Correspondence.

The Largest Load of Logs.

To the Editor of the Scientific American:

Anent "The Largest Load of Logs," etc., with figure in a recent number of the SCIENTIFIC AMERICAN, you may be interested to know that in the report of the Michigan Forestry Commission, 1888, pages 32, 33, Prof. Beal gives an account and illustration of the largest load of pine logs ever drawn by one team (two horses)—30,068 feet board measure.

W. A. BUCKHOUT.

State College, Center County, Pa., May 13, 1892.

The Joint Snake.

To the Editor of the Scientific American:

I send herewith, for your snake department, a portion of the tail of the common "joint snake" of this region, in process of transformation into the "hoop snake," that wonderful creation of the negro imagination, a serpent that, taking his tail in his mouth, rolls over like a hoop and drives the horn or spike into a tree, which immediately wilts and dies.

In every neighborhood of the South and Southwest some venerable old darkey can be found who has "seed it myself, sah!" and has told the story so often that he religiously believes it.

When a joint snake loses a portion of its tail by accident or otherwise, the stump in a few weeks becomes sharpened to a point and covered with a hard shell of a reddish or brown color, as in this specimen. In this case the injury must have been rather recent, as the spike is still soft and flexible.

I have in the course of years met with several just such specimens as this, but so sharp and hard that it might truly be designated a spike or horn.

G. O. HARDEMAN.

Gray's Summit, Mo., May 16, 1892.

Facts About Artesian Wells.

To the Editor of the Scientific American:

Permit me to correct the claims made in your paper of May 7, wherein it is stated that the "Samson" artesian well at Waco, Texas, is the largest well in the United States, and throws the hottest water. None of the claims made are supported by the facts. Wells at Columbus, St. Louis, and other points are deeper than the Waco wells; being over 2,000 feet deep. The Ponce de Leon well at Jacksonville, Florida, is larger, being 12 inches, and many other wells are 10 or 12 inches or more in size. The Florida well has a volume of from 7 to 10,000,000 gallons per day, so is four or five times as large in point of volume as the "Samson;" and several of the wells in Kern Co., California, are twice as large, while here in Dakota we have a number of wells two and three times as large. Again, as to being the hottest—having a temperature of 103°—the claimant has probably not heard of the hot water artesian wells at Boise City, Idaho, the temperature of which ranges from 160° to 170°—the water being used for heating purposes. Finally, as to the matter of pressure, the Dakota wells with pressures ranging from 50 to 220 pounds per inch stand, in this respect, at the head of the list, supplying the most perfect water powers to be found in the world. The "Samson" is indeed a giant and a marvel, but is overshadowed in all respects by many other wells in this country, as well as by others in France, Australia and other countries.

W. P. BUTLER.

Huron, Dakota, May 16, 1892.

Yankee Fish Catching.

To the Editor of the Scientific American:

The inventive genius of the New England backwoodsman is most noticeable in his methods of catching fish. Usually he is too poor to indulge in bamboo poles, plated reels, glittering spoons, and artificial flies. This circumstance, however, does not prevent him from securing his share of the denizens of the streams and ponds in the various seasons.

In April, snaring pickerel is the leading sport with these men. They cut a long birch pole, the weight of which would make the average city sportsman groan before he had carried it a mile, and at the end they fasten a piece of wire about eighteen inches long. To this wire they attach a noose made of carefully plaited hairs taken from the tail of a horse. Enough of these hairs are taken to render the noose stiff, so that it will pass through the water without closing.

With this tackle the fisherman seeks out the quiet shallows in the streams and ponds, and when he espies a pickerel he carefully drops the noose into the water at a point some distance to the rear of the fish, and gradually advances it toward him. When the noose has passed the middle of the fish's body a sudden jerk tightens the noose about him, and in a twinkling it is landed. These men are very dextrous at this style of fishing and seldom miss landing the game; but in the hands of a novice the noose is absolutely useless.

After the spring freshets are passed and the streams have resumed their usual size, bobbing for eels begins. This is a sport that any man who is fond of piscatorial diversion will enjoy. It is carried on in the night, and if the fisherman wishes to be successful, he must choose a dark night, for reasons that will appear later on.

