

MC 56.1.104.A

A WINDOW OPEN ON THE WORLD



# Courier

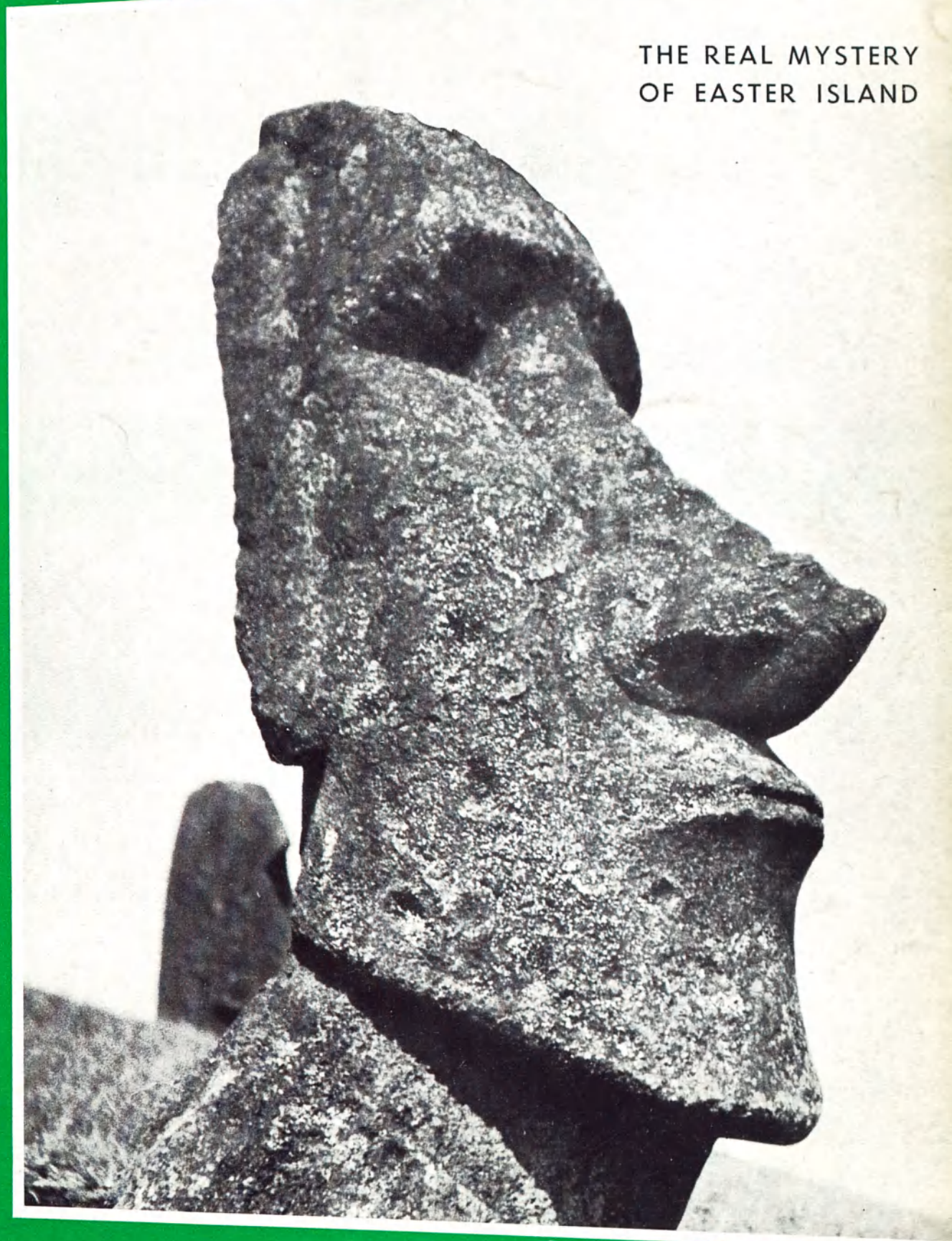
JULY - AUGUST

1956

(9th year)

Price : 9d. (U. K.)  
40 francs (France)

THE REAL MYSTERY  
OF EASTER ISLAND



Witch-doctors  
and  
psychoanalysis

★

Unique jungle  
'music box'

★

Violins taxed  
by the kilo at  
the frontier







**' NO ADMITTANCE '**

A great many countries continue to hurt themselves and their people by import duties on educational, scientific and cultural materials. Duties are prohibitive on every kind of scientific equipment, from test tubes and measuring spoons to cyclotrons, a famous biophysicist recently said. Countries fighting illiteracy and trying to industrialize have barriers against books and teaching aids. Regulations are complex, troublesome and often illogical. Unesco has been working to abolish duties on a wide range of such materials. (See story on page 25)

(USIS)

**CONTENTS**

PAGE

- 3 EDITORIAL**  
By Alfred Metraux
- 4 NO 'HOCUS POCUS' IN THE MEDICINE MAN**  
By Erwin Ackerknecht
- 5 CURARE: DEADLY KILLER TURNED HEALER**
- 8 WITCH DOCTORS AND PSYCHOANALYSIS**  
By Claude Lévi-Strauss
- 9 'POSSESSION' DANCES**  
A treatment for mental illness
- 11 AS THE CARTOONIST SEES IT**
- 12 UNIQUE JUNGLE 'MUSIC BOX'**
- 14 THE REAL MYSTERY OF EASTER ISLAND**  
By Alfred Metraux
- 18 CHAMPION EXPLORERS OF THE VAST PACIFIC**  
By E.G. Burrows
- 22 CIVILIZATIONS OF GOLD AND COPPER**  
By Paul Rivet
- 25 VIOLINS TAXED BY THE KILOGRAM**  
Knowledge blocked at the frontier  
By P. Soljak
- 30 THE SCHOOL BEYOND EBOLI**  
By J. Marabini
- 33 FROM THE UNESCO NEWSROOM**
- 34 LETTERS TO THE EDITOR**



Published monthly by  
The United Nations Educational, Scientific and Cultural  
Organization

**Editorial Offices**  
Unesco, 19 Avenue Kleber, Paris 16, France

**Editor-in-Chief**  
Sandy Koffler

**Associate Editors**  
English Edition : Ronald Fenton  
French Edition : Alexandre Leventis  
Spanish Edition : Jorge Carrera Andrade

**Layout & Design**  
Robert Jacquemin

**Circulation Manager**  
Jean Groffier  
U.S.A. : Henry Evans



Individual articles not copyrighted may be reprinted from THE UNESCO COURIER but must be accompanied by the following credit line: "Reprinted from UNESCO COURIER". Signed articles reprinted must carry the author's name. Prints of non-copyright photos are available on request. Unsolicited manuscripts cannot be returned unless accompanied by an international reply coupon covering postage. Signed articles express the opinions of the authors and do not necessarily represent the opinions of Unesco or those of the editors of THE UNESCO COURIER. Annual subscription rates of THE UNESCO COURIER : 8/-; \$2.50 or 400 French frs or equivalent.

(MC. 56.1.104 A)

COVER PHOTO



Giant statues with deep-set eyes and forbidding expressions dot the bare slopes of Easter Island. For nearly two centuries an aura of mystery has surrounded the island and its statues, but the real mystery of this "speck in the Pacific" does not lie in the monuments carved in stone. See story page 14.  
A. Metraux, copyright Bishop Museum, Honolulu.

By one of those contradictions which the human mind readily accepts, peoples described as "primitives" or as "savages" are often hailed for their remarkable scientific knowledge. They are said to possess secret formulae which are far more effective than anything used by modern chemists or doctors. Those who despise primitive peoples yet speak with awe and admiration of their almost supernatural knowledge, often display an exaggerated naivety and credulity, but they are actually closer to the truth than others who deny that primitive peoples possess any science worth knowing about.

The Indians of South America may not have any "miracle drugs," but it was they who discovered the qualities of chinchona bark, of coca leaves and of the lianas from which they make curare. The conquest of the tropics by the white race would have been impossible without quinine; the role of cocaine in modern surgery is known to all. As for curare, an extraordinary poison which acts on the nervous system, this is being put to ever greater uses in neurology.

These three discoveries are indicated merely as examples of our debt to the so-called primitive peoples, but the list could be greatly extended if we considered other fields and other parts of the world. It was also the "savages" of the Amazon who revealed to the world the wonderful qualities of rubber and who first made practical use of them. For long the methods used to transform latex from the *Hevea* tree into rubber were those of the Indians. Let no one say that these were accidental discoveries and not the result of scientific enquiries. To extract curare from *strychnos toxifera* called for many long experiments and for qualities inherent in the true scientist: a keen sense of observation, patience and the urge to experiment.

Is it necessary to remind those who, when speaking of the Indians or of the peoples of Oceania, refer to them as "savages" that these same men succeeded in mastering their environment and that they possess an empirical science in agriculture which agronomists are quick to praise and to draw inspiration from.

Biologists have not always admitted the debt they owe to "primitive" peoples who have made available to them observations of the greatest precision and accuracy. It is of course natural for a man who lives by fishing and hunting to know the habits of his quarry down to the last detail. Yet if in this respect "primitives" are valued aides for the scientist it is also true that their ideas on the development of living things are just as fantastic as those of the naturalists of antiquity and even those of the Renaissance. But their credulity and naivety are no greater than those shown by the ancient Roman naturalist, Pliny the Elder.

This issue of The UNESCO COURIER devoted in part to aspects of "science among primitive peoples" may in a small way serve to remind those concerned with the education of "primitives" that they are not dealing with backward or ignorant minds and that those to whom they are today bringing the rudiments of Western science are themselves capable of teaching lessons in many fields.

Let us remember too that the death of the "primitive" civilizations which so many people advocate in the name of progress, will also see the vanishing of much knowledge that is not without significance for our own civilization.

**Alfred METRAUX**

# NO 'HOCUS POCUS' IN THE MEDICINE MAN

by Erwin H. Ackerknecht

THE activities of the primitive medicine man are brushed away by the average individual as "hocus pocus". This, of course, they are not. They are actually magico-religious rituals which always and in all places must appear grotesque to those who do not believe in the premises of such a ritual. They are based on the idea that disease is in most cases not produced by natural forces, as it has been accepted by us for the last two and a half thousand years, but by such supernatural agencies as spirits, gods, ghosts and sorcerers. These forces have been provoked by the patient or one of the members of his family through actions contrary to the moral code of the tribe. The supernaturals will attack by injecting mysteriously disease-producing magic substances or spirits, or by abducting the soul of the patient.

It is quite logical that our methods of diagnosis, based on observation of the patient, could not reveal such supernatural causes, and that the primitive diagnostician therefore has to rely on the supernaturalistic techniques of divination by trance, dreams, crystal-gazing, bone-throwing, etc. It is equally logical that therapeutics have to consist primarily of rites to force out spirits, placate ghosts and gods, and hunt up displaced souls. Such aims are best achieved by incantations, spells and prayers, accompanied by singing and dancing.

