilled artist, are considered as a conclusion to Dr. Sherzer's memoir. He tried, by mixing solutions of copper and nickel sulphate with pure water, to reproduce the blue-green of Lake Louise, the green of Emerald Lake, and the intense blue of Moraine Lake. From experiments he observed that "the colors with the longer wave-lengths, as yellow, orange, and red are absorbed if passed through water of sufficient thickness. While of the colors at the other end of the spectrum, with the short wave-lengths, blue is the one which water is chiefly able to transmit, violet and green being also transmitted, but less perfectly. Bodies of pure water of a volume sufficient to abone which water is chiefly able to transmit, violet and green being also transmitted, but less perfectly. Bodies of pure water of a volume sufficient to absorb the longer waves of light reflected from the bottom, but not so deep as to absorb it all, will appear blue. This blue is not reflected from the sky, although the condition of the sky will affect the tint. Water in the form of ice possesses still the same power to transmit the colors with the shorter wavelengths, violet, indigo, blue and green, with the preference for blue. If a mixture of these four colors, or of all the others which compound white light, be passed through a block of pure ice of sufficient thickness, none but the blue will emerge. If no light whatever is being transmitted through either ice or water, it will look black, or will show whatever color of light is being reflected from its surface." Of course, in the form of foam or snow, where many tiny surfaces act as reflectors, all colors are seen, and glacial drainage streams, loaded with sediment, generally appear a milky, creamy white or a dirty grey. But the glacial lakes, deep and clear, maintain a rich natural blue, which shades into green only as foreign matter finds its way down from the lofty peaks.

Royal Institution Lectures



IR DAVID GILL opened the usual course of Christmas lectures at the Royal Institution, Albemarle street, on Saturday afternoon, says the London Times. The subject was "Astronomy—Old and New."

After noting that the Christmas lectures had been instituted by Faraday and that the present was the 82nd course, Sir David Gill began with a reference to the beginnings of astronomical thought. The Chinese, he said, claimed that there were astronomers among them 4,000 years before the Christian era who could predict eclipses, and about 2,000 years B.C. a great observatory was established, with a board of astronomers, whose duty it was to predict astronomical events, under penalty of death in case of failure. The Greek historians, however, ascribed the origin of astronomy to the Chinese were right he could not tell; the history of the dawn of astronomy was lost in antiquity. About 600 years B.C. the Greek philosopher. Thales, saw that the earth was a ball or sphere, and that the moon got its light from the sun. A century later another Greek philosopher, Pythagoras, perceived that the earth rotated on its own axis and also revolved round the sun, but was afraid to teach his views. Very little, however, was done in the way of sound astronomy till the time of Hipparchus, who taught that the earth was the centre of things and that the sun and planets revolved round it. This view, though it explains some of the observed phenomena, led to great difficulties; one of these was the course of the planets, which had to be regarded as consisting of an imaginary series of epicycles. Copernicus removed many of the difficulties by saying that the earth rotated on its own axis, and that it, with the other planets, went culties by saying that the earth rotated on its own axis, and that it, with the other planets, went round the sun in circles. The lecturer proceeded to show how on this view it was possible to account for day and night and summer and winter. He first proved the roundness of the earth by the aid of a lantern-slide, in which a ship was seen salling round a circle that represented the earth, a lighthouse was erected at one pole, and it was pointed out that a straight line drawn from the top of the tower grazby saying that the earth rotated on its own was erected at one pole, and it was pointed out that a straight line drawn from the top of the tower grazing the circumference cut first the tops of the masts of the saip, then as it came on, its decks, and finally the bottom of its hull, the argument beand finally the bottom of its hull, the argument being that this course of events would be impossible except with a spherical earth. But the idea of the earth being round was a great difficulty to some people. It was sometimes asked, for instance, why, if the earth was a rotating ball, the things on its surface did not tumble off as it turned round. The answer was that the earth attracted them to its centre by the force of gravity, the nature of which no one knew, though the laws governing it were well ascertained. By the aid of two beams of light implinging on a model earth at different angles and representing the sun in summer and in winter and representing the sun in summer and in winter respectively, the lecturer explained why the days were longer in summer and shorter in winter, and using four balls placed round a central electric lamp representing the sun he illustrated the position of the earth at the four seasons, and explained why the sun was high in the heavens in summer, but low in winter. He pointed out that his explanation involved the assumption that the central evication.

