# Scientisic American.

ESTABLISHED 1845.

MUNN & CO., Editors and Proprietors. PUBLISHED WEEKLY AT

No. 261 BROADWAY, NEW YORK.

O. D. MUNN.

A. E. BEACH.

## TERMS FOR THE SCIENTIFIC AMERICAN.

Clubs.-One extra copy of The Scientific American will be supplied

gratis for every club of five subscribers at \$3.20 each: additional copies at same proportionate rate. Postage prepaid.

Remit by postal order. Address

MUNN & CO., 261 Broadway, corner of Warren street, New York.

### The Scientific American Supplement

is a distinct paper from the Scientific American. THE SUPPLEMENT is issued weekly. Every number contains 16 octavo pages, uniform in size WITH SCIENTIFIC AMERICAN. Terms of subscription for Supplement \$5.00 a year, postage paid, to subscribers Single copies, 10 cents. Sold by all news dealers throughout the country

Combined Rates. - The Scientific American and Supplement will be sent for one year postage free, on receipt of seven dollars. Both apers to one address or different addresses as desired.

The safest way to remit is by draft, postal order, or registered letter AddressMUNN & CO., 261 Broadway, corner of Warrenstreet, New York

#### Scientific American Export Edition.

The SCIENTIFIC AMERICAN Export Edition is a large and splendid peri-dical, issued once a month. Each number contains about one hundred large quarto pages, profusely illustrated. embracing: (1.) Most of the plates and pages of the four preceding weekly issues of the SCLENTIFIC AMERICAN, with its splendid engravings and valuable information; (2.) Commercial, trade, and manufacturing announcements of leading houses Terms for Export Edition, \$5.00 a year, sent prepaid to any part of the world. Single copies 50 cents. to secure foreign trade may have large, and handsomely displayed announcements published in this edition at a very moderate cost.

The SCIENTIFIC AMERICAN Export Edition has a large guaranteed circu lation in all commercial places throughout the world CO., 261 Broadway, corner of Warren street, New York.

#### NEW YORK, SATURDAY, JUNE 3, 1882.

#### Contents.

#### (Illustrated articles are marked with an asterisk.)

## TABLE OF CONTENTS OF

## THE SCIENTIFIC AMERICAN SUPPLEMENT,

## No. 335,

For the Week ending June 3, 1882.

Price 10 cents For sale by all news dealer

Price 10 cents. For sale by all news dealers.	j,
PA	AGE 1
1. ENGINEERING AND MECHANICS, — Air Refrigerating Machinery.	5336
Sea-Going Tonnage of the World	
WOLFF	5837
Life lines.—Ship raising apparatus.—Folding boats.—Life buoys.—	1
Life buoy seatsFog hornModel yachtSubmarine and min-	
ing lamps.—Diving apparatus.—State barge, etc	5337
Professor Ayrton and Perry's Electric Railway.—Large illustra-	
tion of working model, with details	
Fusible Safety Plug for Boilers.—I figure	
On Cracks and Annealing of Steel.—3 figures	
Country Road Making.—1 ilgure	5541
II. TECHNOLOGYPorcelain: Its History, Manufacture, and De-	-
coration. By CHARLES LAUTH, director of the factory at Sevres.	1
A minute and trustworthy account of the porcelain industry and	
its processes	5344
Russet Leather.—A Report on the Manufacture of Russet Leather and its Adaptability for the Military Service By Capt.	
D. A. LYLE, Ordnance DepartmentHemlock andoaktannages.	j
-Treatment of green hidesTanningBleachingCost and char-	
acteristics of russet leather.—Harness dressing	
G. THOMSON, M.D.—1 figure	
Astronomical Photography.—Some recent results	
III. CHEMISTRY.—On the Active Condition of Oxygen.	5850
Gelatine Jelly as a Dialyzer. By R. C. WOODCOCK	5950 .
On the Proportion of Carbonic Acid in the Higher Regions of the	
Atmosphere	5350
IV. ART, ARCHITECTURE, ETCWrought Iron Gate from the	
Imperial Office of Justice in Berlin.—Designed by Von MCRNER	5342
Ripon Cathedral.—Full page illustration.—Drawn by S. READ	5343
V. PHYSICSA ThermographNew Apparatus for making a con-	j
tinuous graphical record of variations of temperature.—Ry G.	
MORGAN ELDRIDGE3 figures	5344
VI. MISCELLANEOUSLouis PasteurBiographical sketch, with	
portrait	5335
M. Pasteur.—His researches	5336
Infinities Around Us. By LOUIS PASTEUR	5336
The Future of Knowledge Professor W. E. Ayrton.—Sketch of life.—Portrait	5336
Professor John Bonny, Great L. of Mr. D.	5340

