

American Inventions for New South Wales.

Writing from Sydney, under date of April 14, the *Times* correspondent thus refers to the supply of locomotives and carriages from America: Our appearance at Philadelphia has drawn the attention of American manufacturers to us in a most marked and unexpected degree. A country that, like New South Wales, is rolling in wealth must be a country that is able to buy, and a country that is able to buy is exactly the country that American manufacturers have been anxiously looking out for. Our representatives at Philadelphia have come back strongly impressed with the fact that there are many things that the Americans can supply us with advantage. Our Government has an offer from Messrs. Baldwin & Co. to furnish a locomotive engine for about £1,000 less than the cost of an English engine, and to leave the payment open until the engine has been thoroughly proved and approved. A Pullman's sleeping car and an ordinary passenger car have already been ordered, and American wheels, axles, rails, and brakes are strongly pressed on our acceptance. As our Government engineers are all of the English school, American novelties will have a hard battle to fight to win official acceptance, but the demand for economy in railway construction and working is so great that people and Parliament will press on the Minister for Public Works a fair trial for any American novelties that may seem to be suited to our wants. The English manufacturers, therefore, who have hitherto supplied us must look to their laurels.—*Capital and Labor.*

Man's Place in Nature.

Concerning man's true place in Nature, Haeckel says: "Whatever part of the body we consider, we find upon the most exact examination that man is more nearly related to the highest apes than are the latter to the lowest apes. It would therefore be wholly forced and unnatural to regard man in the zoological system as constituting a distinct order, and thus to separate him from the true ape. Rather is the scientific zoologist compelled, whether it is agreeable to him or not, to rank man within the order of the true ape (Simiæ)."

To whatever minutiae of detail the comparison is carried, we reach in every case the same result. Between man and the anthropoid apes there are the closest anatomical and physiological resemblances. In form and function, there is the most exact agreement between all the corresponding bones of the skeleton of each; the same arrangement and structure of the muscles, nerves and entire viscera, and of the spleen, liver and lungs—the latter being a matter of especial significance, for between the manner of breathing and the process of nutrition there is the closest relation.

The brain, also, is subject to the same laws of development, and differs only with regard to size. The minute structure of the skin, nails, and even the hair, is identical in character. Although man has lost the greater part of his hairy covering, as Darwin thinks, in consequence of sexual selection, yet the rudimentary hairs upon the body correspond, in many respects, to those of the anthropoids. The formation of the beard is the same in both cases; while the face and ears remain bare. Anthropoids and men become gray-haired in old age. But the most remarkable circumstance is that, upon the upper arm, the hairs are, in both cases, directed downward, and upon the lower arm upward; while in the case of the half-apes it is different, and not as soft as that of man and the anthropoids.

The eye, on account of its delicate structure, is peculiarly suitable for comparisons of this kind; and we find here the greatest similarity: even inflammation and green cataract occur under the same circumstances, in both. See, also, Darwin upon this point.

There is no more striking proof that man and the anthropoid apes have the same anatomical and physiological nature, and require the same food, than the similarity of their blood. Under the microscope the blood corpuscles are identical in form and appearance; while those of the carnivora are clearly different from them.

It may now be interesting, in confirmation of what has been said, to refer to the family life, and, if one may so speak, to the mental and moral life of the anthropoids. Like man, the ape provides with exceeding care for its young, so that its parental affection has become proverbial. Conubial fidelity is a general and well known virtue. The mother ape leads its young to the water, and washes its face and hands in spite of its crying. Wounds are also washed out with water. The ape, when in distress, will weep like a human being, and in a manner that is said to be very affecting. Young apes manifest the same tendencies as human children. When domesticated, they are in youth docile and teachable, and also, at times, like all children, disobedient. In old age they often become morose and capricious. Most apes construct huts, or, at least, roofs, as a protection from the weather, and sleep in a kind of bed.

