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ANTI-EVOLUTION MOVEMENT IGNORED BY PUBLISHERS

Evolution stays in most schoolbooks. That at least seems to be the verdict of American publishers.

In response to an inquiry from Science Service, addressed to thirty-five publishing firms, who among them supply the great bulk of the books used in American schools and colleges, thirty-three answered that they were making no changes in their texts to meet the demands of the anti-evolutionists. One large firm replied "We are not at present prepared to make any definite statement", and one did not answer at all. None seemed will ing to state that any changes were being made.

One concern stated that in a new work intended for high school use the matter was "tactfully handled", but that evolution remained in none the less. Others were more emphatic; answers like "Certainly not!" and "Anti-evolution has no standing with this firm" were characteristic.

A vexed question has been the possibility of getting out modifications of standard texts for use in regions where the anti-evolution feeling is strong. For the most part, the publishers answer with some variant of the statement of one of the largest producers of textbooks for secondary schools: "We are not preparing any special editions of our books for use in states where evolution teaching is prohibited or discouraged."

FIREPROOF GAS TANKS LIKE PUNCTURE PROOF TIRES

An aeroplane gasoline tank which may be repeatedly perforated by incendiary or explosive bullets without bursting into flames, or even leaking, is the latest development in aviation reported from Vienna. The tank is the usual metal type, but with a peculiar interior coating, the composition of which is a carefully guarded secret with the inventor, probably on the order of the liquid gums placed in automobile tires to make them puncture proof. There is also, according to the claims of the patentee, a special mechanism inside the tank which eliminates all the effects of explosion, either of bullets or of gas fumes.

The inflammatory bullet, upon entering the tank, is immediately enveloped with a coating of some sort of material that extinguishes the flame, and at the same time prevents a phosphorus-coated bullet from leaving a deposit.

In a test made by expert army witnesses, a series of twenty bullets were fired through the experimental tank, which was filled half with gasoline and half with inflammable gas. The bullets were fired in a series of one explosive, one phosphorus, and one solid, in rotation. After the twenty rounds had been fired with

no bad results, the tank was set in an aeroplane, which then made an hour's flight using only the gasoline from the apparently perforated tank. No leak or fire occured, and no other trouble of any kind.

The invention is arousing great interest in the war department, as the figures of the past Great War taken from the German war office show that 80 per cent. of the planes brought down in flames were fired from phosphorus bullets, or caught fire from tank leaks.

INVENTS SYSTEM OF MUSICAL STENOGRAPHY

A Swiss authority, M. Henry Reymond, has devised, after twenty years' experiment, a system of musical stenography which gives every sign of being a practical solution to a problem that for over a hundred years has occuppied the minds of musical thinkers.

The system would enable anyone conversant with it to sit at a concert, for instance, and note down the full orchestrated score just as a reporter takes down the speech of an orator or the debate of an assembly. This is just where the Reymond system differs from all its predecessors. The most satisfactory of these, that propounded by the Italian professor Mussa in 1905, merely enabled one to jot down the main theme, the melody. It was a melodic shorthand, which left out of count altogether the harmonic complement of themelody which, in modern music especially, is of such vital interest and importance.

M. Reymond's system on the other hand, records the entire score, however complicated it may be. There are two stages in the process both of establishing the system and of learning to use it. In the first stage numbers anddashes are used, changes of key being indicated by intial signs. In the second, practical stage, these somewhat cumbersome numbers are replaced by stenographic signs similar in general appearance to those used in ordinary shorthand methods.

Thus thirty-two of these stenographic signs suffice to render the eight main bars of the "Star Spangled Banner" with full accompaniment and only occupy about one line of space.

RETURN OF BORRELLY'S COMET FITS PREDICTION ACCURATELY

The return of Borrelly's comet to within one degree of the position predicted for it by Dr. A. C.D. Crommelin of Greenwich Observatory, England, on its last visit to the nearer parts of the solar system, seven years ago, is announced by Dr. Harlow Shapley of the Harvard Observatory, who received the news through the great international clearing house for astronomical happenings at Copenhagen.