In bobbing for eels no hook or seine or net is used. The tackle consists of a line, a broom corn, and a few angle worms. The broom corn must be a strong one. One end of it is sharpened. Through the other end a hole is made, into which is threaded the line. The broom corn now acts as a needle. It is thrust lengthwise through the worms, which are pushed back upon the line until they cover four or five feet of it. The broom corn is then removed, and that portion of the line covered with worms is gathered up and tied in a half a dozen bunches or double loops. When the fishing ground is reached, these bobs as they are called are dropped into the water. When the fisherman feels a bite he hauls the line rapidly in and throws the eel into the boat, where it loosens its hold on the worms and the bob is dropped into the water again. The eel will not loosen its hold on the worms until its body comes in contact with a hard substance or unless it catches sight of the boat. It is useless to fish with bobs on a moonlight night, for the moment that the eel comes to the surface and sees the boat it lets go the bait. I have known two experienced men with bobs to catch 200 pounds of eels in this manner in three hours time.

Early in the spring, when the water is cold and brook suckers have a market value, large numbers of them are caught in gunny sacks. The fisherman fastens to a barrel hoop the mouth of a gunny sack. He seeks out a narrow spot in the stream and in the middle of it he sets the hoop, building a wall of loose stones on each side of it to the banks. He then goes up the stream a quarter of a mile and wades down toward the bag, all the time prodding the bottom with a pole. This drives the fish down the stream, and when they reach the dam they follow it along until they find the opening into the sack. They rush into it, and when the fisherman arrives he lifts up the hoop, and dragging the sack on to the bank empties his catch on the ground. Wagon loads of suckers are often caught in a single night in this manner.

THOMAS HOLMES.

The Ives Colored Pictures.

Mr. Frederick E. Ives thus describes his process for obtaining and projecting pictures in the colors of nature by aid of photography:

"By means of a very ingenious compound camera front, three photographic negatives of the object are made by simultaneous and equal exposure, from the same point of view, and upon the same sensitive plate. The photographic plate is sensitive to all colors of light, but by introducing light filters one of the negatives is made by such light rays only as excite the fundamental red sensation, and in due proportion; another by such light rays as excite the fundamental green sensation, and another by such light rays as excite the fundamental blue-violet sensation.

"From this triple negative a triple lantern slide is made, which, although it shows no color, contains such a graphic record of the natural colors that in order to reproduce them to the eye it is sufficient to superpose the three images, one with red light, one with green, and one with blue-violet. This is accomplished either in Mr. Ives' new heliochromoscope, a device about the size of a hand stereoscope, and used in much the same way, or by projection with a special optical lantern, having three optical systems, with red, green, and blue glasses.

"The process is as scientifically accurate for reproduction in color as ordinary photography is for reproductions in monochrome, but at present can be carried out successfully only by a scientific expert employing the photospectrograph for testing the sensitive plates and adjusting the selective color screens. When such preliminary adjustments have been correctly made, the process is almost as simple and reliable as the ordinary negative process. By a modification of the process, introducing further complication, color prints are made on glass or paper; but the comparative simplicity of the plan of superposing images commends it to scientists, and is more convincing to the general public."

Sensitive Water Jets.

Prof. W. B. Croft, in a note to *Nature*, says: A form of this effect lately presented itself which seemed in some ways new. A thin jet, 5 feet high and arched so as to be 3 feet at the base, was falling in a feathery spray. At 13 feet distance a small Wimshurst machine was set going; not instantly, but after two minutes, the spray gathered itself up almost into one clear line; although the jet was turned up and down and the machine was discharged, the falling water would not resolve itself again into spray for fifteen or twenty minutes. It is difficult to imagine the medium for this action; it is too indefinite, perhaps, to suppose that an indicator is found for the trembling of a disturbed ether while it is dying down.

The well known experiment is not known enough, for it is not often described in books. Take a glass rod, electrified ever so little, to a certain point; at once the jet collects itself; a slight move away brings back the old disorder, while an inch nearer makes things much worse. It is a striking illustration to help one to imagine what the electrical forces of the air may do. We can perhaps understand those thick thundery rain drops, that almost allow us to pass between them while they are giving friendly warning of what will come.

