Correspondence.

Mineral Wool.

To the Editor of the SCIENTIFIC AMERICAN:

In your issue of February 15 appears an article under the title "Danger in Mineral Wool," which is misleading. It is therein stated that "the threads, though very slender, being finer than cotton fibers, are of glass, and pieces of them may, unless the material is carefully handled, get under the nails, or into the skin, causing painful irritation."

The reader inexperienced in the use of mineral wool would naturally infer from this statement that the fibers are brittle and hard like glass. On the contrary, the fibers of mineral wool, when it is properly made, are soft and pliant, and can be handled without danger.

The writer has been, for many years, closely connected with the manufacture and use of this material, and has never known any one to be injured by handling it. Men, continually in the employ of this company for over ten years, have daily handled mineral wool, in the chambers where it is packed for shipment, and in applying it to its various uses, employing their bare hands to compact it in place, in the floors and walls of buildings, in refrigerators, and other places, without injury or discomfort. Neither the writer nor his associates have ever known any one to be injured by breathing dust from it. In fact, mineral wool can be handled with as much safety, and quite as little inconvenience to the handler, as brick, lumber, or other building material.

Cleveland, O. A. H. MASSEY.

Australian Platinum.

The assertion that New South Wales is exceptionally rich in the useful minerals has again become verified by the discovery of valuable platinum deposits at Fifield, in the western portion of the colony, of which the Parkes auriferous region forms part. Platinum has previously been recorded as occurring in the colony in the sea beaches between the Richmond and Clarence Rivers, on the northern coast; in ironstone and decomposed gneiss near Broken Hill, and grains of metal have not infrequently been met with by miners working various auriferous drifts in different parts of the colony. But until the opening up of the Fifield platina deposits, there had been no production upon a commercial scale. The field was first opened up in 1893, though the presence of platinum was recorded many years previously by a working miner, who received government aid to prospect the district. The formations represented are silurian slates intruded by diorite, and fossiliferous sandstones and limestone of devonian or silura-devonian age. The platiniferous lead is a little over a mile long; it varies in width from 60 feet to 150 feet, and is covered with from 60 feet to 70 feet of loam. The precious metals are practically confined to the bed rock and the drift for 3 inches above the bottom. Nuggets which weighed from a few grains up to 5 dwt. have been occasionally found. The crude metal contains about 75 per cent of platinum, and realizes at the present time upon the field 24s. per ounce. The quantity of platinum per load of wash dirt varies from 5 dwt. to 12 dwt., while the total value of the previous metals per load varies from 9s. to 37s. In the vicinity of Fifield, at an elevation of over 100 feet above the lead now being worked, beds of cement and indurated ferruginous shales occur, which are of tertiary age, or even older. These beds contain a little gold and platinum, but not where hitherto explored in payable quantities. Mr. Jaquet, geological surveyor in the New South Wales Mines Department, is of opinion that the precious metals in the recent deposits have been derived from these older conglomerates; that the latter have been disintegrated and ground sluiced by nature, and the deposits now being worked represent the resultant concentrates. Other beds containing platinum and gold probably occur under the flats in the vicinity of Fifield and Burra Burra. The prospecting of these flats, however, will be a tedious operation, since they are for the most part of great extent, and there is nothing upon the surface to indicate the path of gutters below. The development of the field has been much retarded by dry seasons and the consequent shortage of water for sluicing purposes. The Fifield platina lead has already yielded 1,200 ounces of platinum, and the gold obtained upon the whole field since 1893 totals about 1,800 ounces. At the present time 7,000 loads of wash dirt are dumped around the various claims awaiting treatment.—The Colliery Guardian.

A FRENCH statistician has given some interesting figures relative to theaters. Between 1751 and 1895 no fewer than 750 European playhouses were destroyed by fire. The average life of a theater is found to be 22½ years. In striking contrast to the comparative short life of a theater is that of the actor. In spite of late hours, hard work and a Bohemian atmosphere, the average duration of life in the theatrical profession is high.