The rediscoverer of this comet, which comes back once in approximately seven years, is Dr. A. Schaumasse, who detected it at the astronomical observatory at Nice, France. It was at this observatory also that it was first detected at its most recent return, in 1918. France also claims the honor of its first discovery, which was made in 1889 at Marseilles, by the noted astronomer Borrelly. Following the usual custom in such cases, the comet was named for the man who first observed it.

The comet, which is still too faint to be seen with the naked eye, was located at right ascention 5 hours , 4 minutes, 24 seconds, and declination plus 2 degrees, 4 minutes. This places it in the neighborhood of the well known constellation of Orion, which rises this month at about two O'clock in the morning.

Astronomers at the U.S. Naval Observatory were not willing to state whether the newly rediscovered comet of Borrelly would become visible to the naked eye until they had made the necessary calculation on its orbit. They stated, however, that its return to within one degree of the predicted place was a most interesting phenomenon, considering the erratic nature of comets.

CHILD'S PLACE IS IN THE HOME, MENTAL EXPERTS SAY

The benevolent philanthropist who thinks of starting up a new orphan asylum to dispose of his surplus millions is now urged to consider the line, "Be it ever so humble, there's no place like home."

The National Committee for Mental Hygiene reports that while physical conditions in orphanages have improved greatly in recent years, the mental status of the orphan is little better than it was fifty years ago. Consequently, it recommends leaving the child in its own home or placing it in a foster home, however humble.

Every child, says the committee, needs to feel that it "belongs" , and to have the affectionate interest of some individual, because such interest does a great deal to shape the child's attitude toward the world. Then, it needs to be trained in healthy habits of conduct and mind, which "is a highly individualized process, where literally one child's meat proves to be another's poison." And third, it is well-nigh impossible to prevent a child inan institution from becoming handicapped by an inferiority complex and thus impairing its success in life.

"There seems little if any real need for orphanages," says the committee. "In 1923, in New York City it cost taxpayers only a little over $15. a month for each child kept in its home by a mother's pension system or placed in a foster home. At the same time, it cost $28.40 for each child in an institution.

Those institutions that are now overrunning with babies cannot be carelessly scrapped, but the committee believes that since asylums are both expensive and undesirable they should gradually be reserved for "the child whom, by reason of appearance, mentality, or conduct, nobody wants".

BOLL WEEVILS FROM AMERICA NOT WELCOME IN INDIA

Because shipments of American cotton may be harboring boll weevil stowaways, the government of British India has issued a ban on cotton importations from the United States, to take effect October first.

Bombay is to be the only Indian port where American cotton can enter the country and arrangements will be made there to have all such shipments fumigated on special barges at the expense of the importers.

BELOIT COLLEGE STUDENTS TO EXCAVATE PREHISTORIC SITE AT "THE ROCK OF PAIN", SOUTHERN FRANCE

NOTE: An American educational institution , Beloit College, of Wisconsin, has undertaken a unique enterprise in paleontology. An ancient campsite of prehistoric man in southern France has been leased for the college, where students of the Beloit department of anthropology can explore during the summer session. Science Service has exclusive publication of results as reported by Mr. Pond from time to time, as new and interesting discoveries are made, here and in unexplored regions beyond, The reference to the site as "Magdalenian" indicates the type of tools, ornaments, etc., found there. The culture of the latest epoch of the Old Stone Age, 20,000 or more years ago, just before men ceased using chipped flints and began using polished ones, was first discovered at a place called Le Madelaine, in southern France; whence the name.

By Alonzo W. Pond
Assistant Curator, Logan Museum, Beloit College

Beloit College has rented a Magdalenian Rock Shelter in the heart of the village of Les Eyzies, Dordogne, which it will use as an excavation site for summer school students of the Department of Anthropology of Beloit College. Dr. George L. Collie, director of Logan Museum and professor of anthropology at Beloit College and his assistant, Alonzo W. Pond, have spent several weeks in France, through the generosity of Dr. Frank G. Logan of Chicago, searching for a suitable location. Unlooked for good fortune rewarded their efforts when they succeeded in purchasing all the materialdug from Abri du Rocher de la Peine, a virgin site concerning which nothing has as yet been published, and in addition obtained a five year lease on the rock shelter which enables them to complete the excavation and publish an exhaustive study of the work.