Preservation of Mineralogical and Geological Specimens.

Minerals and fossils are exposed to two causes of destruction—deliquescence and efflorescence. Deliquescence is the property that certain bodies possess of absorbing moisture from the atmosphere and of gradually dissolving in the water that results therefrom. There is no other means of preventing such accidents than to preserve the specimens in hermetically sealed jars.

Efflorescence is the property found in other bodies of resolving themselves into dust. There are several processes for preserving specimens from such destruction. Certain fossils converted into white pyrites, or whose substance is impregnated with salts and cannot be washed, should be thoroughly dried and coated with a varnish that does not scale off, or else be immersed in oil. Impressions that have a tendency to disappear may be preserved by impregnating them with a thin solution of gum arabic to which a little sugar has been added in order to prevent it from cracking in drying.

Mr. Chalande recommends the following process for the preservation of rocks, fossils, bones, etc., that are apt to crack or effloresce: Immerse them for from one hour to twenty-four hours, according to the size of the specimens and their brittleness, in a mixture of equal parts of silicate of soda and water or of potassa and water. After being dried the specimen will in a short time acquire considerable hardness.

Mr. André Fouville gives the following process for preserving pyritous fossils: "Pyritous fossils are of all paleontological specimens the most difficult to preserve. Contact with moist air alters them, and converts the sulphuret into sulphate to such a point that they become unrecognizable. The surest and most advantageous means is to preserve the fossil in paraffine, a solid substance melting at 44° and containing no oxygen. But only specimens of small size can be preserved in this manner. Ferns, trunks of sigillarius and bulky fossils should be coated with a solution of silicate of soda in boiling water."

For consolidating fossil bones, Mr. Lambert gives the following process: Melt some spermaceti over an alcohol lamp and while it is still hot coat the bone with it. The spermaceti will enter the bone through the pores, and, on cooling, will consolidate it and give it the hardness of stone. If, as sometimes happens, a thin layer of the fatty substance remains upon the surface, it may be made to disappear by submitting the bone to the heat of a piece of burning paper. Some persons employ gelatine or glue. This method may be good, but it is not as effective as the one above given.—*La Nature.*

Treatment of Rheumatism.

It seems as if everybody is complaining of rheumatism nowadays, young and old, rich and poor. Science, ever ready with something new to alleviate the sufferings of mankind, has not failed in this direction, and salol is now the remedy extensively used for rheumatism. The *Medical Times and Register* says: "Therapeutically the anodyne property of salol is exhibited in the cases that are rheumatic in source." The first triumphs of salol were won in the treatment of acute rheumatism, excelling, as it apparently does, all other remedies in its power to abate and lessen fever.

If all the conditions be propitious, by the end of the second and third day fever and joint pain and swelling will have disappeared. Salol has a further use, in that it is antiseptic, and excellent results have been obtained from it when used as a disinfectant for the bowels in cases of cholera, typhoid fever, etc. In connection with the cure of rheumatism, it may be stated that of late years massage treatment has found great favor with rheumatic patients. In practicing massage, the fingers are usually moistened with some sort of oily preparation, and for this purpose nothing better can be used than lanoline. Many physicians consider this vastly preferable to vaseline, or any other preparation, and its use has invariably been attended with the greatest success.

Bare Underground Conductors.

It is pointed out in *L'Electricien* that not only does serious deterioration go on when the bare wires are in the presence of moisture, owing to the formation of hydrocarbonate of copper, a formation which is accelerated when the wires become reduced in section and consequently heat to a greater extent, but it has apparently been proved that an explosion which took place in Paris was due to the generation of gas from the electric decomposition of moisture, which gas was fired by the presence of sodium, also due to a decomposition taking place, and not to any electric spark. Thorough ventilation would seem to be the best remedy against such accidents.

Curious Things About Clocks in India.

