SCIENCE NEWS

Science Service, Washington, D. C.

SOME PAPERS READ BEFORE THE NOTTINGHAM MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

THE DETERMINATION OF SEX

SEX is equally distributed among Britons only in young people; between the ages of 15 and 19 the number of boys and girls is approximately equal. At earlier ages there are more males; later, females predominate. This seesaw of the sexes, and what it means biologically, was the subject of discussion before the meeting of the British Association for the Advancement of Science by Professor F. A. E. Crew, of the University of Edinburgh.

In a word, the female of the species is noticeably more resistant than the male. Men, boys, and boy babies all tend to die off faster than their sisters. It begins even before birth. For every 100 girl babies who die before they are born, there are 110 boy children who never see the light. Yet there are 106.5 boy babies born alive for every 100 girl babies. But then they proceed to die faster, during infancy and early childhood, until in the ages from ten to twenty there are no more boys than there are girls. After the age of twenty years, women begin to outnumber the men, and the ratio rises throughout the remainder of life. In the seventies and eighties far more women die than men, for the simple reason that there are more women left alive to die.

Dr. A. Walton, in a discussion of sex determination, spoke of the possibility of separating the sperms of mammals, in which the male cell carries the genes determining male or female sex. He said: "There is evidence that such separation does occur normally to some extent. The results obtained by experiment are as yet inconclusive, nevertheless the comparative ease with which the sperms can be subjected to experimental manipulation opens up a promising line of future investigation and the promise of practical sex control."

THE INTRODUCTON OF ARCHEOLOGY IN SCHOOLS

In his address as president of the Educational Science section, H. G. Wells urged abandonment of the teaching of what has hitherto been regarded as history. What he would substitute in the lower grades is more in the nature of archeology—history of early man and the beginning and growth of civilization.

"The crazy combative patriotism that plainly threatens to destroy civilization to-day is very largely begotten by the schoolmaster and the schoolmistress in their history lessons," Mr. Wells said. "They take the growing mind at a naturally barbaric phase and they inflame and fix its barbarism. I think that the less young children have either in or out of school of what has hitherto figured as history, the better. I do not see either the charm or the educational benefit of making an important subject of the criminal history of royalty, the murder of the Princess in the Tower, the wives of Henry the Eighth, the families of Edward and James I, the mistresses of Charles II, Sweet Nell of Old Drury, and all the rest of it. I suggest that the sooner we get all that unpleasant stuff out of schools and the sooner that we forget the border bickerings of England, France, Scotland, Ireland and Wales, Bannockburn, Flodden, Crecy and Agincourt, the nearer our world will be to a sane outlook upon life."

Along with a broader history of the whole of mankind, Mr. Wells urged the study of geography, using modern photography rather than maps and lists of capes and rivers. Biology should include the study of how man emerged from the sequency of sub-human animals, he said. In a world of machinery, optical instruments, electricity, radio, and so forth, we want to lay a sound foundation of pure physics and chemistry upon the most modern lines—for every one. "And finally, to meet awakening curiosity and take the morbidity out of it, we have to tell our young people and especially our young townspeople about the working of their bodies, about reproduction and about the chief diseases, enfeeblements and accidents that lie in wait for them in the world."

THE NEED OF A KNOWLEDGE OF PLANT SCIENCE

Professor E. J. Salisbury, of the University of London, in his presidential address before the section on botany, emphasized the fact that knowledge of plant science is needed in the making of a really well-equipped citizen. The relation of botany to such applied sciences and techniques as agriculture, forestry and grazing is so well known as to need no laboring; but the sciences of plant life come into the picture at such unexpected but important aspects of public affairs as improvement of water supplies, soil erosion control, preservation of beaches, and even diseases that threaten the supply of fish for breakfast.

THE ELIMINATION OF NOISE

Englishmen hate noise; and Britain is going to do something about it according to Dr. George W. C. Kaye, chairman of the Acoustics and Noise Committee of the British Standards Association and of the Noise Investigation Committee of the Ministry of Transport.

British architects and construction engineers are paying increasing attention to sound-proofing buildings and industrial engineers are devoting more study to eliminate noise at its source. The past few years in Great Britain have seen a concerted attack on the problem.

He described the history of the "phon," a new unit for the measurement of noise, and reported that its standardization came in "the nick of time to meet the present demand for noise abatement." Typical of British efforts to quiet a nation are methods adopted to cut down the noise in London's Underground, or subway. Asbestos-faced shields now line the tubes to within a few inches of clearance of the wheels. They absorb the roar of the wheels as they pass over track irregularities and rail joints. In addition, rail-grinding cars to smooth the rails have been installed. England's first noise abatement ordinance, Dr. Kaye recalled, dates back to the

times of Good Queen Bess, when "sounding of horns and beating of wives" was prohibited after nightfall.

