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THE RESOURCES OF THE PACIFIC OCEAN

A BILLION dollars annually is the wealth that the Pacific Ocean should yield to man provided man takes the trouble to properly conserve and regulate the utilization of the natural resources of the sea. According to Dr. Barton Warren Evermann, director of the museum of the California Academy of Sciences, the only way in which this income from the sea can be obtained is through the restoration of the fur-seal herds of the south Pacific and Antarctic. And this is to be accomplished by an international agreement among the maritime nations of the world.

"The aquatic natural resources of the Pacific are many and enormously valuable," Dr. Evermann explained. "They consist of the marine mammals of which there are between forty and fifty species, including fur-seals, whales and sea otters; the food fishes, such as salmon, cod, herring, halibut and tuna; the invertebrates, such as oysters, clams, possessing great possibilities, and a great multitude of miscellaneous animals and plants, as sea turtles."

The aggregate annual product of these various resources can easily be made to reach fully one billion dollars, when proper fishery methods and conservation measures are enforced. The fisheries for many of these resources are carried on outside of the three mile limit where there can be no restriction except through international agreement. The result has been that many of these resources, such as fur seals, sea otters, whales and others have in many places been already reduced to commercial extinction.

In the north Pacific are three species of fur seal—one belonging to Japan, one to Russia and one to the United States. The Alaska or American herd is the most important. When the United States came into possession of this herd in 1867, there were probably 3,000,000 seals in it. Our government gave to the Alaska Commercial Company the exclusive right to kill the seals. The fur seal is highly polygamous; one male to every 40 or 50 females is all that is necessary for breeding purposes. As the young are equally divided between the sexes it is evident that for every forty males born thirty-nine are not needed for breeding purposes and can therefore be killed for their skins.

Under the lease of the Alaska Commercial Company they were able to kill about 100,000 of these surplus males every year without diminishing the size of the herd. So long as this selective killing was done the herd remained normal in size.

But in the early eighties certain people from Victoria and elsewhere discovered that they could go out in boats, intercept the seals in their return migration, and kill enough to make the business very profitable. They could not select the males for killing; the majority of those they killed were females and that meant the killing of the breeding stock. As a result, the herd decreased rapidly so that by 1912 there were only about 127,000 left. The herd had almost reached commercial extinction.

Subjects of Great Britain and Japan were the ones chiefly engaged in killing seals on the high seas, and the United States appealed to those countries to enter into a treaty with the United States by which pelagic sealing would be unlawful. To induce those countries to do that, the United States offered them each fifteen per cent. of all the seals we would kill on our islands. They accepted the offer, signed the treaty, and pelagic sealing stopped in 1912. Since then the herd has increased from 127,000, in 1912, to over 700,000, in 1924, and the government is now able to kill 25,000 to 40,000 surplus young males every year worth from one to two million dollars annually. This shows how rapidly a once dwindling resource can be restored under proper international agreement.

In the southern Pacific and the Antarctic are remnants of more than a score of fur-seal herds which have long been commercially extinct, but which can be restored to vast commercial importance as has the Alaska fur-seal herd.

THE DESTRUCTION OF WILD ANIMALS

THE struggle of man with nature and civilization's consequent advance is wiping out many small and microscopic plants and animals just as it has meant death to the buffalo, the carrier pigeon, the fringed gentian, the moccasin flower and dozens of other animals and plants.

As the result of a survey, Dr. Henry B. Ward, of the University of Illinois, has found that the destructive activities of man affect the minute organisms which form the fundamental food supply of larger forms.

"In connection with the extensive and in part unavoidable destruction of breeding and feeding grounds to provide for the improvement of the land and the maintenance of a larger population," said Dr. Ward, "is added a little appreciated but exceedingly pernicious influence. Aquatic organisms of all sorts are affected by the extensive pollution of streams and lakes by city sewage and manufacturing wastes. Once that the public is educated to a comprehension of these unnecessary losses, it will insist upon the proper care of such wastes at the source."

The irrepressible conflict of a growing civilization with a rich fauna shows many changes that were unavoidable and includes also much wanton destruction of valuable natural resources.

The early records of pioneers and explorers portray vividly the marvelous richness of the North American fauna. Multitudes of wild mammals on the land, birds in the air and fish in the water furnished a varied food supply for settlers that did not disappear in many regions until fifty years ago. The total extermination of some species and the impending destruction of many others

forces consideration of the proper methods for the conservation of our biological resources.

The magnitude of the interests involved is demonstrated by the present-day value. The game is almost gone. The fisheries, already greatly depleted in many regions, are threatened with early destruction in the absence of better control. Legal measures to limit the destruction of wild animals deserve more careful consideration and more strenuous enforcement. Such measures should be based upon adequate knowledge of the life history and breeding conditions favorable to the species. Maintenance of government hatcheries constitutes a partially effective correction for the heavy tax laid upon native fishes by commercial fisheries.

