on whether it appeals strongly and for some time to the senses, especially of sight.

I know, from personal experience and observation, that it is not uncommon for man to temporarily lose the power of the senses under excitement, while the body still performs its normal functions intelligently. Perhaps this would explain the third case mentioned by Mr. Hall. The gentleman remembered the runaway, but became so excited in checking the horse that his senses were oblivious to all surroundings.

In my own case the cause evidently acted before my eyes, and I have been led to believe that the cause of an injury may act so suddenly as to produce unconsciousness before the impression made on the senses can reach the brain.

Another case was unconsciousness produced by poisoning with sulphuretted hydrogen. I went into the attic to regulate a generator, and shut the trap-door, as I had to pass over it to reach the generator. There was but one window in the room. It was down, and about fifteen feet away. There being no gas at the hoods in the laboratory led me to think the iron sulphide was out. I disconnected the tubing, and found high pressure, which forced several gallons of gas into my face. It produced involuntary respiration, and my lungs were drawn full. Deeply impressed that my only hope of life was fresh air, I started for the window at once. Almost instantly I began to get dizzy, and my vision was strongly impaired. The window, only a few feet away, seemed very remote, and no larger than my hand. My rapid advance toward it gave me the strange impression that my legs were half a mile long. I became unconscious before reaching the window, and all is a blank until I found myself rushing down the stairs, two stories below, still impressed with the necessity of reaching pure air. In an unconscious state, I raised the window about eight inches, raised the trap-door, and fell headlong down the stairs to the laboratory, and was found by one of the students deathly pale, the blood settled under my eyes, my muscles rigid, and large drops of cold perspiration on my face. Soon after the student reached me, I began to show signs of recovery, and suddenly sprang to my feet, exclaiming, "I must have air!" and rushed down the stairs, regaining consciousness on the way.

This case shows suspension of a train of thought which was taken up where it was left off, and pursued after a season of unconsciousness. It also shows several intelligent trains of thought pursued in the absence of general consciousness, leaving no impression on the memory. I have often asked myself what directed me to raise the window and the trap-door, and have wondered whether there are centres in the brain to direct intelligent action for self-preservation in the absence of consciousness.

My intention was to open the window for air, but I have no knowledge of having done it. This has led me to ask whether impressions made on the brain during consciousness may not be automatically executed after the avenues to the external world are closed. May not a state of partial unconsciousness, as in somnambulistic sleep, be produced by injury, and well-directed trains of thought be executed and leave no impression on the memory?

A friend of mine has a blank of three weeks in her life while sick with typhoid-fever, yet was unconscious only the last ten days of the time. I have always explained such cases on the basis that bodily condition has much to do with the indelibleness of impressions made on the brain. When the body is weak, the impressions are weak and forgotten. Even in a state of health there are many perceptions that make no lasting impression. F. L. HARVEY.

Maine State College, Orono, Me., Nov. 22.

American Microscopes. — A Complaint.

EVERY autumn when the colleges and medical schools of the country begin their academic years, there are many students who come to their instructors seeking advice in regard to the purchase of microscopes. Often they appear already furnished with an instrument of which they are anxious to learn that the lenses are particularly good.

As it has been my duty for several years to conduct a large class in practical histology, I have had frequent applications for advice about microscopes, and have seen and examined a great many different stands, and the lenses of many manufacturers. I have had therefore, opportunities to test the practical convenience and advantages of the many sorts of microscopes which the students have brought along with them. The result of this experience is the conviction that it is undesirable to recommend a student to purchase any microscope whatsoever of American manufacture, and to always counsel him to obtain, if possible, one of the German or French instruments.

In order to make my judgment more clear, I may add that I know of no American microscope which I should like to purchase at any price, for my own use in histological or embryological work.

I venture to express this adverse opinion in regard to American microscopes in the hope of inducing some of our opticians to manufacture a stand for a microscope suitable for the use of students of histology and biology. It appears to me that the simple model now almost universally adopted in Europe is far superior to every thing offered us in rivalry to them by our own dealers.