The site is exceedingly rich in upper Magdalenian culture and the collection already dug out contains a dozen fine bone needles, one complete large bone harpoon and several broken ones. Two forked harpoons which are different from any so far described and two very tiny harpoons which were undoubtedly used as fish hooks have also been uncovered.

The prize of the collection is a necklace of four huge teeth of the extinct cave bear, an animal of enormous size. These were found in situ, arranged as a necklace with dentalium shells. Authorities at Les Eyzies pronounce it a unique specimen and one which has norival in the size and preservation of the teeth. One of the teeth is decorated with parallel lines carved on the sides with a flint blade, by the artists of prehistoric times.

This necklace is a particularly welcome addition to the collections at Logan Museum as it shows a later development in necklaces, the beginning of which is represented by the famous Aurignacian necklace which was added to the collections last year. Great numbers of characteristic flint gravers, scrapers and cores are found in the deposits, as well as a remarkable number of bone points. Representative faunal remains make it possible to reconstruct the type of climate existing at the time the Magdalenian inhabitants lived in this rock shelter.

Beloit College feels particularly favored in having its site right in the village of Les Eyzies, which is known all over the world as "The Capital of the Prehistoric World". It is in the center of the region of the famous caves and rock shelters inhabited in prehistoric times and so situated that students at the summer session of the Department of Anthropology can vary their work of practical excavation and study on the spot of an inhabited site by excursions to the ornamented caverns and classic excavations in the nearby region. Excellent and reasonable hotel accomodations are available within ten minutes walk so that students can be well taken care of.

The Rocher de la Peine is but a short distance from the medieval chateau of Les Eyzies which now houses the State Museum of this region. It is said by peasants of the locality that in the middle ages the lord of the chateau had the power of life and death over all his subjects. It was his custom when offenders were to be executed to compel them to walk up onto the top of this rock which has projected out over the valley for thousands of years and throw themselves off to their death. It is this legend which has given the name, "The Rock of Pain", to the overhanging cliff.

When recent excavations revealed a skeleton the workmen were convinced that they had discovered the proof of the ancient legend while the owner of the site thought he had come upon the remains of the prehistoric inhabitants of the rock shelter. When the skeletons were finally removed they proved to be the remains of little children. Further inquiry brought out that as the site is located at a crossroads it has long been a favorite camping place for wandering bands of gypsies. Occasionally a child of these wanderers has died while they were in Les Eyzies, and its body buried at the fork in the road. To date three of these child skeletons have been discovered. To the anthropological student these intrusive burials add a decided interest to the excavationsas they serve to emphasize the preference of all peoples through all ages for the same type of camping sites.

FUTURE IN PIG IRON PREDICTED FOR SOUTH AFRICA

"Like carrying iron to Newcastle" may soon be a catch phrase, meaning that Newcastle, South Africa, produces so much iron of its own that it would laugh at importations.

Heretofore, South Africa has lacked this important branch of the iron industry. But the first blast furnace for the manufacture of pig iron in this section is to begin production next month and daily output is expected to reach 150 tons. The new furnace will provide employment for 100 men, and its large coke demands will revive the coke industry which has been in bad shape.

Coal mine accidents in the United States during the first half of 1925 resulted in a loss of 1,089 lives or 239 less than during the first six months of 1924 and the number of deaths per million tons of coal mined was 3.89, as compared with 4.73 last year, a reduction of about 18 per cent.

BODY-LENGTH USED AS TEMPERAMENT INDEX

Dividing the length of one arm plus the length of one leg by the volume of the body trunk gives the ratio which is called the body index or "morphologic index". A high ratio suggests a slender and frequently tall individual who is called by the anthropologist a dolichomorph. A low index indicates an individual disproportionately developed in the transverse regions, called a brachymorph by the anthropologist and in everyday parlance a "fat man". Sante Naccarati and H.E. Garrett haverrecently reported that the brachymorph, or the individual of relatively large trunk and short extremities, exhibits more temperamental disturbances of an emotional nature than does the dolichomorph, the individual of relatively small trunk and long extremities. From this it would seem that the "fat man" can be on occasion, both jollier and sadder than other men but not necessarily "wiser" for Naccarati has previously shown that there exists a positive correlation between the size of the morphologic index and degree of intelligence. This means that the dolichomorph has a slight chance of being more intelligent than his temperamental brother. The relative activity of the endocrine glands, especially the thyroid, is cited as a possible explanation of these differences in body index, in emotional temperament, and in intelligence.