A NOVEL HAND CAMERA.

The Paris Photo Gazette says: "M. Joux has just lately perfected a new form of hand camera which he has used for several months, and which gives excellent results. One of the principal improvements is what he terms the 'block system.' By this arrangement it is impossible to expose the same plate twice, since the shutter cannot be released until after the exposed plate has been changed.

"The mode of changing the plate is very simple, the construction of the magazine being such as to permit of its returning completely into the box after a plate is

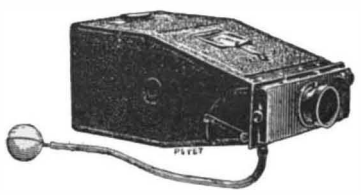

Fig. 1.

changed, and there is no lost space, the whole camera being very compactly built. As shown in Fig. 2, the changing of the plate is effected by pulling on the handle at the lower part of the side; in this way the size of the magazine (one of the sides of which is shown extended) is increased, and the extended magazine draws out with it at the same time the stack of plates, with the exception of the one situated at the top. This one, held back by two small hooks, remains in place and finally falls to the bottom when it is no longer sustained by the rest of the pile. When the magazine is pushed back, the pile of plates slide over the fallen plate at the bottom, at the same time bring-

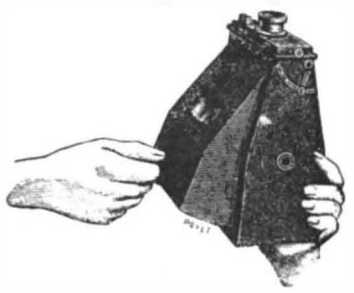

Fig. 2.

ing a fresh plate at the top into position for the next exposure.

"The magazine contains eighteen plates, and an indicator, moving automatically, always shows the number of exposed plates. A clear finder with a cover folds down into the thickness of the box, when the camera is put in its carrying case. The objective with an iris diaphragm is a very rapid Zeiss, F/8; the front part of the box is moved back and forth by means of an ornamented button, and allows a focus of from one meter to infinity.

"The shutter placed between the lenses is of variable speed; it is worked with the finger or with a

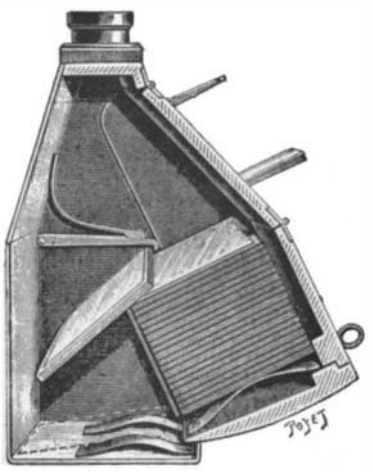

Fig. 3.—POSITION WHEN CHANGING PLATES.

bulb, and permits time or instantaneous exposures. The size of the plate is 6½ by 9 cm. The apparatus, loaded with eighteen plates, weighs 1,500 grammes, 4 lb.; its dimensions are 18 centimeters long, 8 thick and 11 wide."

Introduction of the Thermometer into France.

The history of the introduction of the first hermetically sealed thermometer into France is contained in Cosmos of recent date, with extracts from the correspondence of Pierre des Noyers, secretary of the Queen of Poland. In 1657 he sent a description of a Florentine thermometer to M. Boulliau, of Paris, with a drawing of it, which is reproduced in Cosmos, and in 1658 a specimen of the instrument was sent to Paris, and was apparently used by M. Boulliau on June 25 of that year. This thermometer was graduated by means of small black enameled knobs on the outside of the tube, and was subsequently improved by the Accademia del Cimento.—Nature.

Science Notes.

A large collection of 17,000 stuffed birds and many series of bird skeletons has been bequeathed to the British Museum by the late Mr. Henry Seebohm, the naturalist. It is the most valuable gift made to the natural history section of the museum in a quarter of a century. Its ornithological collection is now the largest in the world, consisting of 300,000 specimens.

