

### ORIGIN OF THE CCEAN TIDES

Producing Agents Are Sun and Moon and Law by Which They Act is That of Gravitation.

The tide visits us practically twice a day, rising to a height that can be measured by so many feet. In many places it comes only once, and Is measured by inches. The tide producing agents are sun and moon, and the law by which they act is the law of gravitation. This law declares that there is a force of attraction between two bodies, or, to put it differently, that every particle of matter in the universe attracts every other particle, the attraction depending on their mu tual distances and their mass. Taking the moon's attraction first, it is as sumed that the whole of the earth is covered by the ocean. The moon attracts the waters, and that layer of water immediately under the moon gets heaped up on the side nearest the moon. High tide will be there. The waters on the distant side are

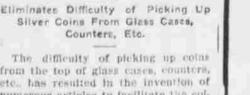
heaped up also, and this is a little detail that puzzles most people, because here one would naturally expect low water. The reason of the seeming paradox is that the waters on the dis-

tant sides are thousands of miles furtant waters. These waters heap them- to turn Jt and insert a hand. selves up away from the earth and and moon then reinforce each other, advertising cards. though they are on opposite sides of the earth.

# WVENTOR OF DIVING ARMOR New Musical Instrument Which Comes

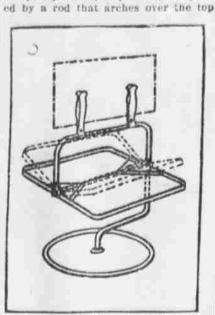
Present Perfect Form of Dress Largely Due to Genius of William Hannis Taylor.

Among pioneer inventors, to whom the diving dress in its present perfected form owes so much, was William Hannis Taylor, says Scientific American. The previous "hit or miss" sttempts were superseded by the Taylor patent of June 20, 1838 (No. 578), in which the essential feature was the



HOLDER FOR SMALL CHANGE

numerous articles to facilitate the colection of change. There are rubber mats and feit mats and hollowed glass rays galore, but one of the most pretentious of these devices is that designed by a Washington man and shown here. A metal or wooden folding pan, that normally is fastened in open position, is pivotally support



Holder for Change.

ther away from the moon than is the of it and curves under it to the cenearth's center. The earth thus gets ter of an extended base. There is more of the moon's pull than the dis- room both above and below the pan

The change is laid on the tray and moon, and high tide will be there also. the customer holds his hand beneath The observed tide is the effect of both it and tilts it, the coins thus being lunar and solar pull. Of the two the dumped off in a twikling. There is sun's pull is the weaker, because of no clawing necessary, as when the his greater distance from the earth. money lics on a flat surface that is At new moon the height of the tides immovable. The tray is made to fold is increased. Sun and moon then pull in the center and can be closed when in the same direction. At full moon not in use. At the top of the support there is also an increased height. Sun are clips adapted to hold notices or

## WELL BALANCED GRAND PIANO

From England Possesses Tone Purer Than Big Ones.

In the effort to secure a compact

story teller of men and events. grand piano, with all the volume and other merits of the larger instrument, many a vivid word picture my host drew of men then prominent in state





vice, and then continued:

After Horace Greeley Was Nomi-

nated by the Liberal Republican

Convention in 1872.

States senator from Missouri,

plan I have followed for over twenty years, and to it I attribute whatever success I have had in politics, as well as peace of mind, even when I have "'You have begun a political cabeen most violently attacked."

reer,' he said. 'Well, in my opinion, "Again the governor glanced furyou have many qualities for a suctively at me, then, looking at his cessful career of that sort. You have watch, guessed it was time to return some gift of public speaking, and you to Utica. He summoned the farm know how to approach tactfully. But wagon, and it clattered up with the If you were to ask my advice, I should tools in it still untouched. We mousttell you emphatically not to go into ed the board seat, and, like a true politics, but to slick to your profesrustic, the governor drove back to slon. The law always offers a good the city. And as I sat bouncing up and field to the ambitious young man." down beside him and thought of that "For a moment he looked at me furuntouched lot of farm tools jangling tively, to see how I was taking his adbehind us, I could not help saying to "'But if you insist upon a political myself:

'Governor Seymour, no matter career, I have just one piece of advice ance there was a huge Japanese um-brella over the table, from which in the way of showers may adapt this what you say, you do not owe all of for you. Never read an opposition your success in politics to the fact newspaper, never read a personal or that you never read opposition newspolitical attack upon yourself or your papers, or paid any heed whatever to party, never listen to anyone who personal or political attacks upon brings you a report of that kind; read your own party journals, read plenty