## Effective psychotherapy

It is obvious that from the biological point of view—which is ours in the case of disease—such practices are absurd and devoid of meaning. This does not mean that they are devoid of any meaning. They are, for instance, quite meaningful from the psychological and psychotherapeutic point of view. As this aspect of primitive medicine is the

subject of a special article in this issue (see page 8), I can be quite short on it here. Suffice it to say that the two main mechanisms of our own psychotherapy, suggestion and confession, are used extensively. By the very fact that disease is made meaningful in terms of the world view of the afflicted and that the medicine man now substitutes for the patient in fighting evil powers, anxiety is dispersed, faith is established, energies are mobilized and psychological, and therefore physiological, relief is obtained. It is beyond any doubt that many of the undeniable successes of primitive medicine men (like those of modern doctors) are due to unconscious but effective psychotherapy.

## This season's 'miracle drug'

IN addition, the magico-religious ritual of the medicine man contains at closer scrutiny numerous elements which will account for success beyond psychotherapeutic factors. In the course of such rituals, whether they take place in the African bush, the South American forest, or among the Navaho of arid Arizona, magic potions are imbibed, which very often contain highly effective drugs, and magic manipulations and purification rites are performed, which correspond largely to our own physiotherapy.

It so happens that the "miracle drug" of this season, serpasil, so beneficial in high blood pressure and mental disease, is not a synthetic drug, like some of its predecessors (the arsenicals, or the sulfa-drugs), but is derived from a plant, *Rauwolfia serpentina*, which, for decades, medical missionaries in Africa had vainly pointed out to western pharmacologists as a very effective drug of primitives.

Serpasil is only one of many drugs of primitive origin which play an important role in our present-day pharmacopoeia. We mention here only such dramatically effective specifics as strophanthine, the heart drug; emetine, used in amoebic dysentery; and picROTOXINE, the stimulator of respiration in barbiturate poisoning. Cocaine and quinine once came from

Peru. It would be useless to enumerate here all the effective emetics, purgatives, expectorants, and diuretics known to be used by primitives.

It is quite obvious that besides useless substances, as they occur in all pharmacopoeias, even in our own, primitive pharmacopoeias contain a surprising percentage of effective drugs in spite of the magic ideas which govern their use. The Spanish conquerors of the 16th century were sufficiently impressed by the drug lore of the Indians to organize research in this field. Modern science has stood aloof from such studies among the "superstitious heathen" for at least a century. But lately, pharmaceutical industry has been sufficiently impressed by the potentialities of such studies to spend a considerable amount of money for research on primitive drugs. We have no doubt that from those studies will come forth further evidence of the amazing and surprising knowledge of effective drugs possessed by primitive peoples. How they acquired this knowledge (they do not use our inductive methods, and would in any case have had a very hard time to do so) is another problem, which so far has not been solved, and whose discussion is outside of the limits of this article.

## Sweatbaths and drycupping

DRUGS are not the only effective therapeutic agents primitives use. During their rituals, physical agents of known value like baths of all sorts (including sweatbaths), massage, sucking (or drycupping) are frequently and successfully applied. Except for sucking which we have given up, we still practise them all.

Primitives are less active in the field of surgery than they are in drug treatment or physiotherapy. This is partly due to irrational attitudes, especially fear of mutilation, which is used by them rather for punishment or ritual than for treatment. But this is also due to technological backwardness which till a hundred years ago made even the practice of the Western

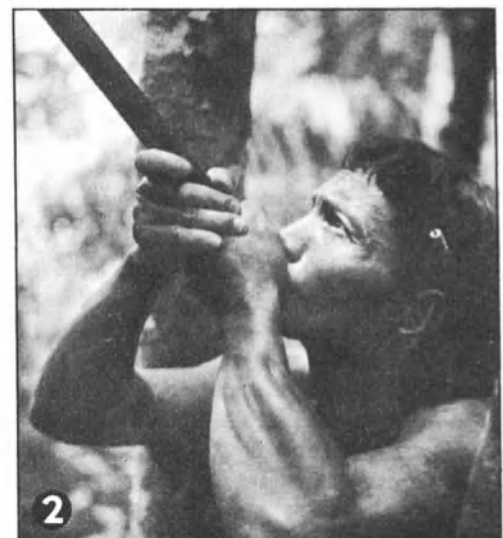
(Cont'd on page 7)

Dr. Ackerknecht is Professor and Chairman of the Department of History of Medicine at the University of Wisconsin, U.S.A. Previously he was a Research Fellow at Johns Hopkins University, New York (1941-1944) and Assistant Curator, American Museum of Natural History (1945-1946). He is currently engaged in research on medical pathology, including the psychopathology of primitives.



## CURARE: DEADLY KILLER TURNED HEALER

Among the many drugs and compounds known to primitive peoples and which modern science has found dramatically effective in medicine and surgery, one of the strangest is curare. Preparation of this deadly poison is still a closely guarded secret of primitive tribes at opposite ends of the earth—Amazon Basin and Borneo. Both Indians in South America and Dyaks in Borneo use blow-pipes for hunting, though the velocity of the darts they fire is not sufficient to inflict fatal wounds. For many years these people have known that a dart smeared with curare paralyzes its victim and brings rapid death to any animal or bird it strikes. The knowledge that curare blocks nerve impulses and produces muscle relaxation has been put to use by modern medicine and surgery. The curare though has first to be refined and its dosage carefully controlled. Some of its specific uses: to produce muscular relaxation during surgical operations, to eliminate muscle pull in treatment of fractures and dislocations; to relieve spastic paralysis and to prevent convulsions being caused during electro-shock treatment sometimes given to mental patients.



Photos on this page and overleaf illustrate the use of curare in Borneo where Dyaks still manufacture and use blow-pipes to shoot death-dealing darts at jungle game. (1) Between the leaves of a giant jungle fern, a hunter spots a monkey. (2) A short, sharp puff and the dart shoots out so swiftly that it cannot be followed in flight. (Cont'd on next page) *Photos copyright A Martin*



**CROSS-LEGGED** on platform, Dyaks take turns piercing tree trunk, which takes about five days. With metal spike held in wooden handle they strike base of trunk with slow up-and-down movement. As they hollow out centre, they pause now and then to make sure trunk has not moved from vertical position. When finished, blow-pipe will be about 8 feet long, roughly diameter of a horizontal vaulting bar and will be pierced by hole 1/5 th of an inch across. With blade attached it becomes a spear. South American blow-pipe (sarbacan) consists of two parts held by bark strips.

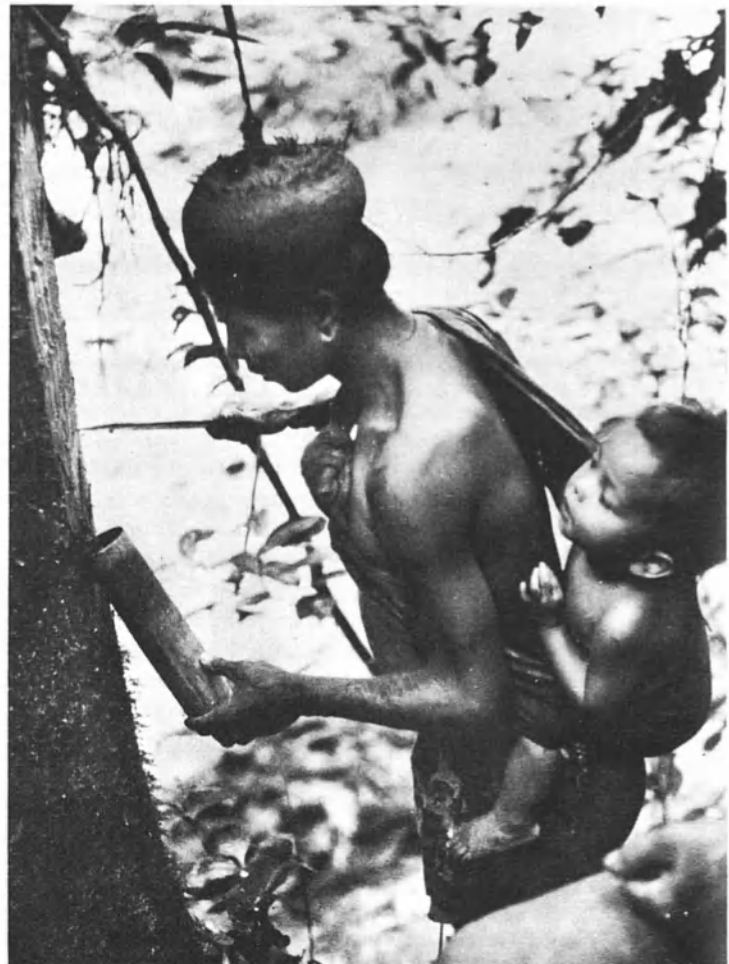


All photos copyright A. Martin

**'COAT OF MAIL'** worn by this old Dyak is a jacket of vegetable fibres which serves as protection against poisoned darts. In Borneo, as in South America, the preparation of curare is the privilege of certain tribes. Witch doctors alone know the secret of its composition. They surround it with mystery and perform intricate magic rites as they mix an amazing number of ingredients. After simmering for two days it is shaped into sticks which are then used for barter with other tribes. To make it malleable, the huntsman has to moisten it and then pound it with small wooden pestle.



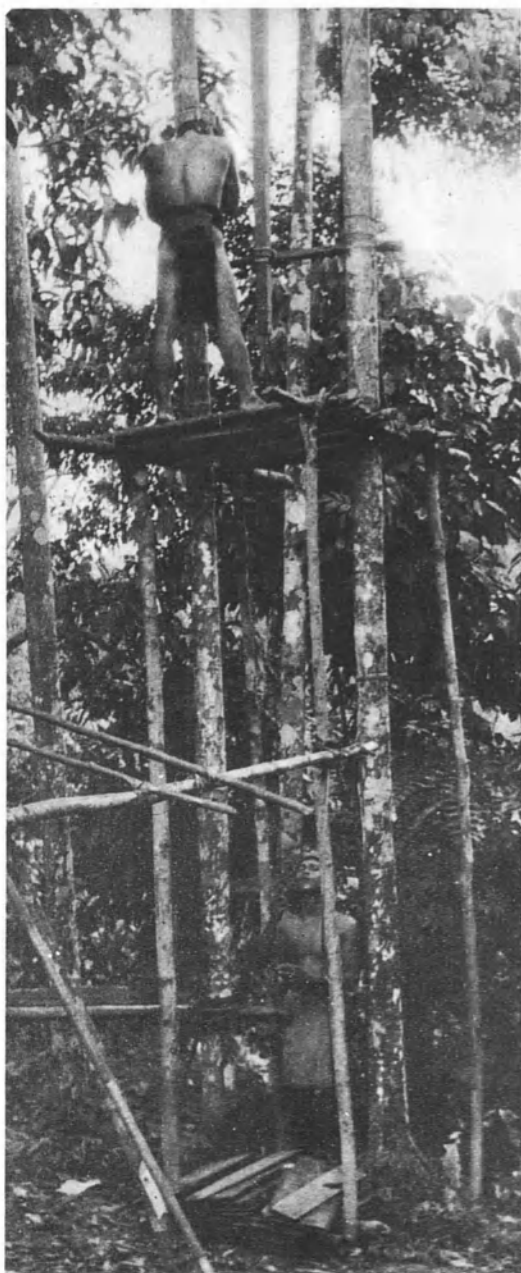
## **CURARE** (Continued)



# No 'hocus pocus'

(Cont'd from page 4)

**PRECISION** of blow-pipe is largely due to skill and care with which Dyaks pierce a tree trunk to make the tube. They first build a platform about 11 feet from the ground, then with an ingenious system of horizontal bars, they set up above the platform a roughly squared tree trunk. This will become the blow-pipe. Here, two men put in place long iron spike which is to pierce tube of blow-pipe.