Our national parks serve the purpose of preserving in native purity unique examples of the American wilderness. As national museums, they will exhibit to posterity native wild animals under primitive conditions. Their preservation from the encroachments of commercialism is a debt we owe to future generations, and deserves the unqualified support of all true Americans.

THE EARTHQUAKE OF JULY 7

THE severe earthquake recorded by seismographs in various parts of the world on Tuesday morning, July 7, at about 9: 15 A. M., eastern standard time, was under the Pacific Ocean, about a hundred miles west of the southern tip of Lower California. This announcement was made by Commander N. H. Heck, chief of the Division of Terrestrial Magnetism of the U. S. Coast and Geodetic Survey, and in charge of the survey's earthquake investigations. Determination of the position was made possible by reports sent to Science Service from seismograph stations at Georgetown University, Washington, the Dominion Observatory at Ottawa, Canada, and the Coast and Geodetic Survey's station at Tucson, Ariz.

Commander Heck stated that there was close agreement between the three reports, so that he placed the epicenter, or the point of maximum violence, of the quake at longitude 112 degrees West and latitude 22½ degrees North. The vertical tremors seem to have been most marked. Probably there is no connection between this tremor and the Santa Barbara quake. The charts of the ocean bottom, made from soundings by the survey, indicate that there is a deep narrow trough at this point parallel to the coast. It is at such places that submarine earthquakes usually occur.

PLANETS IN JULY

THE five "naked eye" planets, Mercury, Venus, Mars, Jupiter and Saturn, in the sky at one time is the stellar feature of the July program on the celestial stage. They will be best seen towards the end of the month. Then, on the twenty-eighth, Mercury will be at the greatest distance from the sun, when it is best seen from the earth, and for a few days before and after it will be low in the western sky just after sunset.

Mars is getting into a poor position. It can now be seen in the western sky in the evening, in the constellation of the Lion, but at the end of the month it will set at 7:30 P. M. Venus is becoming more prominent. It occupies a conspicuous place in the western evening sky, and its brilliancy distinguishes it from the others.

Jupiter was at opposition with the sun on the tenth when it was visible all night. On account of its brilliancy, it could be seen while still very near the horizon, and then it has a distinctly red appearance. This is due to the great amount of the earth's atmosphere that its light has to pass through. If you look at Jupiter through a small telescope the moons are readily apparent. Galileo, who discovered them, used a telescope which was optically inferior to a good pair of opera glasses, and even with binoculars their daily motion around the planet may be observed.

Saturn, finally, is directly south about eight o'clock, and appears to the naked eye like a bright star. The ring system, which sets this planet in a class by itself, is now opening out. A few years ago we were right in their plane and could therefore see them edgewise only. To see these rings, a telescope magnifying at least thirty diameters is necessary.

THE ELECTRIC NEEDLE IN SURGERY

DELICATE electric needles that part the tissues before they actually touch them and render surgery less painful and dangerous are to replace in large measure the gleaming array of scalpels and other sharp instruments that have always been thought of as the badges of the surgeon's profession. This is the prophecy of Dr. Howard A. Kelley, one of the leading surgeons of Baltimore and for many years prominent in Johns Hopkins medical circles.

Dr. Kelley has developed his instruments and technique to the point where, in his own practice, he has already relegated the scalpel to a secondary place, using the needles for almost all his more important work. Among the advantages he claims for the new method are that it causes less pain and less bleeding, necessitates less handling of the body tissues with the fingers, and is followed by more rapid healing. The path of the needle through the flesh is self-sterilized, he states, so that there is less danger of operative infection.

Dr. Kelley cautions, however, against over-confident use of the new method by inexperienced persons. "These methods are not to be learned completely in a week or a year," he says. "They call for careful attention to a new technique, for discriminating judgment in their application and for increasing boldness with a growing experience. The concept is a new one."

TREATMENT OF LUPUS

AN electrified mixture of pulverized microbes and iron filings for the cure of exterior tuberculosis, such as lupus, tuberculosis adenitis and the like, was presented to the Paris Academy of Science, June 22, by Professor Charles Richet. The process is the invention of Dr. Arthur Grimberg, and has been tested on over 250 patients. It consists essentially of a colloidal extract of the Koch bacillus, injected under the skin of the sufferer.

The microbes are the base of the preparation. The iron filings are used in breaking them up. By placing a culture of these bacilli in a tube together with iron filings, and subjecting them to a variable electromagnetic current, they are broken up into a very fine powder-like condition, and brought into solution in the form of a colloidal mixture which will circulate in the blood vessels of a human being and react on the infected parts.