#### THE TOTAL SOLAR ECLIPSE.

The solar eclipse of the 17th of May was successfully observed by English, French, and Italian parties at Soham, a village in Lower Egypt, on the Nile. The duration of totality at that point was only seventy-two seconds, but the observers did prompt and efficient work in this short space of time. The telegraph swiftly bore the record of their labors to our Western World, and the first fruits include the view of a comet near the sun, indications of a lunar atmosphere, and a photograph of the spectrum of the corona.

The precious seconds when the sun's face was hidden by the moon's dark shadow revealed in the first place a comet near the sun. It could not be Comet a or Comet Wells, for the suns that people space. this much talked of visitor to northern skies does not reach perihelion until the 10th of June, and has, therefore, three weeks' time in which to speed its course to the near neighborhood of the great luminary. It will be comforting to those who have borrowed trouble from its close approach to the solar fires to know that another comet, eluding the grasp of terrestrial observers, is safely circling around the magnet of the system without let or hinderance. It has not thus far fallen into the sun to add fuel to his flames and bring destruction to the earth. It will doubtless keep on its harmless course and pass with quickened step beyond solar bounds to star-depths unfathomable, as myriad other comets have done before and will do again, for observation confirms the theory that space is full of comets, meteors, and intangible forms of matter. A small portion of the mighty army becomes visible in the form of comets and meteors, but the invisible denizens of space far exceed those that are visible. For every comet that spans the sky with its gossamer tail millions pass over our heads unseen. For every meteor that falls upon our world millions of millions fall upon other worlds, while vain would be the effort to form any idea of the infinite numbers of those that fall upon our sun, or the countless suns of space. The comet seen near the darkened sun has been photographed, and the picture of the daringintruder in solar domains will form a study of attractive interest.

The second item coming from the eclipse observers is more astounding than the first, for the darkening of the lines of the spectrum, as seen by the French astronomers, gives indication of a lunar atmosphere. If this observation is substantiated there will be a revolution in existing ideas concerning lunar physics. Our nearest celestial neighbor, the moon, at least the side turned toward the earth, has for a long time been considered the abode of desolation, her purpose in the material economy accomplished, a dead world, a symbol of the fate in reserve for the earth in the slow revolution of ages. Years ago an observer detected a rosy cloud floating over the lunar crater Linnæus, but the phenomenon was looked upon by more staid astronomers as a flight of fancy. A few years ago an observer in one of the Western States detected a change of form and an appearance of volcanic action around one of the moon craters, but the scientific world in general considered it an optical illusion. It may be that these observers were not so far out of the way, though the startling discovery will not be accepted without strong proof to verify it. Those who are best acquainted with the moon as seen in the telescope will be slow to believe in the slightest manifestation of life on her chaotic sur-

One more meager item closes the first bulletin from the eclipse expeditions. It is that the spectrum of the corona was photographed for the first time. We may, therefore, hope for increased knowledge of the constitution of the sun's magnificent appendage, seen only in a total eclipse, so grandly beautiful as to make the beholder feel like veiling his eyes in the celestial presence. The corona, with its silvery light, its spreading wings, its circles, arches, and curves stretching out into fathomless depths around the darkened sun, is considered as one of the most impressive and awe-inspiring sights in which celestial majesty and grandeur are ever embodied. Its constituents and office in solar economy are problems whose solution is much desired.