Clocks are regarded as curiosities by the Hindoos, and for this reason half a dozen or more timepieces are often found in the apartments of the wealthy Hindostanees. They are not used as timepieces, but simply for ornament, since the old-fashioned way of telling the hour of the day in India, by calculating the number of bamboo lengths the sun has traveled above the horizon, is entirely satisfactory to the natives. It is said that in the country police stations in India, where the European division of the hours is observed, time is measured by placing in a tub of water a copper pot in which a small hole has been bored. It is supposed that it will take one hour for the water to leak into the pot so as to fill it and sink it. When the policeman sees that the pot has disappeared, he strikes the hour on a bell-like gong. If he is smoking or dozing, the copper pot may have disappeared several minutes before he discovers the fact; but the hour is when he strikes the gong.

Intoxicating Rye.

In some of the communes of the department of Dordogne, France, the rye of the last harvest exhibited some singular toxic properties. In several villages, persons who had eaten bread made from this rye were attacked with a general torpor and found it impossible to do any work for twenty-four hours. The effects produced did not resemble those caused by ergot, but rather those of darnel, with an intenser and quicker action.

According to the *Revue Internationale des Falsifications*, the same phenomena have been observed in Russia. Mr. Woronine, who has examined specimens of the rye said to have stupefying and intoxicating properties, finds that the grains have been overrun by a cryptogamic vegetation, and mentions several forms of fungi that may be suspected of having caused the accidents.

Mr. Prillieux has made a similar examination of the rye harvested in Dordogne, and has found that the small, light grains of mediocre appearance exhibit on their surface no trace of the presence of the fungi observed by Mr. Woronine. It is in the interior of the grains that he has detected, by means of the microscope, the presence of a fungus, always the same, whose mycelium has overrun the external layer of albumen. He has distinguished numerous interlaced filaments forming a sort of stroma surrounding the albumen and even penetrating the teguments of the grain. He has found that at certain points the starch grains present a very evident corrosion, due doubtless to the action of a diastase secreted by the fungus.

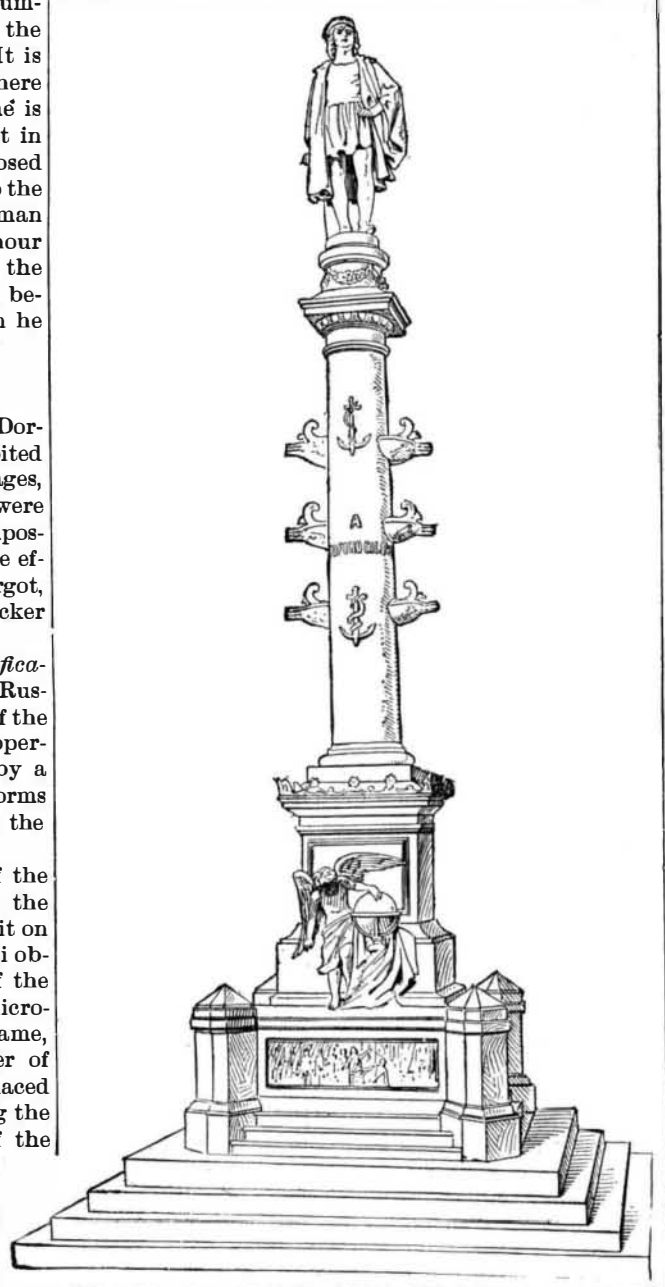
The organization of the filaments permits of the supposition that the fungus belongs to the genus *Dendodrochium;* but the arrangement of the spores more closely resembles that observed in *Sporochisma paradoxum.* As there exists no resemblance with any known genus, Mr. Prillieux thinks that a new genus will probably have to be created for this fungus.—*Revue Scientifique.*