The Use of Oil Emulsions in Toxemic Conditions

Deadly poisons released into the blood can be robbed of much of their viciousness by the injection of a very finely divided oil-and-water emulsion, according to Drs. A. C. Frazer and H. C. Stewart. "The administration of finely dispersed oil-in-water emulsion in toxemic conditions modifies the course of the disease to a marked degree. . . . In the administration of vaccines and similar preparations the toxic reaction obtained with large doses can be avoided with emulsion prior to injection."

Outside the body, the same kinds of oil-in-water emulsions have been used experimentally to de-toxify bacterial toxins and even cobra venom. Ordinarily lethal doses so treated and then injected into guinea-pigs failed to have the expected deadly effect. Drs. Frazer and Stewart explain the de-toxifying powers of their emulsions as due to "adsorption of the toxin at the oil-water interface."

Ingenious Devices of the Color-blind

Dr. Mary Collins, of the University of Edinburgh, in the course of her presidential address before the section of psychology evaluated modern tests of color-blindness. Color-blind persons sometimes resort to ingenious devices for overcoming their handicap and hiding it from others. One man who worked constantly with red and black ink was embarrassed by inability to tell one from the other. His difficulties were solved when he discovered that he could make the distinction by smell. Another, who was a painter, had the much more difficult task of copying colored pictures when he was unable to tell green when he saw it. He matched the green of the foliage because he could recognize blue and yellow. He mixed the two hoping the result might match the green of the original. He succeeded. A color-blindness test was beaten by an engineer by the device of accepting as correct matches those which looked all wrong to him.

Existing tests are satisfactory for excluding those with defective color vision from most occupations. Those vocations requiring workers to distinguish between lights of red and green, such as railroads, the Navy, aviation and perhaps motoring, should use tests in which lights, and not just pigments, must be distinguished.

Night Moths

Spirits of ancestors flit about in the form of moths. This odd belief, according to Professor J. H. Hutton, is held by Fiji Islanders and also by natives of the Naga hills, in that southeast corner of Asia called Indo-China.

Head-hunters of Fiji wear the hair of an enemy's head and so do Naga head-hunters in Indo-China. In both places, if they don't want to speak right out about cutting off somebody's head, they refer to the victim pleasantly as a plantain tree. If you are poor in this world, you'll be poor in the next, so they believe in both these places, over 5,000 miles apart. And if you are stingy, stay away from these two corners of earth, for they think stinginess the world's worst fault.

With such examples as these, taken from his own experiences, and from the studies of other investigators, Professor Hutton submitted evidence to prove that natives of Indo-China long ago had some cultural connection with natives, not only in the Fiji Islands, but also with natives in the Marquesas even farther away, and natives of Madagascar far south in the Indian Ocean. He advanced the theory that migrations of cultural ideas, if not of people, took place from some island center long ago, and spread in various directions, one ending in Indo-China.

The Setting Sun

When the setting sun seems to increase portentously in size, it is not the only thing that gains by this curious illusion, Dr. Vaughan Cornish, of Manchester, told his hearers. He tried a series of sketches of the setting sun in the Bernese Alps, and found that he was drawing distant objects, also on the skyline, in about the same exaggerated proportions as the sun itself.

Glass Meteorites

Glass meteorites or sektites, a class of astro-geological objects found in many parts of the earth (though not represented in North American collections) were described and discussed by Dr. C. Fenner. Australia was the scene of an especially heavy shower in recent geologic time, which fell as glassy bulbs, so that Dr. Fenner named this particular type "Australites." Some doubt has been expressed as to the cosmic origin of these glass meteorites, but the speaker defended this theory of their nature.

THE MEETING OF THE AMERICAN ASSOCIATION OF APPLIED AND PROFESSIONAL PSYCHOLOGY

At a recent meeting in Minneapolis of the newly organized American Association of Applied and Professional Psychology, Dr. Wendell Johnson, of the Speech Clinic of the University of Iowa, reported that stuttering may sometimes be caused by the oversolicitude of anxious parents who apply the label "stuttering" to the normal repetition of words and sounds in ordinary baby talk.

Nearly fifty children, most of whom are under five years old, have been studied by Dr. Johnson in an attempt to learn how stuttering starts, and what causes it. In health and also in psychological and sociological factors, the group turned out to be normal. A few had troubles of one sort or another and something like 25 per cent. had shifted from left- to right-handedness or had done so partially, but for the most part there was nothing out of the ordinary.

For nearly all the children (90 per cent.), the "stuttering" began with an occasional and effortless repetition of sounds or with prolonged pauses and interjected "Ah's." Later these were accompanied by tension, grimaces and emotion. As a rule it was found that the "stuttering" occurred when the child was thwarted, humiliated, undecided or rebuked. Such repetitions of sound are not peculiar to the so-called stutterers, but are common among practically all young children. But in the case of these particular children, the label "stuttering," or

"defective" had been tagged on to them, perhaps merely because their parents were peculiarly sensitive to the hesitating speech. The children themselves then began to think of their speech as "stuttering" and this in turn led to additional embarrassment and additional stuttering. Thus Dr. Johnson concludes that the development of stuttering appears to be a spiral process. An originally normal hesitation, because of the attention called to it, leading to more hesitation, and it in turn to more, practically indefinitely.