The English eclipse expedition, observing at Soham, with Professor Lockyer as the chief director, laid out an organized plan of operations. Some of their points of observation were to note if the abundance and activity of the rosy protuberances gave proof of the present disturbed condition of the sun while passing through its maximum period of sun spots; to compare and detect the difference in the spectra of rosy flames and sun spots; to get an idea of the physics of the solar atmosphere—that is, to find what it looks like, to study-if the expression may be used-its circulatory system; and to determine its chemical nature, especially if the chemical elements existing in the sun are dissociated or separated West;" but none of these figure in his list of "well authenby the intense temperature existing there. Special attention is now directed to solar physics and chemistry, in consequence of the bold and ingenious theory of Dr. Siemens on the conservation of solar energy.

these intricate problems, and so much have methods improved in the rapidity with which the image can be impressed on the sensitized plate that seconds will now record more than minutes did twenty years ago. The telescope and the spectroscope combined with the photograph in the attack on the sun's surroundings during the eclipse.

There is every reason to hope for noteworthy results to be obtained from the recent solar eclipse with the best astro-

on the thin line of totality, and to wait for fuller details and photographs that will tell more of the good news.

Professor Lockyer and his assistants spent three months in hard work to prepare for seventy-two seconds of observation. They traveled thousands of miles and transported thirty cases of instruments to aid them in the work. If their time, talent, and labor have succeeded in drawing a single secret from the sun, or helped to confirm a single theory, the reward is all they ask; they have not labored in vain. For this heaping up of observation upon observation is the work of the present generation of astronomers, the only means of wresting knowledge from our sun, our brother planets, and

## INSATIATE VAMPIRES IN MICHIGAN.

It is a fortunate circumstance that Mr. Burrows did not content himself with denouncing in general terms, in his peculiarly forceful style, "the bands of patent right inquisitors which infest the country and plunder the people." He was so good as to give examples of their outrages, "samples of the persecutions to which farmers are subjected,"thereby making it possible for people who use words with some regard for their meaning to form an idea of the nature and behavior of those "insatiate vampires" who are "hunting down" the farmers of the great West. Otherwise it would not be possible to believe that any portion of the American people would "frequently submit," as Mr. Burrows says his constituents do, "to outrageous exactions under the threat of judicial inquisition," or to "unjust persecutions," or to being "plundered without stint or mercy."

Mr. Burrows recited twenty-eight "well authenticated instances of outrages" upon people of his district and State, About half of these involved the collection of a royalty of \$100 for the use of the Birdsell clover huller, "valued at \$450." The case of Joseph Dean, of Colon, is described as one of peculiar hardship. Dean bought a clover huller; "after using the machine long enough to earn \$40, his arm was caught in the machinery and he was crippled for life." In view of this misfortune the insatiate vampire who came to collect the royalty discounted Dean's liability 50 per cent; but the poor man was "plundered" of \$50 nevertheless. This is by far the worst of the "outrages" reported.

Mr. J. M. Failling refused to pay the royalty demanded for using a huller; was sued for it; "and learned at a cost of \$417 that the United States District Court of the Eastern District of Michigan knew more of the value of the patent than he did." Another man, name not given, suffered a still greater "outrage." He too refused to pay the \$100 royalty demanded, and at the end of a suit "found that his education in patent law had cost him \$500."

It would seem to be a specially annoying feature of these outrages" that the United States Courts are in substantial collusion with the persecutors and sustain their iniquitous

Another remarkable feature of these cases is the curious fascination which clover hulling machines seem to have upon the minds of Mr. Burrows' constituents. They will use them even at the risk of having to pay royalty therefor to the "vampires" who own the patents. How can we account for such infatuation? Can it be, as has been suggested, because the hullers are profitable things to have?