(Copyright, 1916, by E. J. Edwards, Al-Rights Reserved.) of history, study the careers of great

they could not match in political skill Rendered "The Heart Bowed Down" some of the professional politicians in he convention, with the result that the latter got control of the convention, sidetracked Mr. Adams and brought about Mr. Greeley's nomina-One of the men who took a very

prominent part in the organization of The fall following the defeat of Mr. the famous Liberal Republican party Greeley, I visited Mr. Bowles, at his movement of the early seventies, invitation, in his office in the Springwhich instantly went to pieces follow field (Mass.) Republican building. It flower is very common, and really it ing Greeley's defeat for president by is very beautiful. With it always was the first time I had met him, and General Grant, running for re-election I was amazed to note the facility with comes the golden rod, as they grow in 1872, was the late Samuel Bowles, which he carried on all kinds of busiusually 'a close proximity. For a table for more than thirty years prior to his ness, both editorial and that of the centerpiece there was a low green death in 1878 a powerful editorial inpublication office, at the same time pottery bowl containing a flower holdfluence throughout the country. Allied that he talked over earnestly the parer, so that the blossoms branched out with him in the task of organizing ticular matter that had brought about in a charming manner. The doilles the Liberal Republican party were my visit. were white, with finger bowl and tumbler dollies having embroidered de

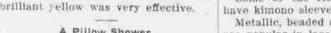
glad you were interested in our party. try were interested in it. It was realioilies of grape leaves. Then there was the usual luncheon menu with a ly a young man's protest against some of the excesses into which the Repub-DUPDOSE "Mr. Bowles," I said, "may I ask you

mediately after the defeat of Charles

A Pillow Shower

telicious grape juice sherbet for dessert, decorated with candied violet leaves, the plates set in a wreath of and is beautiful. isters. The rooms were lavishly decorated with golden rod, and the comof tulle are worn. bination of lavender asters and the

Some of the richest opera cloaks have kimono sleeves. Metallic, beaded and Persian effects



at each place and held a small pail of per and a needle and thread. A Dirge Carl Schurz Played bon-bons. The name flag of the boats grown-up took each pipe and quickly were around the room with the Union drew a face on the back of the bowl Jack and the Stars and Stripes. The and the children were told to make suests were asked to come in flannels dolls of them. A couple of prizes were and it was just the jolliest kind of a offered and it was surprising what at time. The menu was as nautical as the tractive creations were turned out market could afford, beginning with The boys did just about as well as the oysters, fish, lobster salad, etc.

tion

three other famous editors, the late "Ah." exclaimed Mr. Bowles, "I am Murat Halstead, Henry Watterson and the late Carl Schurz, then United I hope all the young men of the coun-These four men were prominent members of the national convention of the Liberal Republicans, held in lican party was in danger of falling. Cincinnati in 1872. But not one of We were defeated, but the Liberal Rethem had planned for Mr. Greeley's publican movement accomplished its sun was beginning to cast shadows nomination. Their candidate was from the west, he began to speak Charles Francis Adams of Boston. Yet,

one question? I have heard that imbrilliant editors though they were. ..... Francis Adams by Mr. Greeley, Sena-

are popular in lacedo This was not given for a bride, but Large wings are in demand for tailfor two girls who were going away ored and semi-dress hats. to school. To furnish their joint sit-The chenille dot is going to have ing room was the idea of the home another inning in veilings.

home as souvenirs. There were favors Wild Aster Luncheon. for the soap bubble contest, too. The lovely wild aster furnished the MADAME MERRL key note to one of the prettiest luncheons I ever attended. This 'dainty

**Hints For Hostess** 

This dinner was given by a coterie fine collection of useful and ornamen-

of four couples who had passed a great tal pillows or cushions, from those for

part of the summer together yachting the couch to dainty confections of dot-

on the great lakes. The occasion was ted swiss and ribbon for the dressing

in the nature of a little farewell to the table. There were also cushions filled

table was lovely and had for the cen- There were denim cushions large

ter a lake made first by the tinsmith, enough to sit on when placed on the

who concocted a circle about three floor, and what girl does not adore sit-

feet in circumference, which was sur- ting on the floor in front of the fire

rounded with a border of ferns, vines and dream long, happy dreams of the

and pond lilles. In the water two days that are yet to come? A bride-

sall boats and a toy launch floated as elect who heard of the affair said she

natural as life, manned by cute doll thought such a downpour would be

sailors. To add to the festive appear- very acceptable, so the readers who

bow. The name of the guest was let from "nine to eleven" they had a soap

tered on the side. Wee paddles paint- bubble contest. First the hostess gave

ed white were stacked bayonet fashion | each child a sheet of colored crepe pa-

A Boating Dinner,

one they called "commodore." The

they were lighted by electric lamps.