One peculiarity is alone common to them and man, and this is the habit of lying upon the back in sleep. In battle they defend themselves with their fists and long sticks; and, under otherwise like circumstances, they manifest like passions and emotions with man: as joy and sorrow, pain and envy, revenge and sympathy. In death, especially, the ape face assumes a peculiarly human-like and spiritual expression, and the sufferer is the object of as genuine compassion as exists in the case of man. It is also well known that apes bury their dead, laying the body in a secluded spot, and covering it with leaves. Regarding the domestic life of the ape, Darwin says, in his "Descent of Man" (vol. 1, p. 39):

"We see maternal affection manifested in the most trifling details. Thus Rengger observed an American monkey (a *Cebus*) carefully driving away the flies which plagued her infant; and Duvancel saw a *Hylobates* washing the faces of her young ones in a stream. So intense is the grief of female monkeys for the loss of their young, that it invariably caused the death of certain kinds kept under confinement by Brehm in North Africa. Orphan monkeys are always adopted, and carefully guarded by other monkeys, both males and females. One female baboon had so capacious a heart, that she not only adopted young monkeys of other species but stole young dogs and cats, which she continually carried about with her. Her kindness did not go so far, however, as to share her food with her adopted offspring; at which Brehm was surprised, as his monkeys divided everything quite fairly with their own young ones. An adopted kitten scratched the above-mentioned affectionate baboon, who certainly had a fine intellect, for she was much astonished at being scratched, and immediately examined the kitten's feet, and without more ado bit off the claws."

The number of characteristics possessed in common by man and the higher apes is, indeed, very great, and includes not only physical and emotional but even intellectual qualities.—*From Schlickeysen's "Fruit and Bread," translated by Dr. Holbrook.*

Special Notice.

Persons who have sent numbers of the *SCIENTIFIC AMERICAN* to this office, for the purpose of having them bound, will please call or send for them immediately.

Some of the volumes extend back to 1860, and as we need the room they occupy, we shall dispose of those not claimed within ten days from date of this paper.

MUNN & Co., 37 Park Row, New York.

DECISIONS OF THE COURTS.

United States Circuit Court.—District of New Jersey.
SHAWL STRAP PATENT.—GEORGE CROUCH vs. WILLIAM ROEMER.

[In equity.]

By Nixon, District Judge.

This is an action for an alleged infringement of complainant's letters patent No. 82,606, dated September 29, 1868, and reissued March 7, 1871, No. 4,289.

The subject-matter of the patent is in the reissue described to be a strap "to confine a shawl or similar article in a bundle," and termed a shawl strap. The schedule attached to and forming a part of the said reissued patent states, that before the complainant's invention "straps had been used to confine a shawl or similar article in a bundle, and a leather cross-piece with loops at the ends, had extended from one strap to the other; and above and attached to this leather cross-piece was a handle. This leather cross-piece or connecting strap is liable to bend and allow the straps to be drawn toward each other by the handle in sustaining the weight. Hence the bundle is not kept in a proper shape and the handle is inconvenient to grasp."

The invention is then stated to consist "of a rigid cross-bar beneath the handle, combined with suspending straps, that are to be passed around the shawl or bundle, such straps passing through loops at the ends of the handle."

No question can be made but that the shawl straps manufactured and sold by the defendant are an infringement of the complainant's reissue. They consist of a metallic cross-bar, with slots at the ends for the reception of the straps, and which also connect the ends of the handle.

Several defenses are set up in the answer, but the only one necessary to consider is the first, to wit: The want of novelty and prior public use.

I had occasion, heretofore, to inquire into the validity of the complainant's patent, in a controversy between the same complainant, and Speer et al., reported in VI. Off. Gaz. 1874, in which, as in this case the principal defense turned upon the novelty of the invention. A prior public use was alleged and attempted to be proved. I there said and now repeat "that the patent is *prima facie* evidence that the patentee was the original and first inventor, and that anyone who controverts this assumes the burden of proof and undertakes to show affirmatively that there was a prior knowledge and use of the alleged invention under such circumstances, as to give to the public the right of its continued use against the patentee."

The defense in this case has brought out many facts in regard to the public use of the rigid cross-bar in shawl straps anterior to the date of the complainant's patent, which were not developed in the former suit. There is no evidence which in my judgment affects the honesty of the complainant's claim, or which creates any doubt that he really believed himself to be the original and first inventor, but nevertheless I am constrained to the conclusion, after a most careful examination of the whole testimony, that the proofs show with reasonable certainty that he has been anticipated in the invention and that his patent is void, in consequence of the prior knowledge and public use, and the bill must be therefore dismissed with costs.

[E. B. Barnum, for complainant.
Arthur v. Briesen, for defendant.]

NEW BOOKS AND PUBLICATIONS.

THE ECONOMIC THEORY OF THE LOCATION OF RAILWAYS.
By Arthur M. Wellington, C.E. Price \$2.00. New York city: Office of the Railroad Gazette, 73 Broadway.