There seem to be several varieties of these fascinating clover hullers, for several of different makes serve as the basis of "well authenticated outrages." In some cases royalties as high as \$125 have been demanded for their use; and those who have resisted the "unjust exaction" have had to pay it in the end, with heavy court expenses added.

Other cases of "outrage" were based on claims of royalty for the use of a circular saw guide, a sawmill dog with attachments, and other trifles, not exceeding \$75 in value. In all but one of these the royalty of \$50 was paid without litigation. Mr. Fred. Spicer carried his case to court and had to pay \$91.50 with costs.

It is a notable circumstance that in every one of the cases litigated-save one which is still pending-the courts sustained the patentees, and the innocent victims of judicial inquisition fared worse than those who settled at once with the vampires; from which circumstance Mr. Burrows would apparently have it understood that Congress only can shield the people from the plundering raids of patent right inquisitors. There is no hope of relief from the courts.

In the course of his speech Mr. Burrows laid special stress upon the necessity of freeing from "persecution" the purchasers in good faith, not only of clover hullers but of patent fence gates, barbed wire fence, drive-wells, hundred other articles necessary to the farmers of the great ticated outrages." No doubt many farmers would like to enjoy the free use of these patented inventions: but the men who have devised and developed them are not easily persuaded that it is wrong for them to expect a portion of the Photography was greatly relied upon in the solution of profit resulting from their use. It is a curious way to encourage invention to enact that when an invention proves to be of great utility-a public "necessity"-the people benefited by it can demand and obtain its legal confiscation without recompense to the inventor; and that is substantially what Mr, Burrows and the rest demand.

## LEGISLATIVE CONFISCATION.

In the House of Representatives, April 28, Mr. Caswell nomical instruments the world can furnish, and with astrono- asked consent to report from the Committee of Patents, as a mers of world-wide renown to use them effectually under the substitute for House bill No. 784, a bill (H. R., No. 6018), cloudless sky and in the serene atmosphere of the station providing that no action for damages or proceeding in equity Professor John Perry. Sketch of life. Portrait...... 5340 on the Nile. We have still to hear from other stations shall be sustained, nor shall the party be held liable under

Sections 4919 or 4921 of the Revised Statutes of the United ed by "patent right inquisitors," Mr. Burrows said: "In tion in the open market.

ted States, ought not to pass without our understanding it."

Mr. Vance said: "This has received the unanimous consent of the Committee on Patents, and also the approval of extensively by the people."

Failing to obtain an immediate consideration of the bill, Mr. Caswell asked that it be placed on the House Calendar, and the bill, with the accompanying report, be printed. His request was granted.

Thinking it very strange that the Commissioner of Patents should, as Mr. Vance alleged, approve of a bill "nullifying the patent laws of the United States," as Mr. Hutchins aptly described it, we caused inquiry to be made at the Patent Office, discovering that it was not true that the comwhich was never introduced to the House.

substituted bill under a suspension of the rules. Mr. Casopposition had exhausted the brief time allowed them for avail.

innocent purchaser, protected others who ought not to have ments, was overpowering, and the bill was passed. We any protection, but against whom the whole power of the may note here that just before the vote the Commissioner of may have put the energies of his life and all the means of of the bill. himself and family into the invention that he has made. "This bill," he said, "undertakes to protect those parties who, it is said, have bought inventions in open market for a great that it was difficult to understand any of the speakers. valuable consideration. But what remedy is afforded to the | It was not desired that speakers should be heard, the manipatentee? He is turned back to the person who sold the fest aim being to choke off discussion and to rush the bill instrument or machine, and is deprived of redress against through. Elections are coming, and farmers' votes are the party using it; and the seller is ordinarily, perhaps coveted. wholly, worthless—is an irresponsible person from whom no damages can be recovered. Thus you relieve from liability the man who ought to be responsible and who ought to pay the damages."