Dr. Grimberg and his assistants report results as being unusually encouraging. The normal treatment is two subcutaneous injections daily. From the number of patients treated, 54 per cent. of complete cures have been registered; 26 per cent. of ameliorated cases and 20 per cent. of at least temporary checks of the progress of the disease. The latter group, it is said, all gave up the treatments for one reason or another before any permanent result could have been had. The greatest number of cures was had on the soft-lesion type of malady, such as glandular tuberculosis.

Many of these patients on whom the tests were made had been operated on one or more times without success, or had made long trips for cures. They all reacted promptly to this treatment, and the average case required only from 15 to 20 injections for a cure.

The treatment is being studied by the leading physicians of Paris, and in fact many of the tests were made in the clinics of the big hospitals. A large number of successful cures were presented to the Société de Chirurgie by some of the leading members, who had made the tests personally in their clinics.

PROPAGANDA BASED ON PSYCHOLOGY

POLITICS, religion, peace and other important public interests, as well as soap, automobiles and the like are constantly being "sold" to the public mind, says Dr. Knight Dunlap, professor of psychology at the Johns Hopkins University, in his latest book, "Social Psychology," which will appear soon.

Successful propaganda which is used in selling to the public mind is based on simple psychological principles, according to Dr. Dunlap. The use of logical arguments, the appeal to fundamental human desires, simple suggestion and repetition are employed in putting over propaganda. The principles of propaganda as it is used to-day by agencies of all sorts may be reduced to definite rules, well known to the propagandists, which every one to whom propaganda is directed should learn to recognize:

If you have an idea to put over, keep presenting it incessantly. Keep talking or printing persistently. Avoid argument generally. Don't admit that there is another side to the question and avoid arousing any associated ideas except those which are favorable. Reserve argument for the small class of people who depend on logical processes, or as a means of attracting attention of those with whom you are not arguing. Connect your idea in every possible way with the known desires of your audience. Remember that desires are more often the basis of the acceptance of ideas than logic. Make your statements clear enough to be understood by your audience. Use direct statement only when you are sure that a basis for acceptance has already been established; otherwise use indirect statement and implication. Use direct statement in such a way that your audience will take it in, but not think too much about it. For lasting results, aim your propaganda at children and mix it with your teaching.

ITEMS

CARBON monoxide and carbon, two of the principal constituents of automobile exhaust, form a large part of the tail of Tempel's Comet, discovered by J. Stobbe, of the Bergedorf Observatory, Hamburg, Germany, and now approaching the earth on one of the periodic visits it makes every five and one half years. The presence of these gases and of cyanogen, even more poisonous than carbon monoxide, has been shown by photographs of the spectrum made at the Yerkes Observatory. This was announced recently by Dr. Edwin B. Frost, director of the observatory. In spite of the poisonous nature of the comet's tail, no alarm need be felt by residents of the earth, for in August, when it will be closest, it will still be over a hundred million miles away. "It probably will not be visible to the naked eye even then," says Professor Frost. Observations of the comet by Dr. G. Van Biesbroeck with the 40-inch telescope of the observatory have shown it to have a bright nucleus and a tail about three minutes of arc in length. On June 19, its position was eighteen hours and twenty-seven minutes in right ascension and one degree south in declination, in the constellation of the Serpent. It is moving towards the southeast with a speed of about a quarter of a degree daily.

HOW long does a fish live? Major F. S. Fowler, in a recent lecture before the London Zoological Society, gave some interesting data on a special study he has just conducted on this subject. An electric eel in the London Zoo, it was reported, lived 12 years. A European catfish in the private aquarium of the Duke of Bedford now is 50 years old and shows little indication of weakness. Other fish age figures given by Major Fowler were as follows: carp, 13 years; mirror carp, 24 years; gold fish, 12 years; golden orfe, 29 years; dole, 8 years; sterlet, 38 years; herring, 4 years; fire bellied toad, 11 years; salmon, 3 years; brown trout, 6 years; thunder fish, 21 years; bull frog, 15 years; Natterjack toad, 13 years; tree frog, 14 years; female Spanish newt, 18 years; giant salamander, 52 years.

CHINESE children only get half the calories American children get but the two nationalities probably have different "normals," says Dr. John Hammond and Hsia Sheng after studying the diet and physical development of ninety-six Chinese boys of lower middle class. Height and weight were below American standards. The Chinese diet was very low in protein and fat and correspondingly high in carbohydrates, but the whole experiment suggested that a very real difference exists in the efficacy of metabolism or utilization in the two groups. Because of economic necessity, it is stated, the Chinese may have developed a diet of such a combination that there is a maximum utilization for a minimum intake.