involved the assumption that the earth's axis maintained a constant position in space. When a top or a gryoscope was spinning its axis did the same,

and offered resistance to any effort that was made to alter it, the earth, spinning rapidly on its axis, was merely a big top, and the fixed position of its to alter it, the earth, spinning rapidly on its axis, was merely a big top, and the fixed position of its axis was due to the same cause as in the case of the top. The same principle had been utilized by Dr. Schlick to prevent ships from rolling at sea, and a gyroscope weighing ten tons was sufficient to steady a vessel of 4,000 or 5,000 tons. Another property of the gyroscope explained the phenomenon of the earth's rotation known as the precession of the equinoxes. A force applied at right angles to the axis of a spinning gyroscope tended to deflect it Now one side of the earth being nearer the sun than the other the sun pulled harder on the nearer side and this exerted a force at right angles to the axis of the earth. The result was to produce a slow circular motion of the axis—so slow that 25,000 years were required to complete the circle. But in consequence of this motion the pole star of today would not be the pole star 1,000 years hence, and in 4,000 years the stars visible in winter would be different from those now seen in winter. This fact had been used to explain the position in which various ancient buildings had been placed, and it was a shrewd idea of Sir Isaac Newton's that the Great Pyramid had been built about 4,000 years ago, because its entrance passage would then have looked directly at the then pole star, a Draconis. Sir David Gill proceeded to prove his assertion that Great Pyramid had been built about 4,000 years ago, because its entrance passage would then have looked directly at the then pole star, a Draconis. Sir David Gill proceeded to prove his assertion that the earth revolved on its own axis by showing a modified form of Foucault's pendulum experiment, and illustrated the fact that the earth was not a true sphere, but was flattened at the poles, by showing that a model earth made of brass springs and so able to yield as did the real earth when in a plastic molten condition also flattened itself at the and so able to yield as did the real earth when in a plastic molten condition also flattened itself at the poles and bulged at the equator when rapidly rotated. Finally, having explained the phases of the moon, he referred to the work of Kepler, who saw that they did not move in true circles, but in ellipses, and of Newton, who discovered the full truth about their motion.

William H. Hotchkiss, one of the directors of the American Automobile association, tells the following

story:

"A friend of mine owns a small car. He has no chauffeur, and every time he goes out a breakdown occurs. No wonder.

"He said to me the other day:

"I took my runabout all apart yesterday."

"Did you?" said I; and, knowing his impracticability, I added, seriously: 'Well, when you do that, you must always be careful not to lose any of the parts." "Not to lose any of them?" said he. 'No fear. Why, when I put that machine together again yesterday, I had nearly two dozen pieces left over."

A convict of a western prison had been extremely refractory, and different means were tried, without success, to break his spirit. One morning the super-intendent said to the warden:

"That scoundrel, No. 213 is behaving worse than er. Put him on bread and water." "But he is already on fast diet," replied the warden.
"Then keep it up and give him a cook book to read."—Philadelphia Ledger.

The Earth a Mere Speck

ROFESSOR BOYD DAWKINS gave the

ROFESSOR BOYD DAWKINS gave the first of a series of four popular addresses at the Manchester University on "The place of the earth in the universe," and his object might well have been to teach the human race a lesson in humility. In describing the characteristics of the planetary bodies, he engaged in some favorite speculations as to the presence of life on our neighbor Mars, says the Manchester Guardian. When compared with the earth, Mars, he said, showed a very remarkable identity of constitution. Mars had land and sea, and there were very clear indications that spring, summer, autumn and winter took their regular course there as here. On the whole, the climate was probably very much the same as the climate of the earth. In Mars, therefore, we had all the conditions of life such as.

