

# Bombs and Those Who Make Them

## Modern Chemical Discovery Has Worked Great Changes In the Manufacture of These Favorite Arguments of the Terrorists

THE most startling feature of recent bomb development is not the increasing frequency of the employment of bombs, but the continual improvement that is being made in their construction. Frequency in the use of the murderous instrument may indicate that the ranks of the lawless are being re-enforced, but it is even more disquieting to every civilized government on earth to know that the bomb is rapidly becoming more destructive in its power and more certain in its action.

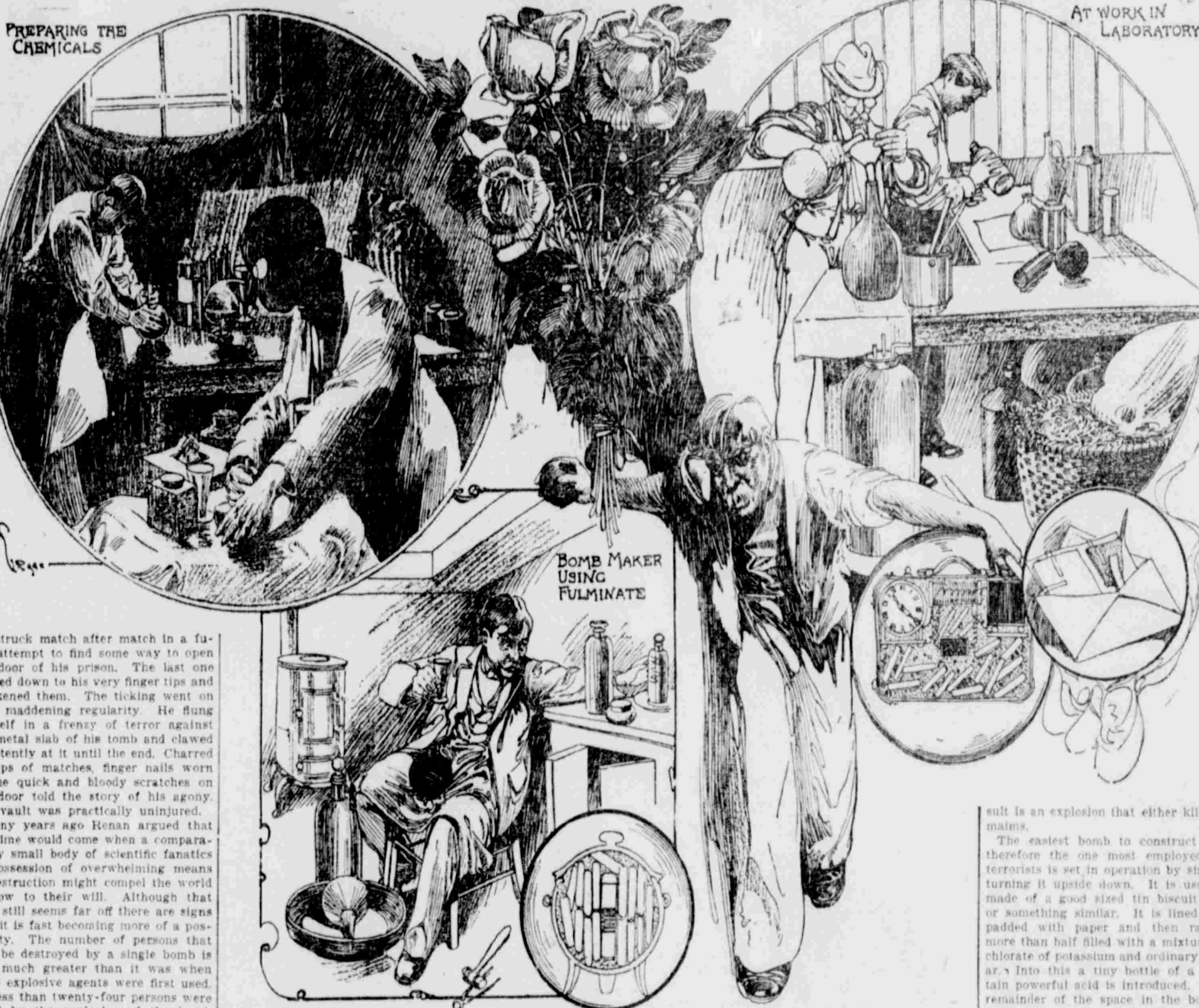
It is not long since the bomb used by terrorists in their public demonstrations against law and order was an exceedingly inartistic and uncertain affair, often put together with a clumsiness which betrayed the ignorance of the maker and with a disregard for chemical reaction that was as absurd as it was hazardous. A dozen years ago, when Ravachol and his band of anarchists attempted to blow up buildings in various parts of the city of Paris, keeping the community in a state of terror for several months, the utmost damage they seemed able to accomplish was to wreck a small structure built for a temporary cafe.