At each place there was a tiny canoe,

with a very small Jap lantern at the

small lanterns hung from every rib; to their needs.

TIMELY SUGGESTIONS

for Those Planning Seasonable

Entertainments

girls who gave it. The result was a

with pins of all sizes and with needles.

A Novel Amusement for Children.

At a recent party for youngsters

Impricines of TASHION .

girls. The pipe babies were taken

The low lying effect in hats still prevails. Everything tends to smaller colf-

1265 Shawl collars are still a feature of

oats: signs in lavender. First we had iced Egyptian embroideries are in high grape juice in tall glasses resting on ivo

> New handbags are perfectly square. The banded-in effects are even seen n coats.

The badger aigrette is in high favor

Beaver hats with enormous rosettes

valve allowing the emission of consumed air without an influx of water. Previous to this time, there had been the diving chests and the diving bell, of which the latter, introduced by Smeaton in 1778, was the safest and most practical device for submarina exploration. The diving bell has been developed alongside of the diving dress, and is still in use.

The general appearance of Taylor's diving armor was like that of a knight's suit of mail, except for a prominent bulge in the body piece. A large pipe coming down from the surface and penetrating the body piece at the bulge, supplied the fresh air, while a short pipe entered the body piece on the other side, and was provided with a valve which carired off



First Diving Armor,

the exhaust. Although diving armor has now reached its perfected state, improved upon. The accompanying fl-Austration is reproduced from Mr. Taylor's patent.

#### Shifting of North Pole.

Since the autumn of 1899 the slight lal of latitude, and Prof. Albrecht of gram of the pole's wanderings for ten position had been circled around eight and one-half times in an irregular spiral course. The pole was very near fts middle place in 1900, and nearly touched the center again in 1906 and 1907. Its oscillation reaching another maximum in 1909, it kept about 30 feet away from its central place during the rest of the year.

#### Oyster Shell Window Panes.

On the west coast of India is found a species of cyster whose shell consists of a pair of roughly circular These plates are thin and white. They can be, and are, used for window panes; they admit light and have the 1894. appearance and effect of frosted glass, but look much more ornamental.

#### Lightning Arrester.

Has your telephone got a thoroughly reliable lightning arrester, one that Iceland.

## The Balanced Grand Plano.

there has been evolved in England the balanced grand, which is said to have all the points of merit of the large Instrument without its bulk and its unwieldly shape, for it is arranged so that one side is the duplicate of the other. This change in shape has required the scale being doubly overstrung, giving a tone of volume and quality which many musicians claim is purer and has greater carrying power than the old full-sized instrument. This is the very first plano of symmetrical shape and that opens either side, the top forming two lids, hinged in the center so as to distribute the sound waves.

#### Electrified Smoke.

The smoke problem was the chief topic of discussion in the convention of the American Chemical society, recently held at San Francisco. Leading scholars contributed a symposium on smelter smoke. Prof. E. G. Cottrell of the University of California has gained greater success so far than any chemist in the solution of the smoke evil. Cottrell's remedy is an electrical precipitation of the Impurities in smoke by sulphuric acid. lead and zinc. Cottrell proposes to make the smoke which pours from the smelter chimneys of the country harmless by static electric discharge.

#### Novel French Brake.

The resistance of water to a paddle wheel is utilized in a novel French brake for motor cars. A bevel wheel is loosely mounted on the shaft between the engine and the gear box and can be clutched to the shaft as desired. shifting of the north pole has been ob- The bevel wheel meshes with a pinserved closely at six stations around ion having attached a fan, or paddle the world near the thirty-ninth paral- wheel in a small water tank. On us-Potsdam has now completed a dia- tion, and the resistance of the water ing the brake the paddle is set in moexerts a braking effect that is conyears. Up to the end of 1899 the mean siderable at high speeds, decreasing with lower rates.