**IN BORNEO**, two different kinds of curare are used—"tadjum" on small darts like knitting needles for birds, and "ipu" on darts with two barbs for bigger game. As many as 20 ingredients are used to make curare, but basis of "ipu" is the sap of the tree "antaria toxicaria", and for "tadjum", the sap from the "tadjum" tree and juice of "kaba" bark are used. Left, a Dyak collects sap from "tadjum" tree.

surgeon consist primarily of wound and fracture treatment. "Active" surgery, which to us today is the essence of surgery, is a quite recent phenomenon even in the West, appearing on a large scale only after the invention of anesthesia, a sepsis and the localistic approach in pathology. It is thus not surprising that primitive surgery is usually limited to lancing of boils, blood-letting and what seems quite effective wound and fracture treatment.

## Caesarian operations

**O**CCASIONALLY primitives have invented quite clever devices like the closing up of wounds with the mandibles of large ants whose head is broken off (Somalis, Brazilian Indians). In a few regions surgery has developed farther. The East African Masais amputate hopelessly fractured limbs and enucleate eyes. From the same region, drainage of empyema (pus resulting from pleurisy) by cauterisation of the thorax, excision of neckglands, removal of uterine polyps, and suturing of the intestine are reported. The Ellice Islanders in Polynesia use shark teeth to remove fatty tumours, the elephantiasis scrotum, tuberculous glands and old ulcers.

The most baffling aspect of primitive surgery is the successful performance of two operations, greatly dreaded by Western surgeons up to the end of the last century: Caesarian section and trepanation. The former is reported again from East Africa, the latter from several African regions, most of Oceania, and the Americas, especially Peru.

In the field of obstetrics we must admit that the more or less sitting position during childbirth, adopted in most primitive tribes, is considerably more physiological than that customary with us. Certain Eskimos and Bantus have invented, independently, incubators for premature babies, a technique developed in the West only in the second half of the 19th century.

## Smallpox inoculations

**I**T is the "superstitious" (that is magico-religious) fear of witchcraft which makes many primitives hide their excrements. Objectively such actions, however they may be rationalized, are of considerable preventive value. The same holds good of circumcision, certain food taboos, taboos against early intercourse after childbirth, fumigation,

ritual bathing, or isolation of infectious diseases. Inoculation against snakebite is practised by certain South American and African natives, inoculation against smallpox only by the latter. The South American Yuracare, Guato and Mesetene manufacture mosquito nets from bark cloth, which should objectively be of prophylactic value in mosquito-borne diseases.

As we have seen, medicine in primitive society is part of religion; it belongs to the sphere of the sacred. Primitive religion does not interpret nature on its own terms, but as if man's relations with nature were another set of personal relations. Disease-producing influences are not seen impersonally like our bacteria or glands; spirits and gods act like punishing parents, sorcerers like aggressive siblings. These explanations reflect the fact that, psychologically speaking, man, an animal with an unusually prolonged infancy, is first and foremost impressed directly not by nature, but by his social relations on which his survival primarily depends, and which he symbolizes thus in religion.

## Disease in sacred terms

**T**HAT medicine in primitive society is couched in religious terms, symbolizing society, has an unexpected and important consequence: medicine and disease acquire social meanings and social functions which they do not possess in our society. The social meaning of primitive medicine is easy to spell out: Be peaceful, and disease will spare you or go away.

Disease becomes the most important sanction against asocial behaviour; fear of disease and the witch-smelling medicine man play the role which the fear of courts, policemen, newspapers, teachers, priests or soldiers play in our society. The fact that medicine is such an important pillar of the social edifice is perhaps the most influential of all the reasons we have given in this analysis of why primitives remain attached to their medicine—and their religion.

To the extent that medicine leaves the sphere of the sacred and becomes secularized, that disease is interpreted in naturalistic, not supernaturalistic terms, it loses its social meaning and its social control function. Those who want to bring Western medicine to people who still regard disease in sacred terms, can often be more successful in adapting their practices to such sacred notions. But, as Kipling said, this is another story.

# WITCH DOCTORS AND PSYCHOANALYSIS

by Claude Lévi-Strauss

**M**OST of us regard psychoanalysis as a revolutionary discovery of twentieth-century civilization and place it on the same footing as genetics or the theory of relativity. Others, probably more conscious of the abuses of psychoanalysis than of the real lessons it has to teach us, still look upon it as one of the absurdities of modern man. In both cases, we overlook the fact that psychoanalysis has simply rediscovered and expressed in new terms an approach to mental illness which probably dates back to the earliest days of mankind and which the so-called primitive peoples have always used, often with a skill that amazes our foremost practitioners.

A few years ago, Swedish ethnologists recorded and published a long healing ritual used among the Cuna Indians of Panama in cases of difficult childbirth. In the ritual, the tribe's witch-doctor or shaman stands before the suffering mother and begins a chant-recitation, explaining that her ailment is due to the temporary absence of the soul which controls procreation. The Cuna Indians believe in the existence of a multitude of souls, each of which has charge of some particular function of life. In this particular case, the soul has been kidnapped and has been carried away to the other world by some evil spirits.

## In quest of a captive spirit

**T**HE witch-doctor tells the expectant mother that he is setting out on a supernatural quest for the lost spirit. With a rare luxury of detail he describes the obstacles he meets and the enemies he has to face, how he overcomes them by force or guile before reaching the prison of the captive soul. Then he releases the soul and induces it to resume control of the suffering body lying at his side.

This cure (we have no reason to suppose it is not successful at least in certain cases) is interesting for a number of reasons. Firstly, it is purely psycho-

---

*Professor Lévi-Strauss is director of research in religious science at the Ecole Pratique des Hautes Etudes, and Secretary-General of the International Council of Social Science in Paris. He was formerly Deputy Director of the Musée de l'Homme in Paris and was recently elected as member of the Royal Academy of the Netherlands. His latest book *Tristes Tropiques (Sud Tropics)* has had a notable success in France.*

logical; no drugs are used nor is the body of the patient touched. The witch-doctor simply recites or chants, relying on speech alone to effect his cure. Secondly, two people must participate in the treatment—doctor and patient—although, as we shall see in a moment, this does not mean that other members of the community may not be present.

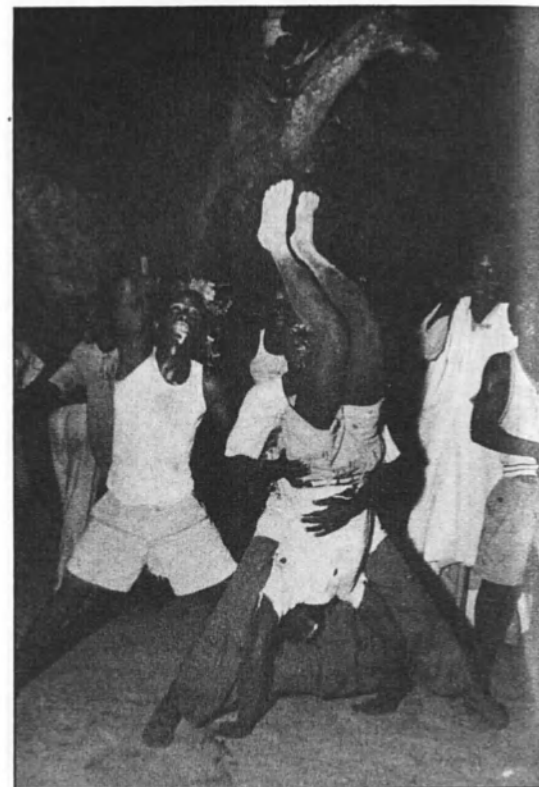
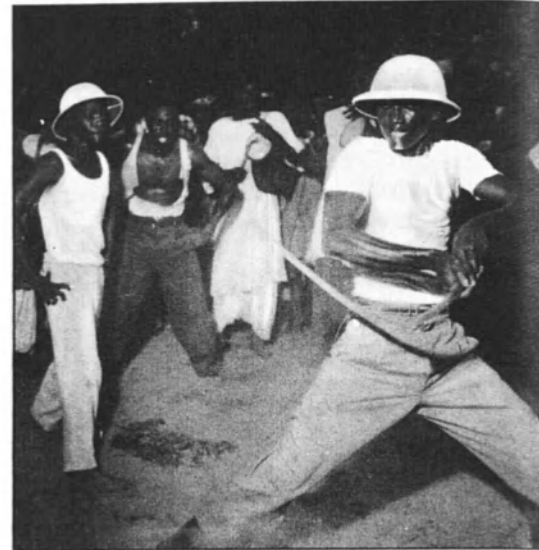
## Cures conducted in public session

**O**F the two persons, the witch-doctor, whose powers are recognized by the whole tribe, embodies social authority and order, while the other—the patient—suffers from what we should call a physiological disorder, but which the Indians attribute to an advantage gained by the spirit world over the human world. Since these two worlds should normally be allied, and since the spirit world is of the same nature as the souls possessed by the individual, the problem as the Indians see it, really stems from a sociological disturbance caused by the ambition, ill-will or resentment of the spirits that is by both psychological and social factors.

In describing the causes of the ailment and recounting his adventures in the other world, the witch-doctor conjures up for his listeners familiar pictures drawn from the beliefs and myths which are the common heritage of the whole community. Since the cures are conducted in public, the adolescents of the tribe witness them and thus gain a detailed knowledge of the tribe's beliefs.

Several of the characteristics described are strangely reminiscent of psychoanalytical treatment. Here too, illness is considered of psychological origin and the treatment applied is exclusively psychological. Because of symptoms which he is unable to control, or more simply because he is suffering from mental stress, the patient feels cut off from the community and calls in the doctor whose authority is recognized by the group, to help him to regain his place in society. The treatment seeks to induce the patient to describe events buried in his subconscious mind but which, despite the passage of time, still govern his feelings and attitude to life.