To justify myself, I should like to give, first, the reasons for my disapproval of the American forms; and, second, the reasons for my preference of German forms. The fundamental error in microscopes of American manufacture is that they are for the most part constructed with a view of, I might almost say, entrapping inexperienced purchasers. The zeal of the maker is turned too much to decorative lacquering and nickel-plating: he adds to his stands as great a variety of mechanical contrivances and adjustments as the price of the stand will permit, and many of these contrivances are not really commendable for their utility. In the majority of cases the stands are made to tilt, which, for one that uses the microscope for real work, is an almost useless luxury, because he who really works in histology necessarily examines fresh specimens in fluids, or at least constantly has on the stage of his microscope preparations in various stages of unreadiness, and not mounted in a permanent form. All this implies the constant use of fluids, and, if the stage of the microscope is inclined, the use of liquids is impracticable. Any one, therefore, who uses his microscope for the ordinary purposes of a student or an investigator, or in connection with clinical or pathological work, very soon falls out of the habit of tilting his microscope. Hence it is, that, while making a microscope to tilt renders it considerably more expensive, it adds nothing essential to the convenience of the stand for laboratory work. This same fact, that most of the work must be done with the tube of the microscope vertical, renders it indispensable that the microscope should not be too high; so that we must put down the ten-inch tube as a bad feature for a student's microscope. A rack and pinion is undoubtedly advantageous: it renders the use of the microscope more convenient, and increases its durability by diminishing the strain upon the stand during the coarse adjustment of the focus. When this adjustment is effected by shoving the tube with the hand, the microscope wears out sooner than with the rack-and-pinion movement; yet even the rack and pinion, which are so generally put on our American microscopes, are not indispensable, and the greater part of the histological and embryological investigations of the past twenty years have been made without the employment of this convenience.

The stage of the American microscope is very faulty. The large movable glass plate with a hole through it is a toy fit only for an amateur or fancy collector: it interferes with the use of fluids, and with the freedom of movement of the slide over the field of the microscope, — the two things which are most indispensable in practice. A good stage should be large and flat, with nothing upon it except a pair of spring clips and a hole for a diaphragm. The diaphragms are often a matter of particularly fanciful construction. Thus the Iris diaphragm is often introduced to allure the inexperienced, but it is not a good form except in conjunction with an acromatic condenser. There are other details of construction which are equally open to unfavorable criticism, but it is unnecessary to go into their discussi on.

Unfortunately, while we see so much pains expended upon the brass-work of the microscope, we see a neglect of the optical members of the instrument; so that the microscope as a whole is converted into a showy piece of apparatus, and the eye-pieces and objectives are generally, though not always, of a decidedly inferior character: when they are really good, the lenses are very expensive.

If, now, our manufacturers would reverse the distribution of their

painstaking, and make a simple stand of small size and compact model with first-class lenses, they would furnish something which could be recommended to students and others by conscientious advisers.

Turning now to the consideration of continental microscopes, so universally used in Europe, and now happily gaining supremacy in this country, we see at once that they conform to the practical requirements which are disdained in the making of most American microscopes.

They are built with a firm base. The stage is easily reached by the fingers when the hand is resting upon the table. It carries no superfluous appurtenances, but is large and flat. The eye-piece is of such a height, that when the instrument is vertical it is easy to look into it. Concerning the lenses, it must be said that most of the European manufacturers are very conscientious in regard to those which they furnish. There are, of course, some makers who put upon the market objectives of inferior quality, and which are sold as such, and therefore at a correspondingly low price. This is of course legitimate, as there is a demand for cheap microscopes.

The price of these desirable microscopes is very much less than that of undesirable American ones. According to our system of protection, the physicians, scientific men, and students are taxed enormously if they buy a foreign instrument. Put into plain English, this means that we are heavily fined if we secure what we require in the way of microscopes, while a small number of manufacturers, whose money-making is of very little significance to the public, receive a bonus for furnishing an inferior article at a high price. Thus what is really important is sacrificed for what is unimportant. Many valuable members of the nation are sacrificed by being obliged to pay for the advantage of a small number of men who have never shown themselves willing to supply to those by whose sacrifices they benefit, the kind of instrument wanted.

Can any thing be more unjust? and are not we, who are engaged in university careers, in the practice of medicine, or any other useful occupation requiring the employment of microscopes, justified in complaining of the condition of affairs, which is little short of a national calamity? Is it unreasonable to ask the manufacturers of microscopes in this country to furnish us instruments of the kind we really need, as some sort of acknowledgment of the money they extract from us whether we will or not?

In expressing myself so decisively and emphatically upon the subject of American microscopes, I have not considered it necessary to give a detailed discussion of the relative merits and demerits of the different makes, because what I have expressed is the opinion, in these matters, of all the competent judges with whom I have talked on the subject.

I know positively that many of the best scientific men of America are ready to join me in saying, as I said at the beginning, that there is no American microscope which we should like to buy at any price for our own use. Charles Sedgwick Minot.

Boston, Nov. 24.