#### NOTES OF SCIENCE AND INVEN-TION.

Nearly one-fifth of the area of France is forest land. A ton of ice will cool about 28,000

pounds of water one degree. A recent estimate placed the population of the world at 1,467,000,000

Eritish postoffices handle 15,000,000 letters and 250,000 telegrams a day. Nearly one-fifth of the deaths in plates, about six inches in diameter. England occur in public institutions. Ainbama has held third place among the states for iron production since

More paper is made in Holyoke,

Mass., than in any other city in the world

Something like 300,000 horsepower is going to waste in the waterfails of

Although it weighs but half a pound. you can operate from near the tele Although it weighs but half a pound, phone, disconnecting it from the line a female herring will lay 45,000 eggs

the fire escape.

# Incident of Sherman in 1846

How Henry A. Wise, Then the Minis- by the good time the diners were havter to Brazil and Later a Confederate General, Entertained Him at Rio Janeiro.

Horatio Seymour's Practical Political

Lesson to Chauncey M. Depew

When Latter Was Secretary of

State of New York.

"It was just four years before Hora-

to Seymour was nominated by the

Democratic party, in 1868, to run

against General Grant for president of

the United States, that I received

from him what I have often regarded

as the most practical polltical lesson

that was ever taught me," said Sena-

tor Chauncey M. Depew at a time

when the discussion turned upon po-

litical leadership and political leaders

"Mr. Seymour had been elected gov-

ernor of New York in 1862-he had

also filled that office ten years before

-and in the election of '63 I was a

candidate for secretary of state. I

went into the campaign very earnestly

-I was only eight years out of col-

lege, and political life looked mighty

tempting to me-and the arguments

that I delivered on the stump through-

out the state were at times pretty well

seasoned with political spice of the

"Well, after the campaign was over

and I had found myself elected by a

majority twice as large as that which

Governor Seymour had received the

year before, the thought occurred to

me that the governor might not want

to speak to me, for I had been quite

personal regarding him in some of my

speeches. But, to my astonishment I

had not long been in office when the

governor invited me to spend a few

days with him at his home in Utica,

promising, among other things, to take

me to his farm at Deerfield, a few

miles out of the city. Overjoyed at

the discovery that I had not made a

personal enemy of him, I immediately

accepted the invitation, and arriving

at his home, found him a man of won-

derful personal charm, of an ideal do-

mestic life, and a most entertaining

"We chatted for a long time, and

and national politics. Finally, as the

mannen

of yesterday.

very hot sort.

about myself

On the morning of Dec. 27, 1846, terval and resuming the conversation Henry A. Wise, United States minis- where it had been left off. ter to Brazil, and later the governor of Virginia, who signed John Brown's and everybody was feeling in the best death warrant and a Confederate major of humor when there came a knock at general, went for a stroll to the docks the dining room door. The next moof Rio Janeiro. Some days before he ment it was thrown open and in walkhad been told that an American clip- ed a physician, smilling broadly, and per ship might make the port, and he behind him a still happier woman,

did not wish to miss his fellow coun- , who carried a bundle well swathed in trymen there; hence his daily haunt- flannel. ing of the water front. On this particular morning he had man lowered her arms a bit and then

not quite reached the dock when he gently parted a portion of the flannels, spled two keen-eyed and alert young revealing to the three diners the face men, who hore every outward sign of of a newly-born infant-and as the being Americans and who seemed to two officers looked their astonishbe intensely interested in the scenery ment, their host pointed to the baby that the harbor of Rio Janeiro af- as the explanation of Mrs. Wise's nonfords. Going up to them, Mr. Wise appearance at dinner and happily exput out his hand.

"You are from the United States," the youngster's health was togated he said. "So am I. Am I right in as, then and there in approved style by suming that you are passengers upon States army. the clipper ship that I see is taking in , stores at the pler yonder?"