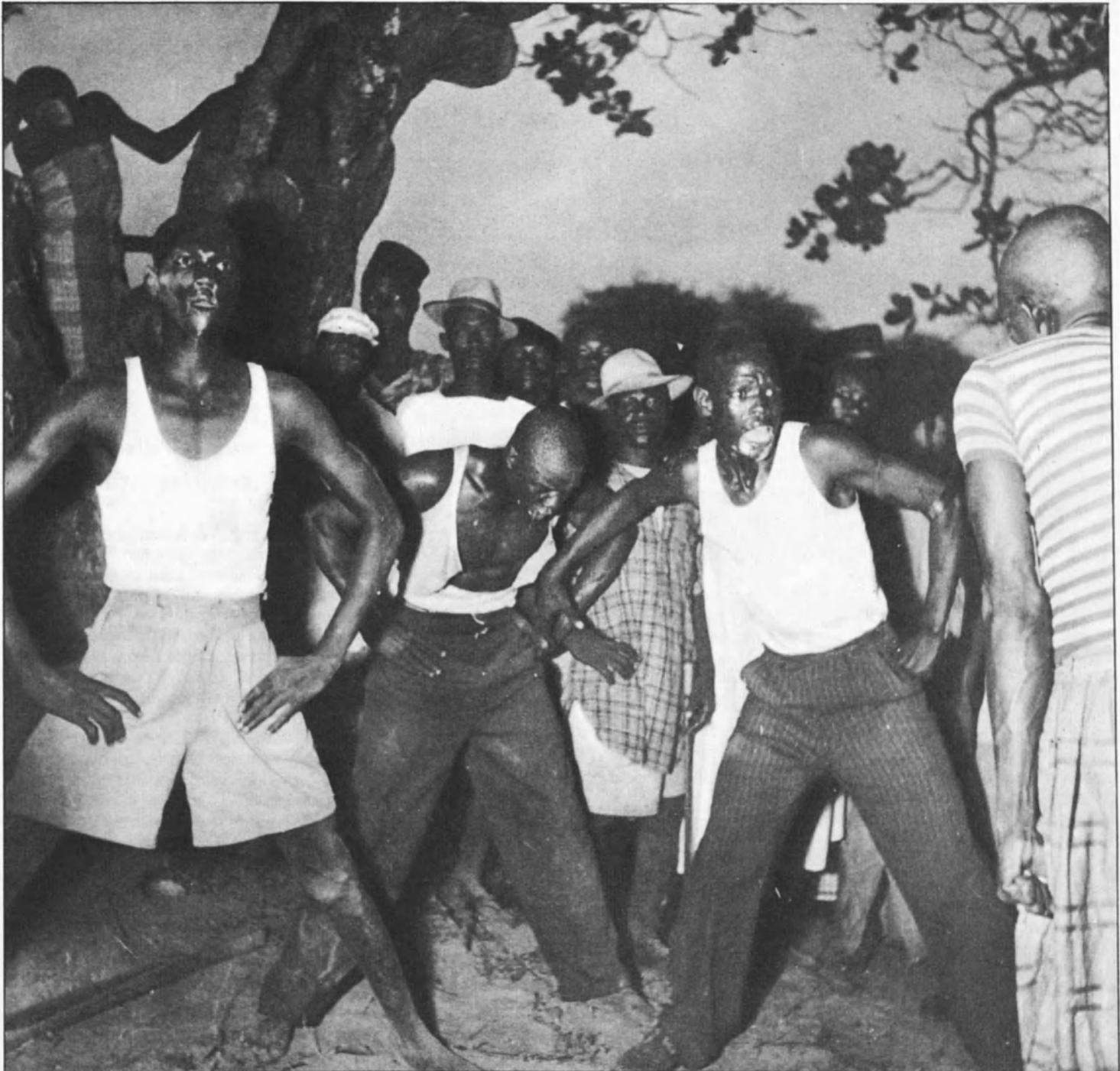
Now there are events or stories that have their (Cont'd on page 10)



## 'POSSESSION' DANCES: A TREATMENT FOR MENTAL ILLNESS

**U**P until a short time ago "possession cult" dancers were generally considered fanatics indulging in horrible excesses under a spell brought on by frenzied collective dancing. It is only in the last ten years that scientists have begun to take a closer look at the dances, particularly in the light of our knowledge of psychology and psychoanalysis, to see if they had a deeper meaning than met the eye. After a number of pioneer studies carried out in Brazil and Haiti, investigators





propounded the theory that the possession dances were release mechanisms or safety valves designed to enable the members of a group to express the subconscious desires or tendencies normally denied them in their daily life.

Now a leading French psychiatrist, Dr. Charles Pidoux, who has recently returned from two expeditions to Africa where he carried out a series of careful investigations into the matter, has come forward with a new interpretation. The possession rites practised in the Niger and certain parts of Africa, he concludes, are techniques of very ancient origin which constitute real psychotherapy applied to mental disorders which are attributed to the influence of traditional "spirits" of the jungle.

In the Niger, he explains, river and jungle spirits (called *folley*) are considered the descendants of Adam

and Eve just as human beings are, except that they are deprived of bodies. But though invisible, they are alive and must borrow the body of a person to manifest themselves. The person chosen becomes the spirit's "horse", that is, the spirit "climbs on his shoulders" and "possesses" him.

When a man or woman shows signs of mental instability or behaviour oddities, it means that one of the spirits wishes to possess his body. The individual visits a *zima* (priest and doctor combined) who, after initiation and conditioning lasting sometimes as long as a year, identifies the particular spirit and prepares the new "horse" for the dance ritual. As a result of the possession dance the individual is cured of his disorders and is enabled to resume a normal life.

Photos on this page show several

"horses" in a possession dance filmed in Africa. The men are unskilled labourers at Accra (Gold Coast) who originally came from the Niger. In the Hauka sect to which they were admitted after showing signs of psychotic disorders, the initiation lasts a year. But after being "possessed" they are cured at least for a long period, but need to attend the ceremonies of the sect every Sunday.

"Independently of their religious value and significance", writes Dr. Pidoux, "these possession rites are a rich field for studying a type of psychotherapy in which a precise knowledge of diagnosis, pathology and therapeutic action are applied with a rigour comparable to our modern psychiatric treatment. It cannot be denied that the mastery displayed is most exceptional in a domain where our own definite knowledge is so much more recent."

# TRIBAL VERSION OF PSYCHIATRIST'S COUCH

that the very recollection of them has been lost, yet, better than more recent events, they permit us to understand the nature of things occurring today. These stories are what sociologists call "myths", and it would be difficult to give a better definition of the word.

The main difference between the medicine man's treatment (as in the example of the pregnant mother above) and treatment by psychoanalysis is that in the first case it is the doctor who does the talking while in the second it is the patient. A good psychoanalyst we know, says hardly a word during most of the treatment; his role is to offer the patient a stimulus (one might almost say provocation) which the presence of another person provides, so that the patient can vent all his pent-up aggressive emotions on this anonymous "other person".

## Ready-made myth calmed mother

**I**N both cases the creation of a myth is part of the treatment. The difference is that with the Cuna the myth is ready-made, familiar to everyone and perpetuated by tradition, the witch-doctor merely adapting it to each individual case.

In the childbirth case, for example, the witch-doctor translates the myth into terms that are meaningful to the mother. This permits her to name, then understand and perhaps thereby dominate the anxieties which until then she had been totally incapable of expressing in any form.

In psychoanalysis, however, the patient elaborates his own myth. When we stop to think about it the difference is not so great since psychoanalysis reduces the causes of psychological disorders to a very small number of possible situations from which the patient can choose, but do little more. All of them deal with the patient's earliest experiences in life and his relations with his family as a child. Here too, a state of release is reached when the anxieties which the patient could not express or dared not admit are at last translated into terms of a myth which fits his particular story.

To reassure psychoanalysts and their followers, let me make it clear at once that, in using the word "myth", I am in no way implying that the story in question is either untrue or invented. Many myths are based on real occurrences but as I have already indicated, what makes a myth depends not so much on how accurately it reflects the original story or event but its capacity to give meaning to the present.

Thus it is not surprising to discover that skilled psychologists who have visited primitive societies to carry out enquiries with the most up-to-date methods of investigation, have found themselves to be on a footing of equality with the medicine man, and in some cases have even acknowledged the latter's superiority.

This was the experience of Dr. Kilton Stewart, an American psychologist who has given us a delightful account of it in his book, *Pygmies and Dream Giants* (New York, 1954). He had set off for the interior of the Philippines to study the mental make-up of the extremely primitive pygmy tribes called Negritos. His methods closely resembled those of psychoanalysis. The witch-doctors not only allowed him to do as he wished, but immediately accepted him as one of them; in fact, regarding themselves as specialists with a thorough knowledge of the techniques employed, they insisted on helping him in his studies. Dr. Stewart considers that in certain respects their psychotherapy is even ahead of ours.

I have already mentioned that the treatment administered by the shaman is given in public. Thus, all the members of the community gradually acquire the belief that any disorders from which they themselves may eventually suffer can be treated by the same methods they have so often seen used. Furthermore, since they know all the stages of the treatment in advance, they are all ready and willing to take part in it punctuating it with words of encouragement, helping the patient to marshal his memories, and displaying an infectious enthusiasm as the patient recovers from his disorder.

## Negrito therapists probe into the past

**A**S Dr. Stewart observes in this connexion, this takes us beyond psychoanalysis to one of its most recent developments, namely, group psychotherapy. One of its most familiar forms is the psychodrama in which several members of the group impersonate the characters in the patient's myth in order to assist him to see them more clearly and thus bring the tragedy to an end. This is possible only if the patient's myth itself is social in character. Other individuals can play a part in it because it is their own myth too, or to put it another way, because the critical situations in which individuals are liable to find themselves in our society are broadly speaking, the same for all.

We thus see how deceptive it is to think that the forgotten events which psychoanalysis helps the patient to bring

back to mind, are something private and personal. Even that difference between psychoanalysis and shamanistic treatment, thus disappears.

"As in Paris and in Vienna", writes Dr. Stewart, "the Negrito therapists were helping the patient to contact patterns and incidents from a long-forgotten past, painful incidents buried deep in the early time layers of the accumulated experience which made up the personality."