Mr. Rice, of Massachusetts, called attention to the con- tal without serious risk was too good to be lost. fusion and injustice that would result from the operations of the proposed law. "There are machines, the product of which in a single year would be a fortune to any man. stopped, he cannot be made to pay damages, while everybody and confusion in all the mechanical and industrial branches Caswell) does not wish to tear up, root and branch, the entire patent law of the country, as he surely would do by the prejudices of their constituents. adoption of this bill."

Mr. Caswell admitted that the bill might impair to some extent the rights of patentees in their patents; but, on the other hand, it would "give relief to more than one hundred Koch as to a parasitic vegetation which he has found to cause faith and are innocently using it." That these persons had any just ground for claiming such relief at the cost of patentees was not asserted; but it was assumed that they must have it because they noisily demanded it. Said Mr. Casprotect a man who purchases an instrument in open market for his use without notice, when there will be an uprising, and they will overthrow the patent laws."

Mr. Springer asked: "What is there in this bill to prevent an irresponsible person from selling the most valuable patent to use it during the lifetime of the patent without any consumption occurs without tubercle. Lately phthisis has

then he went on to declaim about the hardships of his inno- tinctions that one who had made a specialty of consumption alcoholic and acetic acid fermentation." cent clients, but showed no disposition to consider the quest for nearly a half century wrote, not long ago, that if he foltion whether the real abuses introduced by the bill would lowed modern writers he did not know as he could tell a case experience, which have been more or less fully brought to not exceed the alleged abuses arising from the over-readi- of consumption when he saw it. But taking the disease as the notice of medical societies and prominent men in this ness of Wisconsin farmers to buy patented articles from ordinarily found and noted in the bulletins of our boards of country by Dr. Ephraim Cutter in corroboration. unauthorized and irresponsible venders.

Mr. Peelle, who favored the bill, made the grotesque remark that the bill would "most likely have a tendency to wasting and by local death and breaking down of the lungs con, so also as historians of the day we have said what we admonish patentees to be more careful in the disposition they make of their patented articles.'

A law to prohibit the recovery of stolen cattle, sold "in open market," to "purchasers in good faith," would be equally pertinent, and would similarly admonish farmers to which he cultivated to many generations, by means of whose be more careful of their live stock; but it is doubtful inoculation quite a number of small animals have died of Certainly we think the evidence submitted shows that Dr. whether they would be grateful for the admonition.

Michigan, who made a blustering demand that his constitu- or infusoria, but a plant like to or the same as those deinquisitors, which infest the country and plunder our peo- as a supposed genus of oscillatoriaceæ or confervoid algæ, doubtful if there are any such conclusive and extensive expe-

States, for the use of any patented article or device when it some instances the vender and the owner of the patent seem shall appear on the trial that the defendant in such action or to be in collusion. For instance, a set of men go through proceeding purchased said article for a valuable considera- the country with wagon loads of gates, and dispose of them to the farmers, who pay a full consideration and have no Objections were raised. Mr. Hutchins said: 'It seems to me knowledge that they are patented, and after they are set up that a bill of that kind, nullifying the patent laws of the Uni and in daily use another set of men scour the country and notify the purchasers of these gates that the hinge or some other portion of it is patented, and that they are the owners of such patent, and thereupon a demand is made for five, the Commissioner of Patents, and it has been petitioned for | ten, or twenty dollars damages for infringement, and if payment is refused suit is threatened in the United States Court. To avoid this they often submit to an outrageous exaction; and so, under threat of judicial inquisition, our people are being plundered without stint or mercy. I hope this measure will receive the prompt approval of this House, that the people who purchase patented articles in the open market in good faith and for a full consideration, shall not be hunted down by these insatiate vampires."

This seems to have carried the day.