The Fastest Long Distance Train in the World.

The Empire State Express Line on the New York Central and Hudson River Railroad has now been running since November 1, 1891, and has been operated with the greatest regularity. It leaves New York daily at 9 A. M., and goes through to Buffalo, 439 6/10 miles, in 8 3/4 hours, being at the rate of 50 7/10 miles an hour, including stops. The train consists of an engine and four cars, weighing about 230 tons. Weight of the engine 60 tons and driving wheels 40 tons. This is probably the fastest railway train in the world, distance considered.

COLUMBUS MONUMENT FOR NEW YORK.

Probably there will be no more beautiful and completely representative monument erected to the great discoverer on the four hundredth anniversary of his landing in the new world than the splendid gift of the Italians of New York to that city, a representation of



COLUMBUS MONUMENT GIVEN BY ITALIANS TO NEW YORK.

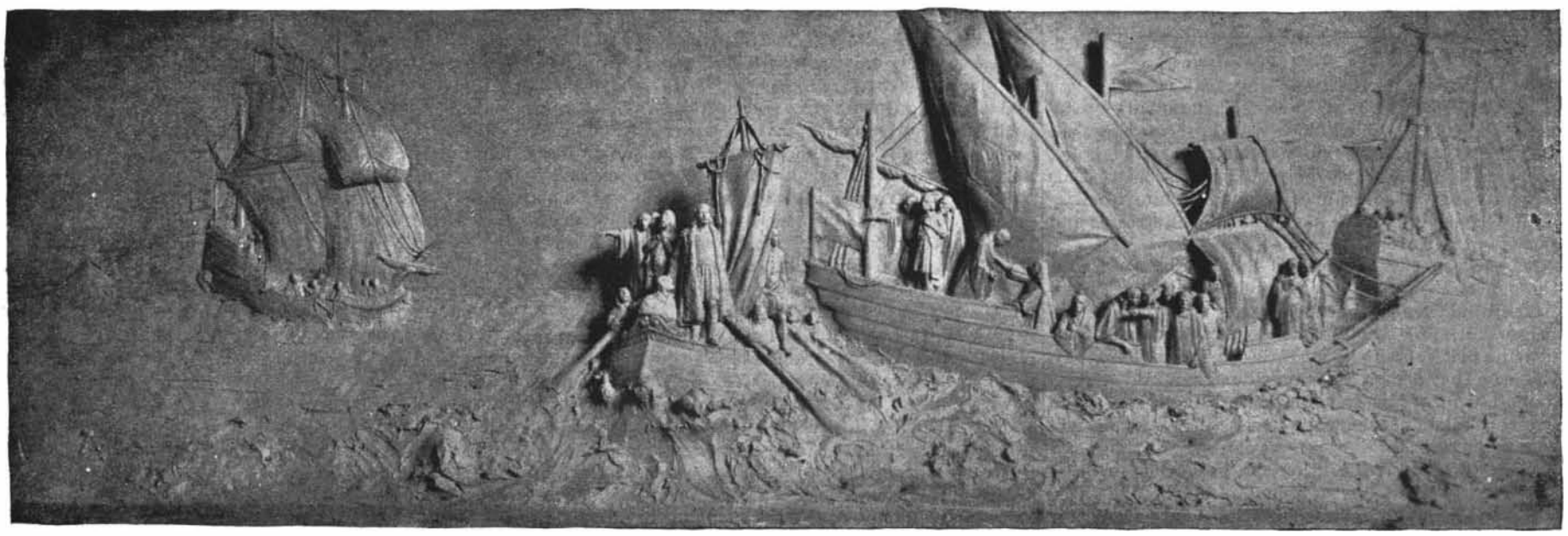
which is here given, and which is to be unveiled with imposing ceremonies on the 12th of October next. The monument will have a place at the Eighth Avenue and Fifty-ninth Street entrance to the Central Park. Sufficient contributions for the purpose were obtained without difficulty when the idea first took shape among the Italian residents here, and, through Signor Barsotti, of the *Progresso Italo-Americano*, an Italian newspaper of New York, the order for a design for the monument was, in January, 1889, forwarded to the Minister of Public Instruction of the Kingdom of Italy. The latter called for a competition of designs for the monument, in which none but artists of Italian nationality might compete. Nine judges were appointed—three architects, three painters, and three sculptors, all eminent in their respective departments—and the competition was large and spirited. The award was made to Signor Gaetano Russo, born in Messina, Sicily, and examples of whose work are now to be found in many of the public buildings of Rome and other Italian cities.