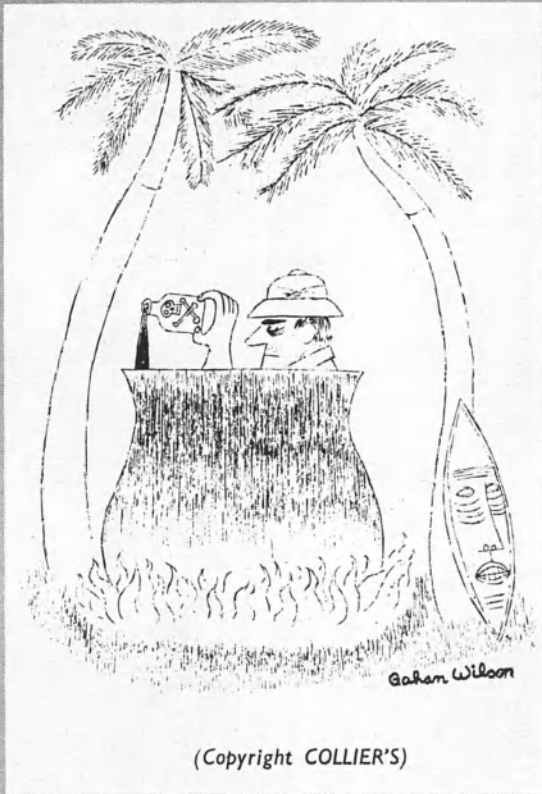
## Turn mental disorder into creative talent

**I**N one respect, at least, the primitive system seems to be more daring and more efficacious than our own. Dr. Stewart describes an experience which he might have had anywhere in the world, among any of the peoples we like to call primitives. When he was about to rouse a patient from the waking dream in which he was giving a haphazard account of incidents in his past life—conflict with his father transposed into the myth-form of a visit to the country of the dead—his Negrito colleagues stopped him. To be definitely cured, they said, the spirit of the sickness must bestow a gift on its victim in the form of a new drum beat, a dance or a song. According to tribal theory, it is not enough to remove the social inferiority attributable to the illness: it must be transformed into a positive advantage, a social superiority comparable with that which we see in the creative artist.

This connexion between an abnormal psychological balance and creative art is not of course unknown in our own theories. We have treated many geniuses, such as Gérard de Nerval, Van Gogh and others, as psychotics. At best, we are sometimes prepared to pardon certain follies because they are committed by great artists. But even the poor Negritos in the jungles of Bataan are far ahead of us in this respect, for they have realized that one means of remedying a mental disorder, harmful both to the individual suffering from it and to the community which needs the healthy co-operation of all, is to transform it into a work of art. This is a method seldom used among us, though it is to it that we owe the work of such artists as Utrillo.

We have much to learn, therefore, from primitive psychiatry. Still in advance of our own psychiatry in many respects, how far ahead it must have been not so long ago (traditions die so hard with us) when we knew no other means of treating mental patients than to put them in chains and starve them.

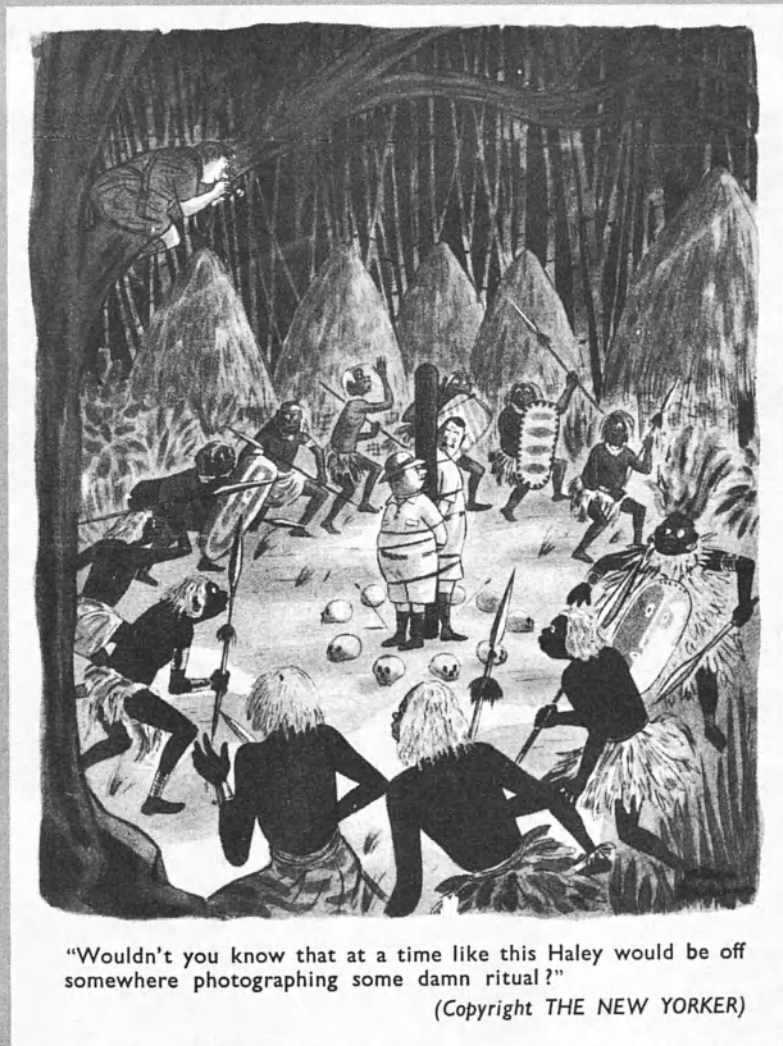




(Copyright COLLIER'S)

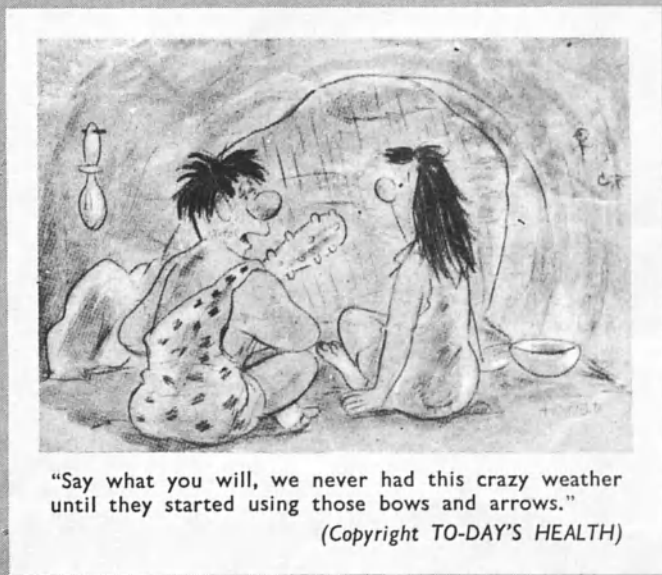


"It may be mere prejudice on my part, but personally I wouldn't care for a woman doctor."  
(Copyright THE NEW YORKER)



"Wouldn't you know that at a time like this Haley would be off somewhere photographing some damn ritual?"  
(Copyright THE NEW YORKER)

# AS SEEN BY CARTOONISTS

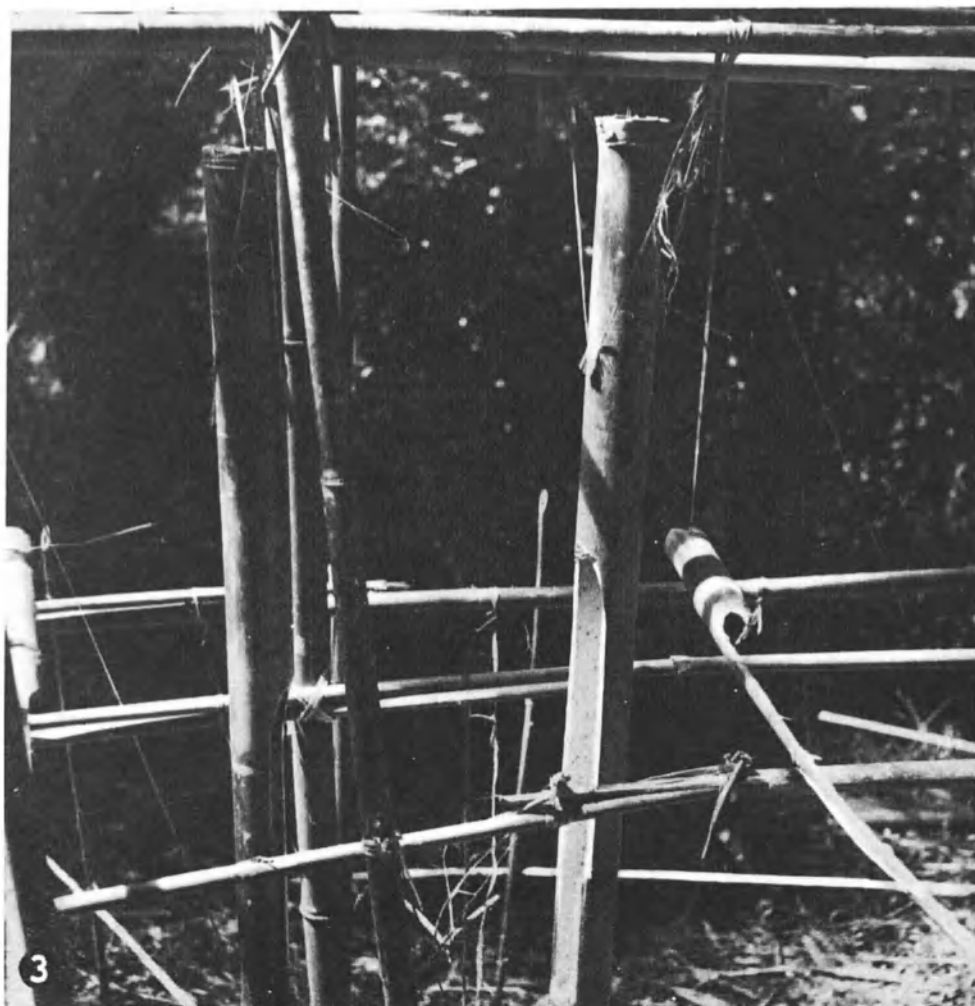
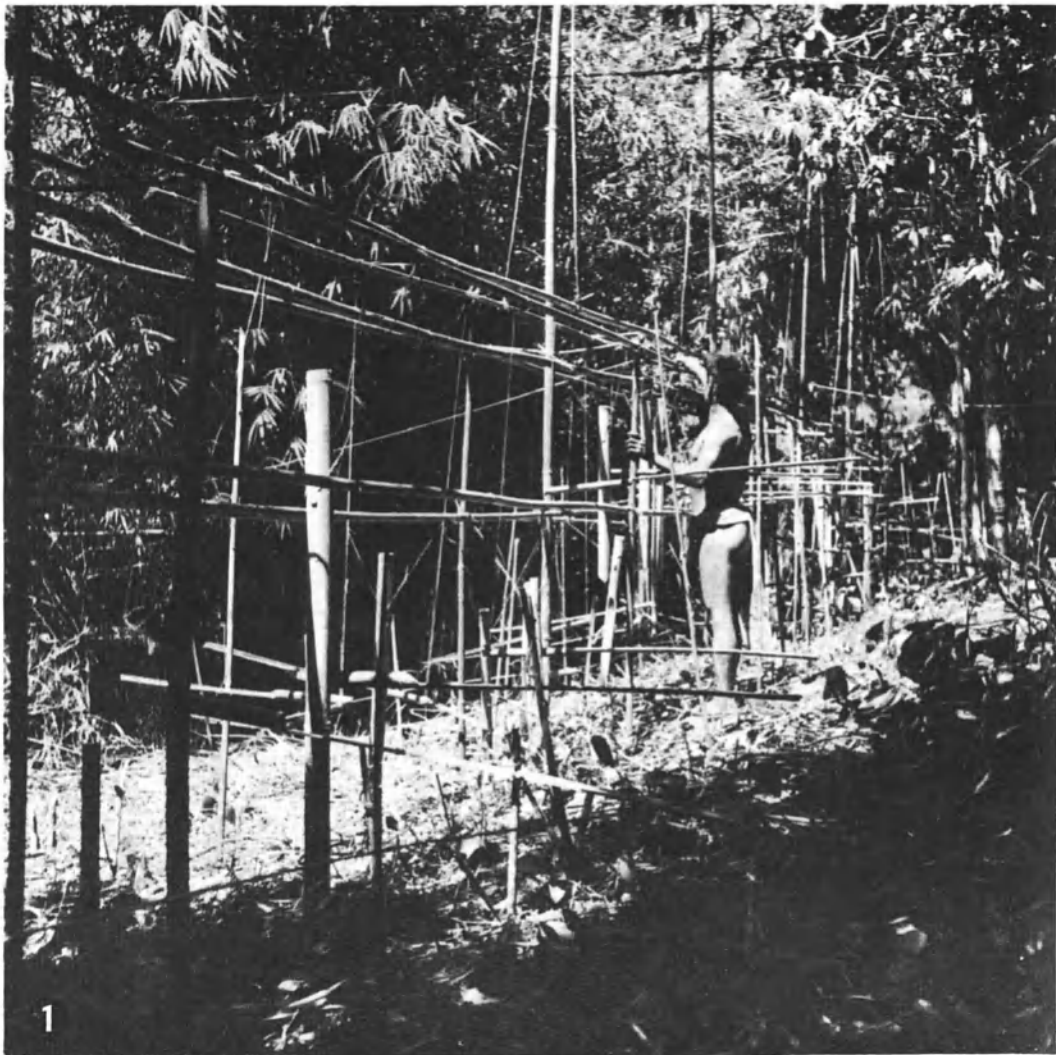