Even now the scientific bomb maker is not in the majority. Although the Russian insurrectionists have among their number several persons who have shown great skill in the manufacture of bombs it is a fact that the deaths from the accidental discharge or premature firing of these engines of destruction have recently been quite as numerous as have assassinations. At the time of the industrial riots in Warsaw, for instance, a roomful of the remains of bomb makers was found after a terrific explosion in an unfrequented corner of the city. Recently, in Paris, two Russians were passing through the Bois de Vincennes with a bomb which they intended to bury for future use when it suddenly went off, killing one of the bearers and injuring the other beyond repair.

Probably the most dramatic example of a bomb maker becoming the victim of his own contrivance occurred in a London bank some years ago. In some way never explained the man had managed to reach one of the vaults and to start the movement of a time infernal machine which he had with him. Then, to his great horror, he made the discovery that he was locked in the vault. The great steel door had closed noiselessly after him and he was caught on the outside by a powerful spring.

He knew that the mechanism of the bomb was already working and that he could not interfere with it without precipitating an explosion. He realized that the only chance between him and eternity was that through some imperfection of the machinery the works might stop. He sickened as he recalled the infinite care and nicety with which those works were adjusted. In the awful silence and darkness he heard his doom being marked off by the ticking of his ingenious bit of devilry.

PREPARING THE CHEMICALS



He struck match after match in a futile attempt to find some way to open the door of his prison. The last one burned down to his very finger tips and blackened them. The ticking went on with maddening regularity. He flung himself in a frenzy of terror against the metal slab of his tomb and clawed impotently at it until the end. Charred stumps of matches, finger nails worn to the quick and bloody scratches on the door told the story of his agony. The vault was practically uninjured.

Many years ago Renan argued that the time would come when a comparatively small body of scientific fanatics in possession of overwhelming means of destruction might compel the world to bow to their will. Although that time still seems far off there are signs that it is fast becoming more of a possibility. The number of persons that may be destroyed by a single bomb is now much greater than it was when these explosive agents were first used. No less than twenty-four persons were killed by the explosion of the bomb aimed at the young Spanish king and his bride in the streets of Madrid and about eighty more were injured more or less seriously.

For real ingenuity the bomb makers of Paris excel all others. So expert are they that a deadly bomb may be made so small that it may be carried in the pocket of a man. The most unexpected channels and in a form that cannot excite suspicion. Tons of them, so small that they might easily be mistaken for oranges when wrapped in tissue paper, have been intercepted in transit to Russia during the past few months. Many crates were found recently in St. Petersburg which contained these explosives disguised as fruit. In Poland the police have discovered eighty bombs in a tomb in a cemetery. Only recently a hated army officer was dining at a Polish restaurant, and when the cover

was removed from a soup tureen the dish exploded. So expert are the bomb makers nowadays that an apparently harmless letter coming in the mail may kill or maim any person who tries to open it. A piece of cardboard is cut to a size which, when folded over, will fit into an ordinary envelope. The four corners of this are slit into narrow strips, something like a miniature window shutter,

Fulminate of mercury is spread over three of the slits and the sheet is folded and fastened together. Projecting from each side of the folded sheet is a little metal strip, or detonator, glued to the cardboard in such a manner that the envelope cannot be opened without striking one of them. Upon meeting this slight resistance the hand moving the paper cutter, knife or scissors instinctively pushes harder and the re-

sult is an explosion that either kills or maims. The easiest bomb to construct and therefore the one most employed by terrorists is set in operation by simply turning it upside down. It is usually made of a good sized tin biscuit box or something similar. It is lined and padded with paper and then rather more than half filled with a mixture of chlorate of potassium and ordinary sugar. Into this a tiny bottle of a certain powerful acid is introduced. The remainder of the space in the box is filled with scraps of metal or even nails. Then the lid is soldered on and the bomb is ready for use.