The entire monument, with its terraced pedestal, will be 77 feet high. The figure of Columbus is 12 feet 9 inches high, its feet being 36 inches long, and it is cut from a block of Carrara marble which weighed twenty-five tons. The column and pedestal are of red granite, a short terrace of Carrara marble separating them, the capital of the column being also of marble. The red granite terraced pedestal has octagonal corner columns, a noble figure of Genius crowning the second terrace on one side, and on the other side, at the back of the Genius, is depicted a magnificent Alpine eagle, both in marble. Below the figures, on each side, are splendid basso-relievos, ten feet by two feet in size, these being in bronze, as are also the six prows, three on each side of the column, facsimiles of those of the vessels of Columbus, with representations of anchors above and below the central inscription, "A Cristofero Colombo." The Genius is 10 feet 4 inches high, and cut from a block of marble originally weighing twenty tons, it represents a youth upheld by the wings of Faith, and holding in its grasp the whole globe, which it is apparently studying with an intentness which may well be likened to that with which Columbus pored over the maps in existence at his time. The Eagle, on the reverse side of the monument, and of similar size, is in the attitude of guarding the arms of the United States and those which were distinctive of the Republic of Genoa during many centuries.

The illustration given of one of the basso-relievos represents Columbus starting in a little boat from his vessel to first set foot upon the land of the New World. The vessels, boats, banners, and costumes are designed to be accurate representations of the originals, and the artist has endeavored to faithfully portray the interest and excitement undoubtedly felt by all on board the little fleet. The basso-relievo on the opposite side shows Columbus reverently returning thanks upon the land, his companions pressing all around and kneeling about him, and the frightened Indians peeping through the foliage. The spaces between the basso-relievos and at the sides of the Genius and the Eagle will be filled with bronze tablets bearing English inscriptions by Ugo Fleres, an Italian poet.

Exhibition Notes.

In front of the Administration Building at the Exposition the largest fountain in the world will toss graceful streams and excite the admiration of millions of spectators. It is now being constructed in Paris by Sculptor MacMonnies, who is acknowledged to be one of the very best of living artists. The idea of the fountain is that of an apotheosis of modern liberty—Columbia—and will take the shape of a triumphal barge, guided by time, heralded by fame, and rowed by eight standing figures, representing on one side the arts and on the other science, industry, agriculture and commerce. The barge is preceded by eight sea horses, forming a semicircle in front and mounted by eight young men as outriders, who represent modern commerce. The smallest figure is some twelve feet in height and the largest twenty feet. The design of the base is circular—150 feet in diameter—and is flanked on each side by columns 50 feet high, surmounted by eagles. The water is furnished by a great half circle of dolphins in the rear and by a system of jets which entirely surround the barge and figures. At night the fountain will be illuminated by electricity after the principle employed in fountains in the Champ de Mars. Moulders and other artisans are working day and night in getting this immense fountain ready in time.



COLUMBUS MONUMENT—BASS-RELIEF—FIRST BOAT LEAVING THE SHIP.