(Mr. James Stokley, astronomicalstaff writer for Science Service, is now on a tour of the West in the course of which he will visit many of the nation's leading observatories, including the Yerkes, Mt.Wilson and Lick. From each of these he will write a popular account of the principal work of the institutions, which will be included in the news-letter from time to time. The following account of the Allegheny Observatory, at Pittsburgh, is the first of this series, and the second, dealing with the Yerkes Observatory of the University of Chicago, will appear in an early issue.)

LARGEST TELESCOPE IN EAST MEASURES STARS' DISTANCES

By James Stokley,
Science Service Staff Writer

The famous smoky atmosphere of Pittsburgh, supposed to keep its residents from ever seeing the sun or stars, does not prevent astronomical observation for the Allegheny Observatory, with the largest refracting telescope in the United States east of the Mississippi, and one that is exceeded in size by only three others in the world, is numbered among the leading astronomical institutions. Both in quality and quantity, their observations would do credit to many a similar institution located in what is supposedly a much more favorable climate.

Situated in beautiful Riverview Park, in what was formerly the city of Allegheny, the observatory has a splendid location several hundred feet above the heart of Pittsburgh, and out of the direct line of most of the smoke. Surrounded by large trees, well kept lawns and flower beds, its surroundings are among the most attractive of any observatory in the country.

When I arrived, I found the director, Dr. Heber D. Curtis, busily engaged in packing the instruments that he will take with him to observe the eclipse of the sun in Sumatra next January9, when he will be with a party from the Sproul Observatory of Swarthmore College. Last January, at the New England eclipse, Dr. Curtis was with the Swarthmore party at New Haven, Conn., and he then succeeded in photo-

graphing the spectrum of the outer layer of the sun, the layer that gives us most of our light, farther into the invisible infra-red than anybody had ever done before. The same instruments will go to Sumatra, where he hopes to photograph this part of the spectrum again, and if possible penetrate still farther into the region of the invisible heat rays. Dr. John A. Miller, of Swarthmore, who will be in charge of the expedition, has already sailed, but Dr. Curtis will not leave until September. He will join Dr. Miller in Shanghai, and they will go together to Sumatra.

But eclipses, while important, are only occasional phenomena. Observatories must keep busy at other times, and, with its exceptional equipment, the Allegheny Observatory is able to engage in several lines of research. Most important of these, according to the director, is the measurement of stellar distances, or parallax, as the astronomers call it. Hold up one finger in front of your face at arm's length and you can get an idea of what parallax is. When you close your right eye and your left eye alternately, you will see that the finger first is in front of one part of the background and then of another. If you now bring the finger to within a foot of your face and repeat the alternate closing of your eyes, you will see that the two parts of the background that are covered are much farther apart than they were before. By measuring the distance of the parts of the background that seem to be covered, it would be possible to tell how far the finger was from your face; the farther away the finger, the less would be the difference.

Parallax measurements of stars are made in a similar way. The orbit of the earth is approximately circular, and about 180,000,000 miles in diameter. Since the earth travels completely around this orbit once a year, it is now 180,000,000 miles away from the place it occupied six months ago or that it will be in six months hence. By taking photographs of a star at six-month intervals, and measuring its position on the plate as compared with the background of more distant stars, the distance may be found. This is the work in which the Allegheny Observatory is one of the leaders. With the great telescope, the lens of which is 30 inches in diameter, thousands of stars have thus been measured by Dr. Curtis and Dr. Z. Daniel of the Observatory staff, but the work is by no means complete. Vast numbers of stars still remain, the distances of which are unknown. Other observatories are also at work on this problem, but Dr. Curtis has one great advantage over many of them. His telescope is made especially for photography, and is really a huge camera. At most of the other institutions the instruments were made to look through, and when they are used in photography a yellow screen is placed in front of the plate, which cuts down the amount of light and makes the necessary exposures much longer.