The two young men replied in the iffirmative and then Mr. Wise intro- federate army, won the distinction of American minister at the Brazilian eral Robert E. Lee to fewerson Davis. pleased to have the two travelers dine of America. Still another eighteen with him. Thereupon the strangers years later, John S. Wise, as a rep- in the humming. expressed their delight at the invita- resentative in Congress from the tion and immeduately accepted it, the younger of the two then introducing the other as Coonel Henry W. Halleck of the United States army, "And," said Colonel Helleck, indicating his companion, "Captain William T. Shernan, also of the Baited States army." adding that they had been ordered around the Horn to duty in California. A few hours later the two officers.

who were destined to figure to prominently in the world's greatest civil war, were received at the American legation with true Virginia condiality When dinner was approanced, Ministe-Wise armse and in his very hest manter apologized for the unavoidable, ab sence of Mrs. Wise: who, he explained was indisposed temporarily During

"Graft" for Janitors. Mayor Gaynor of New York etty who holds that "all hopest foll:

should be in bed before midelaht would find Vienna a city after his own heart. The Vienness are subject to a form of import unknown in America, the "sperrge'd.' 'or dooropening tax. They all live in data and the street entrance is invariably bolted at ten o'clock each night. When the bolts are drawn persons passing in or out must pay four cents until midnight and eight cents from that hour until 6 a. m. This toll is levied every time you go through the doorway. If you post a letter you have to pay to so out and pay to come in. The jar'tors, or "house masters," as the Viennese call them, draw handsome incomes from this source, although persons liberal in other respects strongly object to paying "sperrgeld" and will hurry over a costly dinner to save four cents.

Retort Sarcastic. He (crossly)-How did this fire manage to go out?

at the hotel tables with us. At many of the resorts it is practically impossible to have a table by your- the people who want it .- Philadelphia She (suave)-1 suppose by way of self. At the first place we stopped Record.

tor Carl Schurz, yourself and some other leaders went to a hotel and that Mr. Schurz, to express his regret over Mr. Adams' defeat played-'

the meal itself, which was protracted "Yes, yes," broke in Mr. Bowles. while an amused smile swept across ing, the host occasionally, excused his features, "that is true, and here himself in order to inquire about Mrs. and there, I believe, some report of Wise, and left the dining room, rethe incident did creep into print. But turning each time after a short in I will tell you the incident fully.

"With the convention's work over, we went back to our hotel in a very Thus the evening had worn away, despondent mood. We foresaw that the nomination of Mr. Greeley made defeat in November inevitable, and we realized that the defeat would probably be a very sorrowful one. We went into the parlor of the suite occupled by Mr. Schurz and sat down, with the gloom about us thicker than I ever saw it before. Mr. Schurz was Marching up to the table, the woespecially despondent; his is a very mercurial temperament, anyway. Murat Halstend was the most cheerful member of the party, and he looked a good deal as though he had just come from a dear friend's funeral. And each of us sai there communing with his own glum thoughts; we did not need to speak to let one another plained that it was a boy. Of course, know our feelings.

"We had been sitting thus for a quarter of an hour, maybe, when, sudthe two representatives of the United denly, Mr. Schurz sprang from his chair, hurried over to the piano, lifted Eighteen years later this haby, an the lid, sat upon the stool and began Lieutennat John S. Wise of the Con- to play, as the brief report had it, the familiar air of 'The Heart Bowed duced himself, saying that he was the carrying the last dispatch from Gen Down With Grief, from the Bohemian Girl.' Then, after a little, he began to court, and adding that he would be president of the Confederate States hum and then to sing the accompaniment, and, I think, some of us joined

"I don't believe auyone could have Richmond (Va.) district, met General found a better piece of music to ex-William Tecumseh Sherman in Washpress our feelings at that moment. ington and asked him if he remem- Our hearts were certainly bowed down bered being entertained with General with grief, for we had failed to nomi-Halleck in Rio Janeiro, back in 1846. nate our man, and we saw certain deby the United States minister of Bra- feat ahead. Oh, how funereal that music sounded that day! Yet now, as

"Oh, yes, I remember the incident | recall the incident, I cannot help very well," was the reply, "and I also | smilling over the fact that Carl Schurz recall the little surprise party we should have selected a comic opera tune as the one most fitting to serve "Well, General, I was that baby," as the dirge of the Liberal Republican movement.

The old warrior critically surveyed (Copyright, 1910, by E. J. Edwards, Al

#### "Woll," he retorted, with his eyes Deserves Indictment. characteristically a-twinkle, "all I've

Made a Bad Impression

do to appal their parents is unlim. us that they were charming people-

be a guide for another, for each babe ourselves, and, naturally, we hoped

pected place and the most their sion. The waiter lifted Gracie into

what's this?""

round?