The author of this book is thoroughly conversant with his subject, and his statement that the book has gradually grown from a few notes into a volume may be accepted as an explanation of the somewhat fragmentary character of the work. He asserts that "all our railways are uneconomically located," and "in many cases these errors are shockingly evident." If these statements are true, he is right in stating that "there is something almost pitiful in the waste of human labor enforced by such costly blundering." He considers that other countries have made lamentable blunders in locating their railroads, so that the suffering stockholders of American lines may take comfort from the thought that others are or may be as badly off.

FRUIT AND BREAD. A Scientific Diet. By Gustav Schlickeysen. Translated from the German by M. L. Holbrook, M.D. With an Appendix. Illustrated. New York city: M. L. Holbrook & Co.

The author and translator of this little treatise are firm believers in vegetarianism, and present in a highly attractive form the main arguments which sustain them in their position. The subject is most carefully and systematically treated, and although the conclusions at which the author arrives are greatly at variance with modern belief and practice, the book is nevertheless entitled to proper and respectful consideration. Illustrations are given of the teeth and stomachs of various animals, and these are compared with the similar organs existing in man, so exhibiting in a clear and satisfactory manner the perfect adaptation of the latter to a purely vegetable regimen, which is certainly something more than merely accidental. Altogether the book is well worthy of perusal by others than those more immediately interested in the question of diet.

THEORETICAL NAVAL ARCHITECTURE: a Treatise on the Calculations involved in Naval Design. By Samuel J. P. Thearle, F.R.S.N.A., etc. Two Volumes: Text and Plates. New York city: G. P. Putnam's Sons.

This book is designed to meet the requirements of both those who possess but a moderate amount of mathematical knowledge as well as of those who are much further advanced. Numerous formulae and rules clearly stated will enable the former to perform without much difficulty the ordinary routine of the draughting office, while ample opportunity is afforded the latter to trace back the processes from which these rules have gone forth. The book is divided into six parts. Part I. embraces the calculations relating to the forms and dimensions of ships. II. those relating to the weights and centers of gravity of ships. Part III. refers to the

strength of ships. IV. and V. to their propulsion by sails and by steam engines; while Part VI. treats of the calculations relating to steering. An excellent book of plates and tables accompanies the text.

KEMLO'S WATCH REPAIRER'S HANDBOOK: being a complete guide to the young beginner in taking apart, putting together, and thoroughly cleaning the English lever and other foreign watches, and all American watches. By F. Kemlo, Practical Watchmaker. With Illustrations. Price \$1.25. Philadelphia, Pa.: Henry Carey Baird & Co.

This work will prove of great value to all in whom the curious mechanism of clocks and watches has excited more than a passing interest. None but skilled followers of the art have been allowed to contribute to its pages, so that the practical worth of the information given can be fully relied upon. A concise history of timekeepers is followed by a clear and exhaustive description of the English lever watch, which in turn is followed by articles on cleaning, putting together, and the conditions necessary to produce a good English watch. American watches deservedly engage considerable attention. Papers on repairing watches, cleaning and repairing clocks, and a short description of the necessary tools complete the book.

RECENT PROGRESS IN SANITARY SCIENCE. By A. R. Leeds. Salem, Mass.: Printed at the Salem Press.

This is a reprint of a paper read at the Lyceum of Natural History, October 9, 1876, by the well known Professor of Chemistry at the Stevens Institute.

WILLIAMS' TOURIST'S MAP AND GUIDE TO COLORADO AND THE SAN JUAN MINES. Price 50 cents each. New York city: H. T. Williams, 46 Beekman street.

Two well edited publications, deserving the attention of travelers and emigrants.

Inventions Patented in England by Americans.

June 7 to June 15, 1877, inclusive.

BOOTS AND SHOES.—Mellen Bray, Newton, Mass.
ELECTRO-MAGNETIC MOTOR.—W. W. Gary, Washington, D. C.
FURNACES.—J. J. Storer, New York city.
GAS.—M. H. Strong, Brooklyn, N. Y.
GAS APPARATUS.—D. C. Smith, East Northwood, N. H.
GAS MACHINES.—T. F. Rowland, Greenpoint, N. Y.
MINERAL WOOL APPARATUS.—A. D. Ebers, Hoboken, N. J.
MOTIVE POWER.—W. G. Smith et al., New York city.
POWER LOOMS.—James Long, Philadelphia, Pa.
PULVERIZING MACHINES.—J. J. Storer, New York city.
PUMP.—A. F. Bells et al., Boston, Mass.
REFRIGERATING APPARATUS.—B. J. B. Mills, Lexington, Ky.
SEWING MACHINES.—C. H. Warner, Sturbridge, Mass.
SHEET METAL UTENSILS.—F. G. Niedringhaus, St. Louis, Mo.
VALVE GEAR.—E. Cope et al., Hamilton, Ohio.