The big telescope is not only used to measure the distance of stars, however. Dr. F. C. Jordan, of the observatory staff, is using it to find the brightness of the variable stars that regularly fluctuate in brilliancy. This also is done by photography, but unlike most forms of picture taking, the camera is deliberately put out of focus. Instead of getting tiny dots on the plate to represent the stars, such a photograph shows them as round spots, their blackness varying with the star's brightness. An instrument called a microphotometer is used to measure the darkness of the spots, and from it the brightness of the star is found.

What may in the future, according to Dr. Curtis , be regarded as the observatory's most important work, is being undertaken by Dr. Keiven Burns of the observatory staff, in cooperation with Dr. C. C. Kiess, of the Bureau of Standards in Washington. This is an accurate measurement of the wave length of the lines of the sun spectrum. When a narrow beam of sunlight is passed through a prism, with the proper combination of lenses, the familiar rainbow-like spectrum results. It

is crossed by a series of dark lines, each of which is due to a certain element in the sun. Because of the importance of these lines as standards for many other investigations with the spectroscope, it is important to know very accurately the length of the light waves that produce the various lines. Radio waves are measured in meters, which is a little over a yard; but light waves are so short that a unit called an Angstrom, one ten billionth of a meter, is used to measure them. Dr. Burns is measuring the wave lengths to one thousandth of an Angstrom, or about one two hundred and fifty billionth of an inch! This work was begun two years ago and will continue for at least nine years more, because the sun undergoes a series of changes every eleven years, and one of the problems is to find whether the wave lengths also change.

Important as these investigations are scientifically, to my mind one of the most valuable works of the observatory is in charge of Mr. W. R. Ludewig. One of the observatory's telescopes, with a lens 13 inches in diameter, is used solely for the benefit of visitors. Four nights a week, except during the winter, Mr. Ludewig is in charge of this instrument, and visitors are shown the sights of the heavens. When clouds make observations impossible, the visitors are not sent away disappointed, but are shown lantern slides of the heavenly bodies. This is all possible as the result of a fund established by the late H.C. Frick, and since it was established Mr. Ludewig has entertained, and instructed, over 100,000 visitors. If "the heavens declare the glory of God" this is truly a noble work!

FLAME BURNED UNDER WATER SAVES FUEL

Burning an oil flame under water for weeks at a time, and avoiding most of the heat loss of an ordinary boiler, is the feat of Oscar Brunler, a Belgian scientist.

By means of a device similar to a carburetor, a spray of crude oil mixed with air is blown into the burner under pressure. Water is kept out of the burner until it is hot and the fire is burning well. Then the water is allowed to rise around the flame until it is submerged. Once started it can be kept burning for months.

All designs of boilers are based on the principle of bringing the flame of the fuel into the closest possible contact with the water in order to avoid loss of heat. The most efficient method is to have the flame directly in the water, and this is what Brunler has succeeded in doing.

His success is shown by his report to the Society of Chemical Industry. More than sixty different kinds of oil have been burned, and boilers have worked continuously for months. The flame can be regulated completely by turning one wheel. While an ordinary burner seldom gives as much as 75 per cent. of the heat, as determined by common methods of analysis, this submerged flame has given a heat efficiency of practically 100 per cent. for weeks at a time.

50,000 years ago the group of stars which form the "Great Dipper" were not arranged as they are now, but had the form of a cross.

X-RAYS SHOW INNER STRUCTURE OF RUBBER

More than half a century ago Joule, the eminent British physicist, observed that rubber became warmer when stretched, whereas all other known substances became cooler when stretched. This peculiarity, known as the Joule effect, has ever since been a puzzle to those interested in the properties of rubber.

The clue has now been found by a Dutch scientist working in a Danish laboratory. J. R. Katz, of the University of Amsterdam, has been working in the Government Serum Insitute at Copenhagen, with aid from a Danish rubber factory, on the behavior of thin sheets of raw rubber toward X-Rays.

He photographed the spectrum from a thin sheet of high-grade rubber and found the rings which appear in the spectra of all amorphous non-crystalline substances. He stretched the rubber slightly and repeated the experiment, with the same result. He stretched it more and made a new photograph, in which he observed an astonishing change. The "amorphous rings" were still there; but there also were the tiny bright spots which, in an X-ray spectrum, indicate the presence of crystals. The stretched rubber had begun to crystallize!