It was temperately suggested that a bill taking from invenmissioner ever approved the bill; that Mr. Vance must have tors the right of property vested in them by the constitution "misunderstood" a letter which the commissioner had writ- ought not to be forced through under a suspension of the ten in reference to another bill on the same subject, a bill rules and without proper consideration; that the indefinable 'open market" would be a fruitful source of trouble; that The matter was brought before the House again, May 15, it would not be wise to deprive the country of the benefits of by Mr. Caswell, who asked the immediate passage of the the patent laws to cure an evil that could be reached in a corpuscles, causes the fibrin filaments of the blood to be well declined to state the reasons for the bill until after the "confiscation, not legislation," and so on; but without ropy, sticky, adhe vive, making small clots or "thrombi,"

The picture of insatiate vampires going about the country Mr. Robinson, of Massachusetts, protested against hasty and plundering people without stint or mercy, to the action upon a bill which, under the guise of protecting the extent of five, ten, and fifteen dollars damages, for infringe-Congress ought to be invoked in aid of the inventor who Patents was again cited as having expressed himself in favor

> According to the press reports, the disorder which prevailed in the House, while the bill was before it, was so

> It would be interesting to know how many of the 155 members who voted for the bill would have done so had there been any likelihood of its being favorably considered by the Senate. The opportunity to make temporary political capi-

The only public damage likely to result from this seeming triumph of misrepresentation and the other acts of the demagogue is that certain people may be encouraged in expecting Under this bill the man buying one of these machines in that Congress can and will, some time or somehow, exempt open market, for a valuable consideration, has the advantage them from the natural consequences of indiscriminate over everybody else who may use similar machines. He trading with irresponsible venders of property to which the cannot be interfered with, his use of the machine cannot be venders cannot give good title. Congress has no power to override the Constitution; and any attempt it might make to else may be held to liability for unauthorized use of the invade—as this bill proposes to do—the constitutional rights invention. Hence the result of this bill would be injustice of patentees, would be promptly thwarted by Executive veto or by Supreme Court decision. The infringement of patent of business. Certainly the gentleman from Wisconsin (Mr. rights cannot be legalized, and in pretending to try to do it vote-seeking politicians merely trifle with and play upon the

## TUBERCLE PARASITE.

Prof. Tyndall's letter in relation to the discoveries of Dr. persons who have purchased a patented article in entire good consumption, has justly excited public attention. Hitherto the medical profession confess to an ignorance of the real intimate nature of consumption. Terminology even shows this, besides showing the poverty of language. Literally, "consumption" means to consume. "Phthisis," a synonym, is well: "The time will come, unless something is done to derived from a Greek word-phthie, "I dry," "I fade." Tubercle is the diminutive of tuber, meaning a little tuber. A potato is a tuber, but little potatoes are not tubercles, or attended with tubercles or little knots in the lungs.

Tubercle is regarded as an accidental result of the disease, of authors.

covered and cultivated a bacillus or parasitic vegetation Prof. Tyndall's letter has given this opportunity of alluding consumption or tubercle thus artificially induced. Now, The main champion of the bill was Mr. Burrows, of what is a bacillus? It is not an animalcule or little animal, ents should be protected from "the bands of patent right scribed for some years as bacteria, and which were regarded ple." After reciting some "well authenticated instances of which has been noted in natural history as one of the earliest riments, as to time and number, approaching consumption outrages" to which the people of his district had been subject- organisms appearing in decaying and putrefying animal and from so many points at once.

vegetable solutions: by some supposed to cause decomposition and to form the migrozymes of zymotic diseases. "Bacillus" means a stick, and "bacterium" about the same. There is, however, a difference of opinion among observers, some regarding the bacteria, bacilli, etc., as simply the embryonic forms of vegetation capable of reproduction in this stage. Others, as Koch, regard them as ultimate forms of vegetation. The former would regard the bacilli as simply the automobile protoplasmic seeds of a vinegar yeast, or Mycoderma aceti of some writers, which is the tough gelatinous leathery mass floating on the surface of fluids rich in sugar when undergoing fermentation at ordinary temperatures, and conversion into vinegar called the "the mother of vinegar," and which, growing on animal soil, has as one of its results the so-called "tubercle."