The 'Act of God' and 'Fuerza Mayor.'

Mr. Morgan's article in *Science* of Nov. 18, 'The "Act of God" and the Railway-Company,' is highly interesting, and suggests an illustration drawn from comparative national jurisprudence. The English common-law doctrine of the 'Act of God' appears very scientifically elaborated in the laws of Mexico under the title of 'fuerza mayor.' Our neighboring republic is greatly advanced in the science of law. While certain disturbing elements there interfere somewhat with the practical application of statutes at times, according to our views at least, nowhere on the continent has the science of law been more carefully studied, and the results of that study more accurately defined and set forth in both constitutional and statutory form. Religious faith, too, in Mexico is to-day as living and active a force in common personal life with the great body of the people as it was in Europe in the middle ages; and this fact again, as Mr. Morgan's article suggests, illustrates how, while the limitations of the Old-World doctrine have been gradually narrowing in the United States, it still holds its ground in Mexico with proportions which practically make it the leading condition of all contracts, expressed and implied.

As an instance of how this provision enters into express contracts, let us take the great railway-concessions to the leading American companies. In these concessions 'fuerza mayor' generally appears in three distinct places. The obligations of the company to build within certain fixed periods are suspended in case of 'fuerza mayor.' The concessions are forfeited by the companies carrying any foreign armed force or goods contraband of war, unless they can show that this was done because they were unable to resist 'fuerza mayor.' Certain bounties granted to the railways cease during the time that the operation of the lines is suspended, even if the suspension should take place by reason of 'fuerza mayor.'

In the smaller transactions of daily life this doctrine continually appears as an unwritten law, which suspends all other laws, or contracts, or obligations. Superior force, which often in Mexico means what would simply be called disaster in the United States, is to the Mexican mind a good defence against almost any obligation. For instance: should one lease a boat for a month at a fixed sum, and unusual storms prevent using the boat for half the month, that would be ample reason why the lessee should tender only half the rent to the lessor, and he feel constrained to accept the offer.

'Fuerza mayor' is translated as 'superior force,' or 'uncontrollable circumstances.' These circumstances are nowhere, to my knowledge, defined, but the facts of what are uncontrollable circumstances are to be decided in each case. The coercion of an armed force is 'fuerza mayor.' The violence of storms is 'fuerza mayor.' The flooding of a river is 'fuerza mayor.' And, as before remarked, very generally what we are apt to consider as disaster, in Mexico becomes 'fuerza mayor,' and operates to relieve a contract of its obligations. To the American mind a contract made must be carried out, and disaster, if there is any, falls on the man who has loosely guarded his contract. In the confluence of the American and Mexican civilizations now taking place, it becomes an interesting question how this wide difference between the usage and thinking of the two countries will adjust itself.

W. W. Nevin.

New York, Nov. 21.

The American Physique.

In order to find out how closely the figures of makers of knit goods would correspond to those of the clothiers, I sent a letter to one of the largest manufacturers. I enclose his reply, together with the figures. You will observe that the figures on men's ware correspond very closely with those of the clothiers, making allowance for the tighter fit of the undergarments.

Edward Atkinson.

Edward Atkinson, Esq.

Dear Sir, — Your favor of the 11th inst. was duly received, but the article referred to was not enclosed. It is impossible to give a perfect assortment of sizes of underwear for men and women, as the assortment varies in the weight of goods, and the section of country they are for. I enclose, however, a copy of an average order for 1,040 dozen of men's shirts and drawers, and one for 507 dozen ladies' vests and drawers, which will show very closely the sizes that we sell, and the proportion of shirts and drawers:—

	26	28	30	32	34	36	38	40	42	44	46	48	50	52
Men's shirts.....					88	124	128	84	52	32	16	10	4	1
Men's drawers.... ...		40	88	104	92	68	44	28	20	12	4	2		

	26	28	30	32	34	36	38	40	42	44	46	48	50	52
Ladies' vests	45	113	127 1/8	82 3/8	34 1/8	15	7 3/8	1 1/8						
Ladies' Drawers.....	4 1/8	15	22	18	12	6	3							

Queries.

18. Meteor-Fall. — A few days ago there appeared in the newspapers a circumstantial account of the fall of a two-ton meteorite in front of a bank in the town of Amsterdam, N.Y. I have seen nothing but this first announcement about it, and fear the whole story may be a canard, yet would like to know that it was a genuine happening. Can you report the matter in *Science*, and doubtless oblige many others besides? C. H. Ames.

Boston, Nov. 27.