Were we, then, to believe that there was life on Mars? He for one most absolutely and firmly held that there was evidence of such life. The evidence was that wherever conditions of life existed on the earth there was found life in some form or another. And when we found the conditions in Mars much as they were here, that was to him absolute proof that there were living forms in Mars, because the conditions of life were there for them. The importance of Mars, then, in an inquiry as to the place of the earth in the universe was that it showed that there itions of life were there for them. The importance f Mars, then, in an inquiry as to the place of the arth in the universe was that it showed that there sere other bodies than our own which were inhabited. This idea had taken root in the popular mind, and some people had gone to the length of leaving money to the first person who should telegraph to Mars. That, of course, was a chimerical idea, for it did not follow in the least that the inhabitants of Mars were as the present inhabitants of the earth

Inat, of course, was a chimerical idea, for idea of follow in the least that the inhabitants of the were as the present inhabitants of the earth. In the present order of things on the earth was completely of yesterday, and we ourselves were mere down that had appeared from time to time, the in a long procession of organized beings who made their appearance on the earth. He did believe for a moment that the process of evolutiand stopped on the earth; the change of consumptions which was going on now would lead to furant further stages. In our own case he took hat we should either develop into something very higher than we were at present, or, if we did it ourselves to our surroundings, we should becharacteristic fossils of the future. Applying that they might present a stage of evolution either rior to or infinitely higher than ours.

o or infinitely higher than ours, ing of the fate of the earth, Professor Boyd showed how the planets revolve round the hs showed how the planets revolve round the a sort of spiral movement, and how, by the gravitation, they must become eventually part central mass. The enormous heat of the sun up largely by the falling-in of planets age age. Ultimately, beyond all doubt, and by the nature of the case, if the law of gravitationwere true, that must be the fate of the earth, and we and our civilization and everything on the earth would be absorbed into the great central mass. That, too, in the long course of ages would happen to every one of the planets now revolving round the

sum.

Leaving our own system, Professor Boyd Dawkins reminded his hearers that the stars were great blazing centres of other systems. Our own planetary system was not unique; it was merely one of an infinite number of systems, a minute speck in the general order of things, and nothing at all as compared with the infinite number of other systems, probably built on the same lines and some of which had probably arrived at the same stage of evolution as that of our own system. If that were true in regard to our planetary system as a whole, what should we say in regard to that part of it which we called earth? Some people whose theological tendencies overpowered their astronomical observations talked of the earth as being the centre of the universe. It was really a mere speck in the universe. From that he suggested we might take the measure of our own value. We on the earth were merely the last comers on our own planet, and there were an untold number of earths in the universe outside. It was a very good thing that we who were accustomed to be so proud of our attainments should come down to our true position, and that those who prided themselves on knowing a little more than their income. tomed to be so proud of our attainments should come down to our true position, and that those who prided themselves on knowing a little more than their poorer fellows should realize that they and their possessions and the wealth of knowledge they might have were absolutely insignificant in the general order of things.

A recent graduate from Harvard was given a confidential clerkship in the office of the president of a huge raflway system. The young aspirant was not told at what hour he should report; so the first morning he appeared in the office of his chief at 9 o'clock. He found the president hard at work. Nothing was said of the clerk's tardiness. On the second attempt the clerk presented himself at 8:30, only to find that the president was there ahead of him, working hard. The third day the young man want in at 8 o'clock with the same result. That night as he went home the clerk took counsel with himself and determined to be ahead of the boss the next morning. Accordingly he arrived at the office at 7:30 the fourth day; but there was the chief working away as if he had not left the office at all. As the clerk entered the president looked at him with a quizgical air. quizzical air.

"Young man," said he, "what use do you make of your forenoons?"—Tit-Bits.

The Old Man-The easiest way to get into society to marry for money.

The Young Man—Suppose you are in society and

want to get out?
The Old Man—Then marry for love.—Illustrated