Recent American and Foreign Patents.**Notice to Patentees.**

Inventors who are desirous of disposing of their patents would find it greatly to their advantage to have them illustrated in the *SCIENTIFIC AMERICAN*. We are prepared to get up first-class wood engravings of inventions of merit, and publish them in the *SCIENTIFIC AMERICAN* on very reasonable terms.

We shall be pleased to make estimates as to cost of engravings on receipt of photographs, sketches, or copies of patents. After publication, the cuts become the property of the person ordering them, and will be found of value for circulars and for publication in other papers.

NEW AGRICULTURAL INVENTIONS.**IMPROVED HAY ELEVATOR.**

Eugene L. Church, Walworth, Wis.—This is a hay elevator and carrier of simple and effective construction; and it consists essentially of a traveling carriage locking, by a tilting catch, on a fixed stop block of the track, from which it is released by the action of the ball of the sheave frame of the hay fork on a pivoted grappling hook, the sheave being held in suspended position by the joint action of a fixed hook, of the pivoted hook, and of the tilting catch. A track beam, which is suspended from the rafters of a barn or other building by means of eyebolts passing through the center of the track beam. A carriage runs along the track beam by a pair of flanged wheels, at each end of which the wheels of one pair are set at such distance from each other that they clear readily the suspension bolts as they pass along the same. A hoisting rope is attached, in the customary manner, to a fixed point at one end of carriage, and passed then through the sheave frame of the hay fork, and over a pulley of the carriage, and through a sheave at the end of track beam, and down to the ground, where a horse is hitched to its free end.

IMPROVED CORN HARVESTER.

Bennett Osgood, Lenox, Iowa.—This invention is an improved machine for cutting up the corn, removing the ears from the stalks, and cutting the stalks into pieces, and which may be adjusted to cut up the corn and shock it. As the stalks are carried back by chains, pins or hooks on barc tear open the husks of the ears; and the bars, in connection with rollers, break the ears from the stalks. The ears, when broken off, drop through an opening in the platform into an elevator, up which they are carried, and are discharged into a wagon drawn at the side of the machine. The box of the elevator is supported from the frame of the machine, and its carrier is driven from a shaft by an endless band. The stalks are carried back by endless chains, and allowed to drop from the rear end of the platform upon the brackets attached to the rear bar of the frame. As they fall upon the brackets they are cut into three pieces by two knives, which work in slots in the brackets, and to the upper part of which are pivoted the upper ends of two bars. The lower ends of these bars are pivoted to a crank formed upon the shaft, which revolves in bearings attached to the rear bar of the frame.

IMPROVED SULKY HARROW.

George M. Furman, Laclede, Mo.—This is an improved riding harrow, so constructed that it may be readily raised from the ground by the driver from his seat, to clear it of rubbish, to pass obstructions, and to pass from place to place, to cut up the ground and cover the seed thoroughly, and be used for cultivating small grain and plants.

IMPROVED HARROW.

Hans Iver Lund, Charlotte, Iowa.—The object of this invention is to furnish an iron harrow which shall be light, strong, and durable, of less draft than an ordinary harrow, of less size, inexpensive in manufacture, and effective in operation, breaking up the lumps thoroughly, and stirring up the soil evenly. The harrow is designed to be made in three sections, all exactly alike, one, two, or three of which may be used at a time.

IMPROVED COMBINED COTTON SCRAPER AND CULTIVATOR.

Malachiah Roby, Kosciusko, Miss.—This machine is so constructed as to bar off and dirt or cultivate cotton plants at one operation; and the invention relates to the construction and arrangement of a center or main beam, to the forward end of which the draft is attached. To the beam, a little in the rear of its forward end, is attached the middle part of a cross-bar, in which are formed a number of holes to receive the hooks or clevises by which the forward ends of side beams are secured to said cross-bar. To the rear end of the main beam is attached the middle part of a cross-bar, to which the rear ends of the side beams are secured by a bow and yoke passed around them diagonally, and which are tightened, when adjusted in place, by nuts screwed upon the ends of the bows. Bands are passed