All that is necessary for the miscreant who is to use the machine to do is to place the box upside down at the spot in which he wishes to explode it and take to his heels. The acid eats quickly through the cork of the bottle and comes in contact with the chlorate of potassium. As a result of the chemical combination which takes place

there is a terrific explosion, and any person who happens to be in the immediate vicinity runs a fearful risk of being blown into fragments.

Chemistry has produced a great array of explosives, and the modern bomb maker has made himself familiar with most of them. Percussion bombs and bombs with fuses are never used nowadays by those who make any pretensions to scientific knowledge. Many of the bombs used in Russia during the past few years have shown such a deep insight into chemical processes on the part of their makers that the government officials declare that they must have been constructed in the laboratories of the universities; that the facilities for producing them could be found nowhere else in the empire.

A missile thrown at a Russian governor recently was found on examination to be nickel plated. The official caught the bomb in his hand and it did not explode. Some time afterward another bomb of a similar make was thrown into his carriage, and it exploded and injured him seriously. Not long ago a supply of bombs made of polished steel was unearthed by the Russian police. The latest improvement on the bomb of the cracker box type is to cover it with a thick coating of cement. The extra resistance adds to the force of the explosion.

Today there are bombs made of nitrates, chlorates, permanganates, peroxide, nitroglycerin, gun cotton, picrates, fulminates and many other explosives. Those with a basis of chlorates are the most destructive in their action. Scientists affirm that in the near future liquid air will be utilized in the manufacture of bombs. Liquid acetylene may be used for a similar purpose as soon as bombmakers become familiar with its properties. It is even predicted that wireless telegraphy will be one of the most active agents of the terrorists. In support of the assertion it is pointed out that there is a recent invention which enables an operator to set off a bomb of liquid air by means of the wireless current at any time he may be so inclined. The most terrifying feature of this discovery—if, indeed, it be a fact—is that the perpetrator of the crime would be absolutely free from detection.

Perhaps the most famous Parisian bomb ever manufactured was the Orsini missile thrown at the carriage of Napoleon III, who, with the Empress Eugenie, was on the way to the opera. In the conspiracy that hatched this plot, and even in the manufacture of the bomb itself, Francesco Crispi, afterward Italy's most famous prime minister, was concerned. In the long struggle against the Bourbons in Sicily Crispi made bombs with his own hands to be used against the Sicilian rulers. He would have been executed for his share in the Orsini bomb throwing business if the government of Great Britain had not declined to permit his extradition.

That bomb was a jog to the memory of Napoleon, who shortly afterward began the war with Austria that resulted in the unification of Italy.

GEORGE H. PICARD.

## SALT LAKERS IN GOTHAM.

NEW YORK, July 10.—Now that the hot season is well on its way the "Salt Lakers in Gotham" are few and far between. During June there is always a general exodus that takes nearly all our colony. They fly away to the Rockies or the mountain and seaside resorts. Those of us whose duties require us to stay at our posts despite the terrific onslaughts of "old Sol," feel each day that our shadows are growing perceptibly less, though we are saved by the respite that is brought by the occasional cool breezes of the night and the not infrequent rains.

Most of the Utahns in the Metropolis and vicinity showed their patriotism by celebrating the nation's birthday in true American fashion. Despite threatening clouds a large party gathered in the early morning in Brooklyn at the home of James Knecht, who kindly furnished conveyances to carry the party, about 40 in number, to Jamaica Grove, about 10 miles out of the city. Arriving at the grove about noon the sky began to clear, and the day turned out beautifully. Picnic was eaten on the grass, after which sports and games were indulged in. One feature was a ball game between the New York and Brooklyn contingents, in which the Brooklynites were badly beaten. The day was altogether enjoyable, and one that will not be soon forgotten by all so far from home.

In the past elders enroute for Europe have usually gone direct to Boston, where they embark, but it is now becoming more customary from time to time for them to come by way of New York and take in the sights of the metropolis of the world before embarking for the old world. A score or more visited here in the last several days. Among the last party was Elder B. P. Cummins, Jr., who, until about two years ago, resided here with his parents for several years. His visit here was all too short to see all his oldtime friends, who were glad to have him in their midst again. It seems only a short while since he was here as a stripling lad and to have him visit us now bound for foreign shores as an ambassador of the gospel, reminds us of how time is speeding on its way.