A new apparatus for measuring the penetrative power of shot has recently been introduced in Germany by Herr Muller. The shot is fired into a large water trough through a thick gelatine plate, which closes at one end of the trough. The shot holes in the plate immediately close up after the shot has passed through, thus preventing the escape of the water. The bottom of the trough is divided by transverse ribs, which retain the shot where it falls. When the firing is completed, the water is run off and the position of the shots observed.

Experiments made with electricity on the toxins of disease by MM. D'Arsonval and Charrin show that the effect is to attenuate the toxin, converting it into a useful antidote. The toxin of the diphtheritic and the pyocyanic bacilli was subjected to the physical action of currents of high frequency. The current had no direct influence on the vitality of the microbes themselves, but modified the liquid in which they live so as to render it noxious to them. The action of the current, it is asserted, is not chemical, but purely physical. In twenty minutes a virulent poison can be turned into vaccinating matter. Electricity is to be tried on animals infected with the toxins to see whether the effect is the same on living tissue.

According to a paper on "The Temperature Variation of the Thermal Conductivities of Marble and Slate," contributed to the American Journal of Science by B. O. Pierce and R. W. Willson, such a temperature variation does not exist; in other words, marble and slate conduct heat equally well at all temperatures. The result is of some importance to the physics of the earth's crust, and the manner in which it was arrived at displays some ingenuity. Two faces of a slab of marble or slate were kept at different temperatures, and the fall of temperature between one surface and the other was determined by means of thermopiles. Now it is admittedly difficult to determine the temperature accurately at a certain point, and borings lead to error in estimated depth. So the expedient was adopted of slicing the slab into a series of layers pressed together, between every two of which a thermo-couple was introduced. The interstices were only a few tenths of a millimeter, and experiments with different intervals proved that the errors in the temperatures observed did not exceed 1° or 2° Centigrade. On plotting the temperatures and distances, the temperature was found to have fallen uniformly throughout the slab. If the conductivity had been higher at higher temperatures, the fall on the hot side would have been more decided. The temperatures ranged from 350° C. to zero.

Prof. Ira Remsen describes (in Science) a curious case of the accumulation of marsh gas under ice. A number of skaters were on a large artificial lake covered with ice. In places white spots were noticed in the ice suggesting air bubbles. A hole was bored in the ice and a match applied. The thin jet of flame burst up and the gas was found to be marsh gas formed by the decomposition of organic matter at the bottom of the lake. Prof. Remsen suggests that skating ponds illuminated by natural gas are among the possibilities of the future.

Experiments on the spreading of disease by burial made by Dr. Loseuer tend to prove that there is little danger of infection from the practice. Carcasses of animals infected with different diseases were buried as nearly as possible as human bodies would have been. Bacilli of cholera could no longer be found in the remains after 28 days, those of typhoid fever disappeared after 96 days, those of tuberculosis after 123 days, those of tetanus were very virulent after 234 days, but disappeared after 361 days, while the anthrax bacilli continued in full force to the end of the year of investigation. In none of these diseases save that of anthrax did the germs find their way to the surrounding soil and water.

M. E. Chaix, says the Revue Scientifique, wishing to find out whether in calm weather the air of the seashore contains an appreciable quantity of sea salt, made several experiments in Jersey, in August, 1895. In each experiment he caused, by means of an aspirator, a thousand liters (30 cubic feet) of air to pass through a solution of silver nitrate. In every case there was not the least cloudiness of the solution, proving that the air contained no salt. This is not at all surprising, for it is well known that the air contains salt only when the wind carries off salt spray held mechanically in suspension, and derived from the wave crests; the salt of sea water cannot evaporate into the atmosphere. The evident conclusion is that, to obtain the beneficial action of sea air, we must go where the air is sufficiently agitated by the wind to continually hold sea water in suspension. Such localities are infinitely more beneficial and active.