"Say what you will, we never had this crazy weather until they started using those bows and arrows."  
(Copyright TO-DAY'S HEALTH)

# UNIQUE JUNGLE 'MUSIC BOX'

*By Franz Laforest*

Photos by Dominique Lajoux,  
copyright Laforest Mission





**I**N the interior of Indo-China, isolated by the high mountains of Viet-Nam, lives a primitive people called the Moïs. Primarily farmers, their life depends on their rice crops.

To propitiate the "good spirits" of the rice harvest, one of the tribes, the Sedang, has invented a unique musical instrument, the construction of which requires considerable knowledge of music, mechanics and hydraulics.

The instrument is a giant bamboo carillon (1) actuated by running water diverted into a bamboo tube from a nearby stream (4). The continuous power supply enables the carillon to play uninterruptedly for months at a time. The Sedang are convinced that the rice spirits will be pleased by the music played in their honour and that the crop will be plentiful. They know too that the noise of the carillon will scare away animals from the growing rice.



**T**HE carillon operates only during the months of the rice season, after which it is abandoned. As the Sedang tribe chooses a fresh plot of land for rice growing each year, a new carillon playing a different tune is built.

The carillon of the Sedangs comprises 50 bamboo pipes each of a different length and thickness which are struck by 50 hammers made of bamboo. The pipes, which are sometimes as much as 150 feet in length, are suspended vertically in a framework measuring 50 feet by four feet. The horizontal hammers are held at one end by posts fixed in the ground (3). The free ends of the hammers are linked by cords to a movable frame fixed overhead, which is attached by a liana to a kind of scoop placed under the tube of running water.



**W**HEN the scoop is filled with water (4) it goes down and swings over, pulling on the cord which works the movable frame and in turn on the fifty hammers which simultaneously strike the bamboo sounding pipes. A large rock (5) acting as a counterpoise immediately brings back the movable frame to its original position. Thus a continuous movement is set up. (The blurred effect in the centre of photo N° 2 shows the movement of the hammers). Each day the "carillon master" comes to "tune" the tubes and adjust the hammers (1).



# THE REAL MYSTERY OF EASTER ISLAND

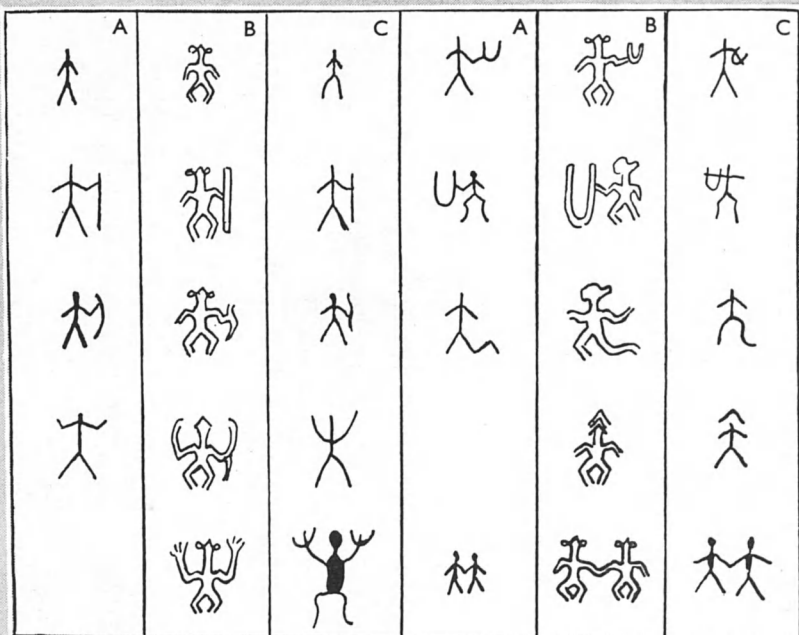
by Alfred Metraux



Photo A. Metraux. Copyright, Bishop Museum, Honolulu

**GIGANTIC STATUES** on Easter Island amazed Dutch voyagers who first saw them. Their leader, Jacob Roggeveen, wrote: "We could not understand how a people deprived of stout spars and ropes could have raised them upright." A good 300 statues may once have dotted the island but many, carved in soft stone, have disappeared. Some are over 30 feet high. Their purpose and mode of transport are still shrouded in mystery.





**STRANGE HIEROGLYPHS** have been discovered on Easter Island. Most are engraved on wooden tablets (far left) or other wooden objects such as fish (below). They depict human beings, birds, fish, plants, shellfish and ceremonial objects but so far no definitive evidence as to their meaning has been discovered.

Photos copyright Musée de l'Homme, Paris



**SIMILARITIES** between Easter Island writing and that of ancient China and the ancient Indus Valley civilization have been noted by a Viennese scholar who concludes that Easter Island writing had been transported to Pacific from Central Asia or Iran via Southern China. In columns, on left, are (a) Indus writing; (b) Easter Island symbols; (c) Ancient Chinese writing.

Drawing from "Die Osterinselschrift", by Heine-Geldern, Vienna, 1938

**E**VER since a Dutch vessel chanced across it two centuries ago, Easter Island, no more than a speck in the vastness of the South Pacific, has intrigued the world with mysteries which have so far been only partially and tentatively explained. For long the principal mystery of Easter Island lay in the colossal statues which still dot the bare slopes of the Rano-Raraku volcano and which once stood in far greater numbers like sentinels over the mausoleums along the seashore.

In my opinion the greatest "mystery" of Easter Island is not to be found in the crop of colossal statues. There is no doubt that it was the ancestors of the present Polynesian inhabitants who hewed out these statues and dragged them to their present sites, abandoning the workshops where they carved them perhaps only three or four centuries ago. However, no one has yet been in a position to give a satisfactory explanation for what appears to be a form of writing among a population still living in the Stone Age.

This writing first came to light around 1860 when the people of the island, newly converted to Christianity, sent the Bishop of Tahiti, a Monseigneur Jaussen, a long cord braided from their own hair and wound around an old piece of wood, as proof of their devotion. Looking casually at the improvised spool, the Bishop was surprised to see that it was covered with small figures, all of the same height and carefully arranged in straight lines which reminded him of Egyptian hieroglyphs. He wrote to the missionaries on Easter Island asking them to look for other tablets and to try to decipher them.

Brother Eyraud, the first mis-

sionary to go to the island, had already noticed carved wooden sticks in the huts while Father Sumböhm had picked up a fragment of a worm-eaten tablet. Seeing how interested he was in this object, one of the islanders brought him a large tablet, perfectly preserved. Since then, other tablets have been found on the island and now total 24, including one large wooden rod covered with hundreds of symbols.

At the time when the first tablets were discovered, it would probably have been possible to obtain the key



to the mystery from the surviving members of the priestly caste. The old civilization of Easter Island had only recently collapsed as a result of the raids made by Peruvian slave-traders, but there were still a few "wise men" who, had they been questioned, could have explained the meaning of the strange symbols covering these tablets.

Unfortunately, the missionaries were not skilful investigators. They questioned the islanders who, at the sight of the tablets, began to intone chants, instead of "reading" them. The missionaries treated them as frauds and lost interest in the matter after a few unsuccessful attempts.

Mgr. Jaussen, however, was more persevering. In Tahiti, he found an Easter Islander, called Metoro, who had learnt the mysteries of the

tablets under a famous master. The Bishop handed him a tablet and asked him to "read" it. Metoro turned it this way and that and suddenly began to chant. He "read" the tablet from left to right, then from right to left, without bothering to turn it round, although in each line the signs are upside down in relation to that preceding or following.

Jaussen took down the text as Metoro recited it, and his manuscript has recently been published. If each phrase is compared with the corresponding symbols, it appears that what Jaussen had taken to be a connected text is simply a disjointed succession of brief descriptions of the symbols viewed by his interpreter, and a series of isolated words or phrases suggested by those symbols. There is no logical development or general sense in the chant or recital. Mgr. Jaussen ended by losing heart himself and abandoned his efforts to get to the bottom of a mystery which he might otherwise have managed to unravel.

Other attempts were made to extract from the islanders information which might have made it possible to fathom the system underlying the symbols. On a visit to Easter Island in 1886, an American paymaster, Mr. W. Thomson, was taken to the house of an old man called Ure-Vaeiko, who, in his youth, had attended the school of the *Tangata rongorongo* (singers or bards) and had learnt to read the tablets. As it happened, Ure-Vaeiko, having become a good Catholic, did not wish to make even a momentary return to the former heathen practices, and fled.