For several weeks past Mr. Peter A. Mortenson of Sanford, Colo., has been in our midst endeavoring to interest manufacturers in a birdlike whistle he has invented. His efforts have been attended with some success, as a machine to be constructed for the manufacture of his invention, which will doubtless bring him considerable profit. Mr. Mortenson expects to return to Colorado and Utah in the next few days.

Miss Emma Flamm of Rexburg, Ida., was a visitor at the Sunday services. She is spending a summer vacation in the east and will visit with relatives in New York and New Jersey for several weeks.

Among the recent arrivals was Mr. Albert A. Quinlan of the Elgin ward, Salt Lake. Mr. Quinlan expects to spend some time in Brooklyn visiting with relatives.

faces of many old time Salt Lakers. S. W. Eccles, F. W. Hills and others. The latest addition to their forces from Salt Lake is Mr. J. W. Cutting, who is day regularly installed as the secretary to Mr. Eccles. Mr. Cutting is well known on Salt Lake's railroad row as for several years he was connected with the general offices of the Oregon Short Line in the News building. He is now in the city on a change very much, although he has still a warm spot in his heart for Zion.

Herbert Cassidy is another Salt Lake boy who has recently secured the plum of a good position with the Smelting people here. He was with the O. S. L. in Salt Lake for a number of years in the passenger and operating departments, but for some months past was employed in the New York Central office here until he was discovered by his friends and given a deserved promotion. The brain and brawn of western boys seem to be in demand in the somewhat effete east.

The offices of Eldredge, Meakin & Co., General Theatrical Exchange, in the Knickerbocker building, on Broadway, present a busy scene these days in preparing for next season's attractions. One of the big things they have on hand for a fall opening is the presentation of "The Masque of the White Horse." They expect to give this at Metropolitan hearing and if successful will take it to the coast and include Salt Lake in the itinerary. Mrs. Chas. Meakin, better known as Ruth Eldredge, will appear in the leading role as Gabrielle Desvernes. Mrs. Meakin is at present in Boston as a guest of Mrs. Louis Le Vine on board her yacht "Celia," where she is rehearsing for next season's engagement.

Mr. and Mrs. Alfred G. Swenson are recently located in apartments on One Hundred and Second street for the summer. Mr. Swenson has again signed with the "Fantasma" company for next season but will not only play the leading role but will be stage manager as well. The company will tour the large cities of the east.

The star of young Harold Orlob is still in the ascendant, with every indication of increasing brilliancy as the season rolls. With several offers for next season, he has definitely decided to act as musical director for the "Semi-nary Girls," a position he is in every way equipped to fill with credit.

Eara Christensen, principal of Ricks Academy, Rexburg, Idaho, paid us a flying visit during the past week when he spent part of two days in New York sightseeing, going from here to Chattanooga, where he will take the summer course.

Miss Katie Hendrickson of Salt Lake is spending the summer in New Haven, Conn., visiting with friends.

During the week the following Salt Lakers registered at New York hotels: G. E. Gunn, Mrs. A. J. Clabey, Imperial; B. and W. Steinman, Grand; G. H. Dorn, Cumberland; Mrs. J. A. Miner, Normandie; S. J. Peil, Hoffman.

A party consisting of Miss Lucy Barton and mother, and Miss Belle Barton leave on Tuesday for Salt Lake. They expect to stop off a day or two at Washington and Chicago en route.

This morning saw the departure of J. Gray McQuarrie, son of President Mc-

Quarrie, for Zion, where he goes to accept a position which is waiting for him. Accompanying him was Elder Lyman Crittenden of Hoytsville, who is returning home on account of illness. Elder Crittenden has only been in the field a short time, but he has made many friends while here, and we regret to lose him.

The ranks of the Utah colony have been augmented by the arrival, a few days ago, of Miss Juliette Fygaro from Ogden, who will stay over the summer visiting with her relative, Miss Hazel Cogan. Miss Cogan and her parents are from Salt Lake, having moved here and settled in upper Harlem, where they will remain indefinitely.

Judge Le Grand Young and wife, who have been here for several weeks, and who always keep in touch with their Utah friends when they are here, leave for home the latter part of the coming week.