Munsterberg: A state which will not prevent what can be foreseen in Deright, 2010, by E. J. Edwards, All open to indictment.

just the kind we would have chosen

we should make a favorable impres-

a high chair and for a moment she

surveyed the table in a quiet manner

that was highly satisfactory. Then,

without warning, she picked up a

corner of the napkin that lay at her

plate, looked at it with an expression

of amazed inquiry, then held it up

and asked in a loud voice: 'Mamma,

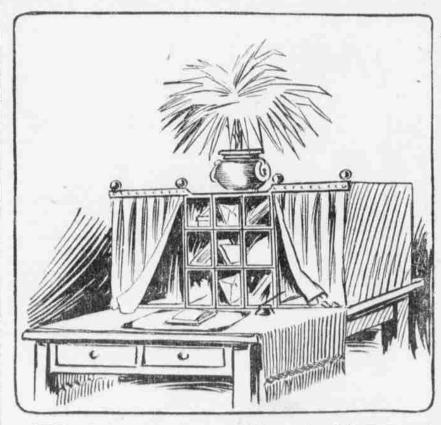
Not Enough For All.

Tommy-Pop, does the earth so

Tommy's Pop-Yes, my son; but it

wouldn't if it was divided among all





VERY good scheme for construct- | and the exterior of the cases can be A ing a rough but useful kind of either painted or stained.

writing table-for the room, per The pigeon-holes in the center conhaps, that is set aside for carpentering sist of nine cigar boxes. One end of and other amusements-is shown in each has been removed, and they our sketch. It may be quickly ar- are fitted together in the manner ranged and easily taken down again, shown. Small labels can be affixed when not required, and it can be at the center of the upper edge of each box to indicate its contents.

made at a very small cost. There is a narrow cloth arranged It consists of two strong wooden boxes or packing cases placed on across the front part of the table, either side of one end of a table. The and here a blotting-pad, pens, ink. lids have been removed and curtains etc., may find a place. On the top of hung in their places, fastened on to the pigeonholes a fern in a pot, with the upper edges of the boxes with perhaps photographs or vases of ornamental braid and small brass flowers on either side, would add headed rails. The two boxes are greatly to the appearance of this finished off at the top with four little rough but convenient piece of furbrass balls, screwed into the corners, | niture.

Lace Watch Fob, They are very dainty. They are also new and a charming or carved sandalwood beads are pretidjunct to the light frock. Cracle's Inquiry Unfortunate Coming the discriminating head walter chose for us a table with a number of

really delightful and cultivated peohome. ple. We found that out afterward, In fact, even our first glance told

tassel.

The strips of insertion are folded over the gold or brass catch, which

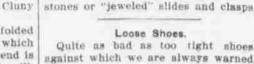
may be bought for fobs and the end is pointed and finished with a white silk The girl with a milltary friend from

substitute for the white tassel one of good strands such as is worn on a cept when made to order, should get them a little too long rather than a sword Thin lace fobs are lined with white little too wide; it is the lesser of two or colored ribbon. evils.

# For Low Cut Frocks.

Rather effective and equally unusual Jewelry simple enough for a young girl to wear with her Dutch or square is the gown of two-toned silk veiled necked frocks is in the shape of la with chiffon or other shimmering mate-Valliere chains of platinum or ster- rial. The combination is intensified. ling silver. They have pendants em- if the under dress is itself trimmed bellished with a repousse design, a with hand-work or done in the Persian chased pattern or an incrustation of colors or metallic threads.

ty for a school girl. If the throat is The girl who is deft with her fingers rather long and just a bit too slender should be able to make one easily at she may adopt a neckband of black velvet ribbon with silver, gold, rhine-For this remnants of Irish or Cluny insertion may be utilized.



against which we are always warned, are too loose ones; they cause corns and buptons and often produce flat tening of the arches. The woman with whom she may beg souvenirs might the peculiarly shaped foot, who cannot get shoes exactly to fit her ex-

A Velled Gown.

rhinestones or fresh water pearls. En-

tire strings of amethyst, topaz, amber

another.

ill, Henry A. Wise:

said Representative Wise.

the heavy weight before him.

no: to say is, you don't look it."

as It Did Just at the

Wrong Time.

The number of things children can

ited. No one parent's experience can

terrible breaks out in some unex-

progenitors can do is to console one

"For a small but acute mortifica-

tion," said one young mother, com-

paring notes with some friends, "I

have seldom had anything to equal

a performance of Gracie's a short

time ago. You know she is about four years old. This summer when

Frank and I were traveling we took

no nurse with us, so we always made

special arrangements to have Gracie

had."