Serious criticism of the new style of psychological examinations calling for a short answer or the mere underlining of words or choice of a printed correct answer was presented to the meeting by Dr. F. L. Wells, of the Psychopathic Hospital, Boston. Various types of mental tests were themselves put to a test by Dr. Wells, who gave them to two groups of individuals, one of which included men superior in economic efficiency, while the other contained those lacking in this important ability. Conventional intelligence and personality tests fail to make any distinction between the two groups. The superiority of the one group is, however, disclosed by those testing procedures which place a higher premium on "vision" or "imagination."

Why is it that men and women who are troubled with psychological problems may consult physicians, classroom teachers, eye specialists, ministers, social workers and even WPA workers, but not psychologists? That question was raised by Dr. Marné L. Groff, consulting psychologist of Kansas City, Mo. Dr. Groff believes that it is because people do not know of the services a competent, professionally trained psychologist can offer, because of the lack of professional organization of the psychologists and the lack of cooperation with physicians and because the profession has been injured by those calling themselves psychologists, but who are really quacks or persons lacking professional training.—MARJORIE VAN DE WATER.

ITEMS

SEARCHERS for new oil pools had a better "batting average" last year than they had in 1935, according to figures collected by Dr. Frederic H. Lahee, chief geologist of the Sun Oil Company, Dallas, Texas. This study, which included only true wildcats, "that is, wells drilled completely separate from producing pools," showed that these wells failed to produce only 89 per cent. of the time in 1936, as against 93 per cent. failures in 1935. With all the advances made in drilling and locating methods, there still remains a large element of risk in the business of discovering oil wells. In the case of most of the wells included in this study of the Gulf Coast area, there were some indications of possible subsurface oil, such as a dome or fault. On drilling, however, the chance of success decreased as the pay sands were found to be absent, the oil absent, or other conditions unfavorable. Even with the most improved methods of locating oil, it is difficult to predict subsurface conditions, and the risks involved in wildcatting, whether by a large oil company, or by a farmer who drills in his back pasture, are great and probably always will be.

ROBOT infra-red light beam "watchmen" are one of the new mechanisms by which highway engineers now keep a 24-hour watch on roads where changes are needed. Infra-red beams directed across the highway on to photo-electric cells now keep watch and are able to count as high as 24,000 vehicles an hour. Operation of the device costs about $150 a year compared with $5,000 for a continuous manual counter check. It consists of two short posts with cross arms, one on either side of the road. The post supporting the light source is equipped with two ordinary automobile headlight bulbs whose light is rendered invisible by filters. This eliminates any confusion which might result in night traffic. Parallel beams projected across the road and spaced 30 inches apart provide a current path to the photo tubes on the opposite post. Whenever the two light beams are intercepted simultaneously the interruption is recorded by the counting mechanism in the receiving box. At the end of each hour the printing apparatus stamps the day of the week, the time and the cumulative traffic total. If the current should fail, the time of the failure is recorded, as well as the number of vehicles counted up to the breakdown. Errors in the count never exceed 5 per cent. of actual traffic volumes, and are usually held to within 1 or 2 per cent. of accuracy. There are, however, several unavoidable sources of error, such as when two cars passing the counter in opposite directions intercept the light beams at the same time. Only one vehicle is then recorded.

SOME forty years ago a type of phonograph was invented in which the sound was recorded not on wax disks or cylinders but on a coil of steel wire or tape. That the project was attended by no great commercial success was due in part to the high speed at which the wire or tape had to be run through the device. But the idea has remained alive, according to Dr. C. N. Hicks, who describes improvements which have been made at the Bell Laboratory. The new equipment can reproduce tones up to 8,000 cycles, an octave above the top note of a piano, which is better than most phonographs of the ordinary type. A coil of tape 9 inches in diameter will run for half an hour on account of the reduced speed of the modern machine. The principal application of the magnetic phonograph is for temporary recordings. No time is required between recording and reproduction, and when a record is no longer needed it can be erased magnetically and used over again an unlimited number of times. No mechanical indentation or scratch is made in the steel tape. The recording of the sound is accomplished by means of a varying magnetic pattern in the steel.

DETERMINING the fat content of so-called "fossil" bones is one way of fixing the age of archeological discoveries, according to Dr. Josef Gangl, of the Institute of Soil Technology in Vienna. It is a lucky chance that the alterations which fatty substances undergo when buried are exceedingly slow—so slow that even for geological periods the amount may be proportional to the total time elapsed, says Dr. Gangl. The accuracy of the method is such as to allow science to fix the age of bones within one hundred years when the bones are thousands of years old.