Next Tuesday Dr. and Mrs. John Sharp with their two children leave for their western home. The doctor will return again in about three weeks, as he is only taking a vacation, but Mrs. Sharp will remain with her parents in Ogden until Dr. Sharp finishes his term in the hospital here, which will be next summer. Mrs. Sharp will be much missed by her friends here, as she has been with us several years, and it is sincerely hoped she can come this way again before long. Nothing need be said of Dr. Sharp's record, as his friends are well acquainted with his standing here, and the fact that he is held in the highest estimation by his associates in the medical fraternity.

W. A. H.

ANOTHER BOY MUSICAL PRODIGY

Miccio Horsowski is another wonderful boy piano player from Poland, that country of phenomenal musicians. Although he is only twelve years of



age, Miccio is already a master of technique and plays with the understanding of a virtuoso. He has been a pupil of the famous conservatory at Vienna since his fourth year. He will soon appear in England and America.

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## Some Curious Blunders Of Early Geologists.

THE last annual report of the United States National Museum contains a contribution to the history of American geology more than 500 pages in length. It is written by Dr. George P. Merrill and tells the story of the rise and progress of our geological studies from 1785 to the present.

Few persons know how little preliminary training our pioneers in geology had, how few books were accessible to them, and how complete was their lack of information with which the geologist of today begins his career. Dr. Merrill calls attention to many of their errors and crudities, not to belittle them but to show how in those days geological science groped almost blindly toward the truth. A few examples may be given here of the frequent bewilderment of these observers as they studied the complex phenomena of the rocks. They were much perplexed, for example, by the glacial drift scattered over the northern third of this country. It was two generations later that this drift was proved to have been carried southward by glaciers. Benjamin De Witt in 1783 wrote to the Philadelphia academy that he had found many varieties of stone on the shores of Lake Ontario. He said it was impossible to believe that so many kinds of stone should have been formed by nature in one place and out of the same kind of earth.

They must have been conveyed there by some extraordinary means. He thought some mighty convulsion of nature, as an earthquake or perhaps the bursting of a vast lake pouring its waters over low-lying altitudes, had produced this confusion and disorder in the rocks.

Prof. Amos Eaton tried to account for the masses of granite and gneiss weighing from one to 50 tons which he had found scattered along the Connecticut river. He could find no solution unless at one time the valley was filled up so as to make a descent from the Chastard range to granite and gneiss down middle of these fragments gradually advanced.

In 1820 H. Hayden explained the phenomena of glacial drift on the theory that at one time the earth changed the position of its axis so that the sun rapidly melted the ice caps of the polar regions, driving the lower latitudes with a tremendous outpouring of the polar waters, upon which floating ice brought the boulders that are scattered over our northern domain.

When our countrymen began their study of field geology some of the leading European geologists were teaching that a granite core characterized all mountain ranges, and that the remains of the mammoth and other large animals found in Siberia were transported there by floods from the region of the equator. Benjamin Franklin independently evolved the theory that the interior of the earth consisted of molten matter on which the outer portion or crust floated. He said he had seen "oyster shells mixed in the stones," which indicated an elevation of the land above sea level, and that he conceived could not take place if the earth was solid.

Whoever thinks of Thomas Jefferson as a paleontologist? But no heat of politics, no fresh denunciations of himself and his policy, prevented him from carrying on his geological studies even in the White House. He sent for more

than 300 specimens of fossil bones from the famous Big Bone Lick of Kentucky and spread them in one of the rooms of the presidential mansion. The exploration of this lick was made at his own expense and he found time to write and read papers on fossils.

Meteorites were another perplexing topic. It was not till 1808 that Prof. Klaproth, after his study of a meteorite that fell in Connecticut a year earlier, evolved a theory that these bodies are strangers which come to the earth from space. It may not be true, but Jefferson is said to have remarked this deduction.

It is easier to believe that two Yankee professors will lie than to admit that stones can fall from heaven." The famous Dr. Cotton Mather saw in the discovery of the bones of a mastodon near Albany a confirmation of the account given in Scripture of a race of antediluvian giants. They must have been giants indeed, for the thigh bone which Dr. Mather mistook for that of a man was 17 feet in length. Another mastodon exhumed near Newburgh in 1801 was regarded as unique, fitly named "Carnivorous," a blunder that frightened Dr. Hunter into writing: "We cannot but thank heaven that the whole generation is probably extinct."

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