But it has been some time ago reported by some European observers that consumption in animals has been induced by the inoculation of foreign substances into the animal economy, by subcutaneous injection under the skin and into the blood, the tubercles being produced by the mechanical and chemical effects, blocking up the capillary vessels and the interference with the nutrition of the part. Now, this embryonic form of the vinegar yeast was found in 1858 by Dr. J. H. Salisbury, of this city, in the blood, sputa, and excretions of persons suffering with consumption. In the blood the plant forms masses by itself, grows inside the white blood better way; that, in the words of Mr. Hewitt, the bill was larger in size and stronger, the red blood corpuscles to be which become "emboli" or plugs, and block up the capillaries and blood vessels. The growth of the vinegar yeast in its embryonal stage, combined with the mechanical interference with the nutrition, causes abnormal growths in the substance of organs, called tubercle, and the concurrent inflammatory results in addition to the chemical action of the vinegar or acetic acid, causes the death and breaking down of the organs invaded, the lungs for example. That this is not opinion only is shown by the fact that over 246 swane were, at his instance, destroyed by feeding on farinaceous food in a state of alcoholic and vinegar fermentation, the vinegar yeast traced in the blood, found in the excretions, and 104 of the dead swine were subjected to post mortem examinations and their lungs found broken down and diseased as in ordinary consumption.

> In carrying out his experiments he took men in companies of six, all healthy and with no vegetations in the blood, and put them also upon farinaceous food containing alcoholic and vinegar fermentations. He lived with them himself, and kept them under a sort of military discipline, that they might eat no other food save coffee with sugar and milk.

> He marched them out on the street for exercise, so that they should not sufferf rom inactivity. He made daily chemical and morphological examinations of the blood, sputa, skin, urine, and fæces. First came on diarrhea, followed always by the presence of vinegar yeast in the blood and excretions, and afterward, in the course of three months from the time of beginning the experiments, the men had consumption of the lungs as indicated by the physical signs of the chest. In this manner he discovered what has been described as a new physical sign of the pretubercular state, and thus renders it possible to detect consumption any time within one year before the breaking down of the lungs. This has more significance when it is remembered that medical men are well agreed that consumption can be handled if taken early enough. It is nearly a quarter of a century since Dr. Salisbury has been treating this disease, and the mode of treatment has been given to the world.

In Scientific American Supplement, No. 198, is republished the treatment of consumption by Dr. Salisbury, taken from the Virginia Medical Monthly, September, 1879. From this we quote as follows:

"The cure is accomplished by getting the system in splendid condition. It is a disease arising from continued unhealthy alimentation, and must be treated by removing the cause. This cause is fermenting food and the products of little "knots" or "kernels." Consumption is not always this fermentation: alcoholic yeast and alcohol, vinegar yeast and acetic acid, carbonic acid gas, embolism, and interference with nutrition. Consumption of the bowels can be proright and giving a good title to it and allowing the purchaser and while tubercle occurs in connection with consumption, duced at any time in the human subject in from 15 to 30 days, and consumption of the lungs inside of 90 days, by remedy on the part of the patentee against the purchaser?" been further divided up into fibrous, caseous, etc., according special exclusive and continued feeding upon the diet that "I conceive that abuses may arise," said Mr. Caswell; to the lesions produced. There is so much refinement in dis-produces them; that is, food containing starch and sugar in

Now, these are not opinions, but the relation of facts from

health—and this is what Prof. Tyndall refers to in his letter Inasmuch as we have given the treatment of consumption -tuberculous consumption is characterized generally by on the Salisbury plan without committing ourselves pro or previously invaded with tubercles—the phthisis pulmonalis have in order that all shall have a fair presentation of their facts and opinions based on these facts, but opinions not Prof. Tyndall tells us in his letter that Dr. Koch has dis- based on practical experience and study are not desired. to this newly opened field, which so sadly needs cultivating. Salisbury has come nearer to the real intimate nature of consumption than Dr. Koch or any one we know of. There is a simplicity, directness, breadth, and positiveness rarely seen in the treatment of a medical subject. Indeed, it is