Continuing his experiments, Prof. Katz found that rubber can be stretched up to about twice its original length without crystallization; but if stretched beyond that point the formation of crystals begins, and the greater the stretch the more pronounced does the effect become.

Herein lies the explanation of the Joule effect; for all substances, changing from the amorphous to the crystalline state, give off heat. If rubber crystallizes it must become warmer. It crystallizes if stretched sufficiently; therefore when strongly stretched it gets warmer. As usual, the fact was known long before the cause was discovered.

Prof. Katz anticipates that his X-ray studies of rubber will lead to further important results in explaining the nature of this peculiar substance. Chemists, for example, have long disputed as to the size of the molecule of rubber. Some contend that the minute colloidal particles of rubber, motion of which can be observed under the ultra-microscope, are enormous molecules built up from many smaller units, the chemical molecules. Others maintain that the colloidal particles are only loose aggregates and that the actual molecule is small, a true chemical molecule. Prof. Katz hopes, by his experiments, to throw light on this and other puzzling questions in the science of rubber.

CHINESE CALLED A CROSS BETWEEN WHITES AND NEGROIDS

That the Chinese and other yellow races are not a pure type, but a hybrid between white and negroid peoples, is the claim advanced by a French anthropologist, Dr. A. Legendre, based on studies of types made during a twenty year sojourn in the interior of China. Along with numerous natives with high-bridged noses, straight eyes, relatively abundant facial hair, and other Aryan characteristics, including even white skins, Dr. Legendre found flat-nosed, thick-lipped people with high cheek bones, swarthy complexions, and other signs of negroid descent.

Dr. Legendre is of the opinion that the passiveness and inertness of the great mass of the Chinese population is due to the infusion of negroid blood. He claims that the great leaders who have from time to time stood over the yellow hordes - Attila, Genghiz Khan, Tamerlaine - were predominantly of the Aryan type, and states that the Mongolian masses have never bestirred themselves save under such leadership. The real "yellow peril", he believes, lies in the possibility of the arising of such a white or semi-white genius, of the supplying of such leadership by the Bolsheviki.

TABLOID BOOK REVIEWS

SOME POSTHUMOUS PAPERS OF A.G. MAYOR RELATING TO HIS WORK AT TUTUILA ISLAND AND ADJACENT REGIONS: A MEMORIAL TO ALFRED GOLDSBOROUGH MAYOR.

Papers from the Department of Marine Biology of the Carnegie Institution of Washington. Volume XIX. The Carnegie Institution of Washington. 1924.

CENOZOIC GRAVIGRADE EDENTATES OF WESTERN NORTH AMERICA, WITH SPECIAL REFERENCE TO THE PLEISTOCENE MEGALONYCHINAE AND MYLODONTIDAE OF RANCHO LA BREA. By Chester Stock. The Carnegie Institution of Washington, publication no.351, 1925.

These two volumes are gotten up in the usual excellent style of the Carnegie Institution series, with many fine plates and text figures. Though the first is of interest mainly to geologists marine biologists, and the second to paleontologists, there is plenty of matter in them of interest to any person who is enough of a naturalist to know what corals are, or that sloths existed before the era of crossword puzzles.

HONORS COURSES IN AMERICAN COLLEGES AND UNIVERSITIES. Bulletin of the National Research Council. By Frank Aydelotte. 96 pages. Washington, D. C. National Research Council. 1925

The intellectual development of the gifted student is a problem which is coming to the front in American education. In this bulletin, President Aydelotte, of Swarthmore College, has surveyed the situation in almost 100 American colleges and Universities which permit gifted students to pursue special "honors courses". In 75 institutions honors students undertake independent work in addition to the ordinary cirriculum. In 18 others, the honors canidate is excused from all or most of the regular college work.

President Aydelotte's conclusion is : "What our best students need is not coddling , not more attention, nor more teaching, but only greater freedom and more severe requirements. These two boons are promised by the general system of instruction towhich this pamphlet is devoted."

Americanapples are considered great delicacies in La Paz, Bolivia, where they sell at about 12 cents retail.