He was recaptured one stormy night in the open country, and finally consented to "read", if not

(Cont'd on next page)

# THE REAL MYSTERY OF EASTER ISLAND

(Continued)

the tablets themselves, at least photographs of them. He had recognized them by certain details and recited their contents from end to end without a moment's hesitation. It was noticed, however, that he was not paying attention to the number of symbols in each line and, worse still, that he did not even notice it when the photographs before him were surreptitiously changed. He went happily on reciting hymns and legends until he was accused of being a fraud.

Responsibility for these lost opportunities lies, not with the islanders, who appear to have acted in good faith, but with the early investigators, who were incapable of imagining a system of writing different from their own and were bent at all costs on having the tablets "read".

During my stay on Easter Island in 1934-35, I tried to discover, in the memories of my informants, some indication, however vague or apparently insignificant, which might have put me onto the right track; but it was all useless. The people assured me, indeed, that the tablets were similar to the "cat's cradle" patterns, each of which suggests a chant to the viewer. This interpretation tallied with the attitude of the natives of the last century who, when asked to "read" the tablets, simply recited a poem or intoned a chant. I concluded that the tablets were mnemonic pictographs used in reciting the genealogies and long sacred hymns which form a very large part of the Polynesian liturgy. I was all the more inclined to this interpretation because, in the Marquesas, which are probably the original home of the Easter Islanders, the singers or bards associate their liturgical poems with small fibre pouches from which hang thin knotted cords. It was therefore possible that each symbol on the tablets represented a sentence, a line or even a stanza.

## Two script sleuths

THIS, then, was the supposition at which I arrived and which was accepted by other ethnographers. However, I have been less sure that my interpretation is correct since a letter from a German anthropologist, Dr. T.S. Barthel, suggested to me that it was something far more complicated than mere picture-writing, and that the system used by the Easter Islanders was a real script, partly ideographic and partly phonetic, employing the rebus in somewhat the same way as the Mexican and Maya scripts. It consisted of symbols indicating the general meaning of a sentence and suggesting a number of catchwords. It will be impossible to decide whether the long-standing riddle has finally been solved until Dr. Barthel's book is published, but his findings are convincing and decisive progress seems to have been made towards deciphering these texts.

No article on the "hieroglyphs" of Easter Island would be complete without some reference to the com-

parisons drawn by Mr. Hevesy, a Hungarian linguist, between certain of the Easter Island symbols and those of a still undeciphered script which has been discovered among the ruins of Mohenjo-daro and Harappa, two ancient cities of the Indus Valley where a brilliant civilization flourished some six thousand years ago.

## Link with the Lolo?

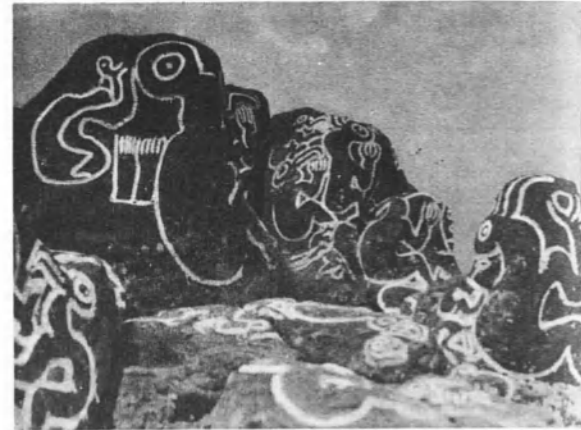
AN Austrian scholar, Professor Heine-Geldern, considers it doubtful whether there is a direct connexion between these two scripts, since the number of symbols differing is greater than that of the symbols which are similar. His archaeological research had led him to believe that the Polynesian civilizations originated in China, and it was therefore in that country that he sought the first beginning of this system of writing. Comparing the symbols of the Indus cities and Easter Island with those of the ancient Chinese writing with which we are familiar through inscriptions on shells and bones dating back to 2,000 B.C., he found that some of the symbols were common to all three scripts. He concluded that the writing of Easter Island had been transported to the Pacific by a people from Southern China, having a system of writing which must have originated in Central Asia or Iran.

Heine-Geldern has also compared the Easter Island writing with the pictographs which are still used among the Cuna Indians in Panama, while the famous prehistorian, Dr. Koenigswald, has pointed out similarities between the Easter Island symbols and certain drawings on fabrics found in Indonesia. An Argentine scholar, Dr. Imbelloni, has compared the Easter Island symbols with scripts found in Ceylon and with that of the Lolo of South China.

I think it is fairly easy to discover startling similarities between scripts of the pictographic type. The very fact that it is so easy should put us on our guard. Whatever the true nature of the symbols on the tablets, it is certain that the scribes who made them sought their models in the natural and cultural environment of Easter Island.

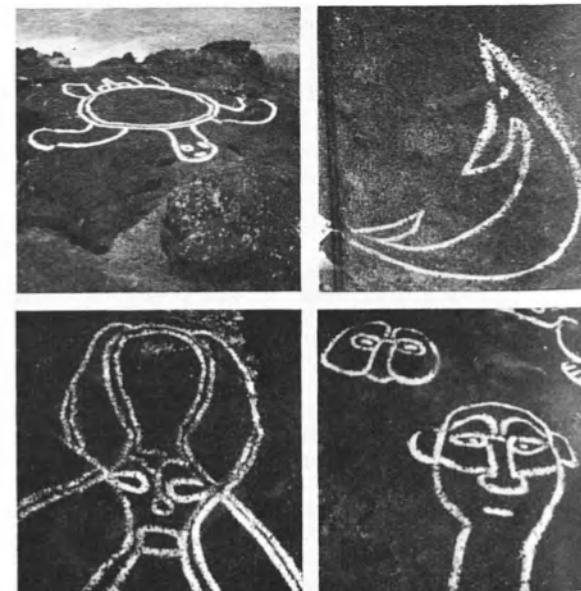
To me, all the indications seem to be that the writing of Easter Island was invented in that remote little island, probably on the basis of some mnemonic system brought by the ancestors of the Easter Islanders from their original home. If it is proved that these symbols are indeed hieroglyphics which can be "read," then the Easter Islanders, who have already amazed the world by the quality of their art and the impressive proportions of their monuments, could claim the additional honour of having made a decisive step forward in the development of civilization.

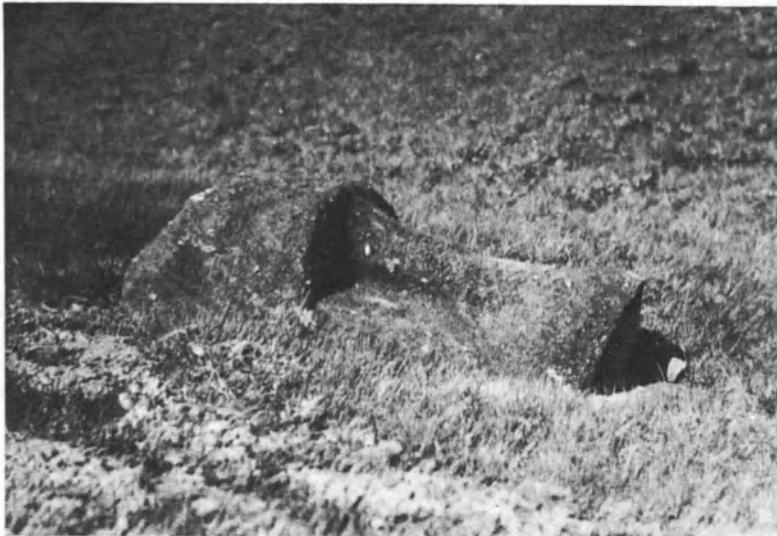
*Alfred Metraux's career as a practising ethnologist has taken him over most of Latin America and the South Sea Islands. He is the author of a book on Easter Island, due to appear in English in October.*



**FANTASTIC FIGURES** and symbols were found carved on rocks at Easter Island in 1934 by a Franco-Belgian research expedition which included Dr. Metraux. Stylé and subject of carvings (below) are often same as those on Island's mysterious wooden tablets showing human beings, fish and turtles. Cliffs at Orongo village contain many carvings of "bird-men" (above). Village was once centre of a "bird-man" cult. Carvings were outlined with chalk before they were photographed.

Top photos Alfred Metraux, copyright Bishop Museum, Honolulu  
Bottom photos copyright Prof. Henri Lavadery, Brussels





**LIKE FALLEN SKITTLES**, giant statues of Easter Island lie scattered on soil or half-buried in earth. Time and rude climate have eaten away much of the statues made of soft stone. When European navigators visited island two centuries ago many statues were still upright. Some had red-coloured cylinder-shaped stones on their heads. Drawing below, made on spot by member of Captain Cook's expedition to South Seas in 1774, is only existing document showing how island looked nearly 200 years ago.

Photos A. Metraux, copyright Bishop Museum  
Drawing copyright British Maritime Museum, Greenwich

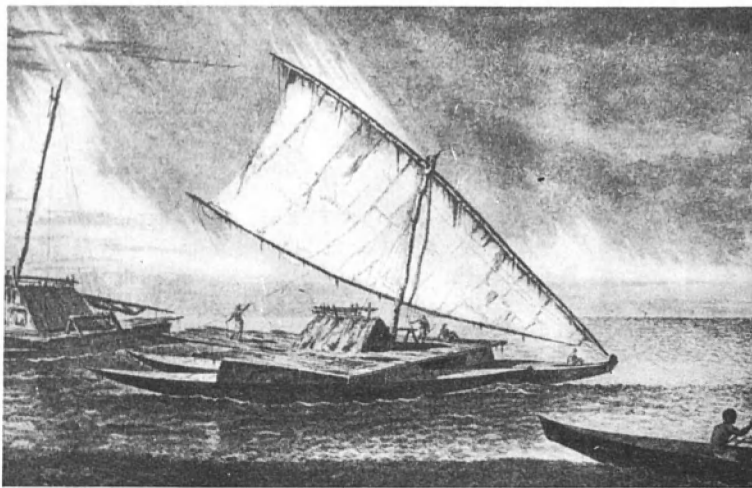




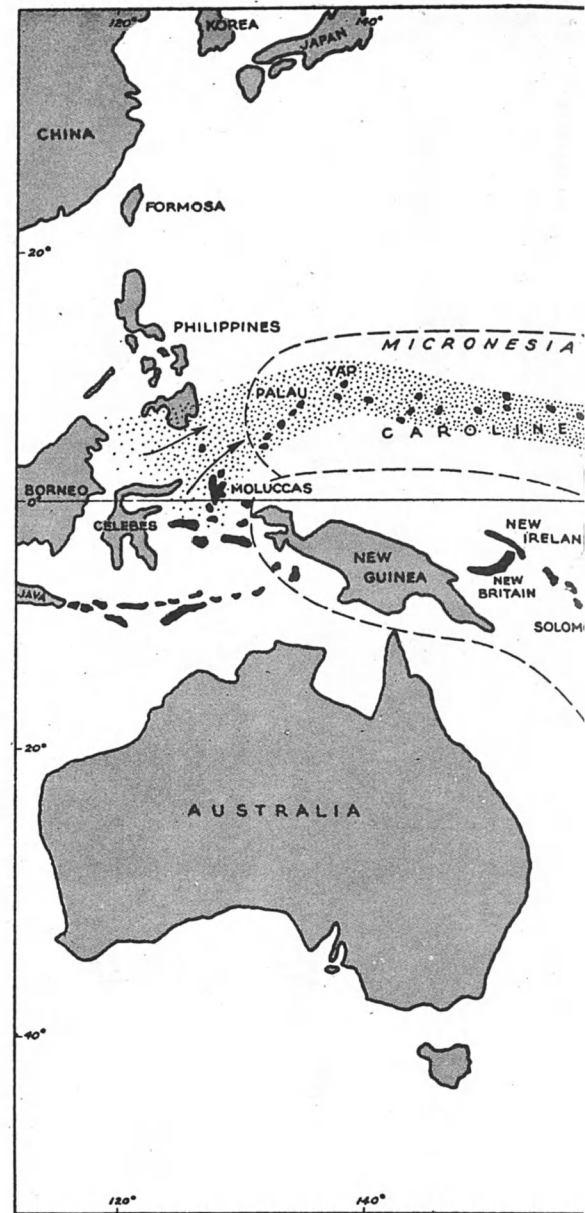
## Polynesian navigators:

# CHAMPION EXPLORERS OF THE VAST PACIFIC

by Edwin Grant Burrows



First inhabitants of the mid-Pacific islands were the Polynesians—the world's most daring deep-sea voyagers and explorers. They found and populated every habitable island in the vast expanse bounded by Hawaii on the north, New Zealand on the south, Easter Island on the east, and Tonga and Samoa on the west. The word Polynesia means "many islands"—those which form triangle shown on map (right). Dotted lines crossing to South America show route by which Polynesians are thought to have travelled from Marquesas to Peru. Above, 18th century engraving from "The Voyages of Captain Cook", showing a Tongan ship equipped with lateen sail.



**A**STRONOMY is the most ancient of the sciences, and still the most accurate in its predictions. Applied astronomy has been vital to man for thousands of years: for landmen in agriculture, giving them foreknowledge of seed-time and harvest; and for mariners in navigation, showing where to point the prows of their ships so as to make a landfall. Of all the peoples who have found their way about the earth with the aid of this kind of applied astronomy, the Polynesians have the best claim to be called world champions.

To us of European tradition that seems a bold statement. How about Columbus? How about the earlier Vikings, Moors, Phoenicians? There is no wish here to dim their glory; they have earned it all. Yet Columbus had the compass and a forerunner of the sextant; besides, he sailed centuries later than the explorers famed in Polynesian legend. As for Vikings, Moors, even Phoenicians with their fabled circumnavigation of Africa—all their feats were coastwise sailing compared with the Polynesian ventures through the widest of oceans.

There is still some doubt as to when Polynesians first landed on the islands where European explorers, pushing out into the Pacific at least a thousand years later, found them established. Some doubt, too, as to where they started, and what route they followed. At present the most likely answer seems to be that they did not all come at once, but at various times, and along more than one sea-lane.

The question as to the general direction of their shoving-

off place has seemed easier to answer. It must have been mainly one region, for they are, broadly speaking, one people; from Hawaii in the north to New Zealand in the south, and from Easter Island in the east to little islands, scattered among larger ones of different population, in the west. The usual answer has been that they came from the west; that is, from the direction of south-east Asia.

But now comes Thor Heyerdahl, who with his intrepid crew sailed the raft "Kon Tiki" from Peru to Polynesian Rarotia. That voyage, which he recounted in a memorable tale that will surely hold its place among stories of men against the sea, was only part of an enormous piece of research into Polynesian origins. His answer to the question "Whence the Polynesians?" is given in the title of a volume of more than 800 large pages, published in 1952: "American Indians in the Pacific."

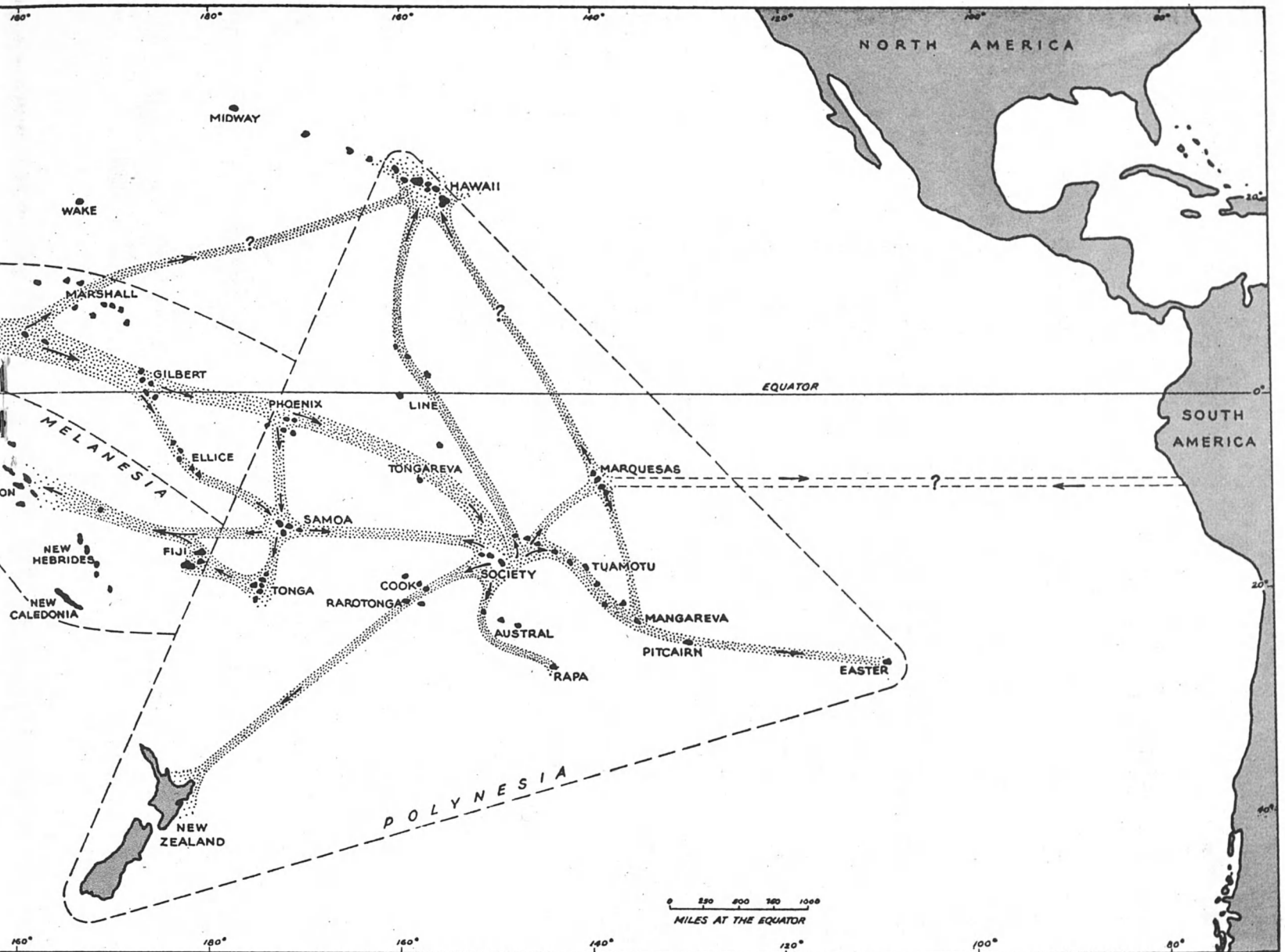
To sift the evidence for his claim that the Polynesians came from America would take at least 800 pages more. Failing that, it may be worth while to list impressions left on a student of Polynesia by a re-perusal of the work:

(1) No one can examine this monumental treatise without admiring the industry, determination and ingenuity that went into it.

(2) The data are presented, not in the manner of a judge or dispassionate scientist displaying the facts to let them lead where they may, but in that of an advocate, using all his powers to put his case in the best light and belittle that of his adversaries. (Admittedly the adversaries have often done the same.)

(3) Throughout the discussion, the possibilities of local development and of convergence, whereby devices of different origin come to look alike, are either overlooked or lightly dismissed; as if human beings could never invent

As an ethnologist, Professor Burrows has studied native cultures in Polynesia and Micronesia and is the author of many articles and monographs, including "Songs of Uvea and Futuna", "Hawaiian Americans", and "Western Polynesia". He is now Associate Professor of Ethnology at the University of Connecticut.



Map and photo taken from "Polynesians, Explorers of the Pacific" by J. E. Weckler, Jr., published by Smithsonian Institution, Washington

anything more than once. (But demonstrably they often have.)

(4) Despite many dubious details, the cumulative evidence of early contact between Polynesia and South America is convincing; and it may well have been more important than most Oceanists have been willing to admit.

(5) The preponderance of evidence still indicates that the Polynesians and their culture came originally from the vicinity of south-east Asia.

(6) The claim of early influence on Polynesia from north-western North America is unconvincing.

(7) Finally, research of this sort is a perfectly respectable occupation. Yet to an anthropologist who has abandoned an archaeological point of view for sociological and psychological interests, it is deplorable to see good time and brains wasted on problems that concern only the remote past and can never be settled beyond doubt; and this when many timeless problems and urgent present ones, are crying for solution.

One such problem lies before us, involving the past indeed, but leading into the timeless question of man's adaptation to his environment. Not when and whence did the Polynesians come, but how did they manage? It is beyond dispute that they made at least two voyages of some two thousand sea-miles with perhaps only one stop-over; made them, returned, and repeated them. These voyages were from the Society Islands, evidently a centre of dispersal for Polynesian culture, to Hawaii, perhaps by way of the Marquesas; and from the Society Islands to New Zealand, in all probability by way of Rarotonga in the Cook group.

What puts these voyages past dispute? First, the fact that the first Europeans to land at Hawaii and New Zealand—in both cases under the British Captain James Cook—found them already populated. Second, the fact that both had

traditions of ancestral voyages from islands the New Zealand Maoris called Hawaiki and Tawhiti, the Hawaiians Hawai'i and Kahiki. Third, the matter was investigated in the islands of those names in the Society group: Hawai'i (the ancient name; now Raiatea) and Tahiti (Tawhiti, Kahiki). Sure enough, they had corresponding traditions of the same voyages with the same leaders; and genealogies in all the island groups checked back fairly well to ancestors credited with manning pioneering canoes. Fourth, comparison of cultures of three island groups confirms the close relations.

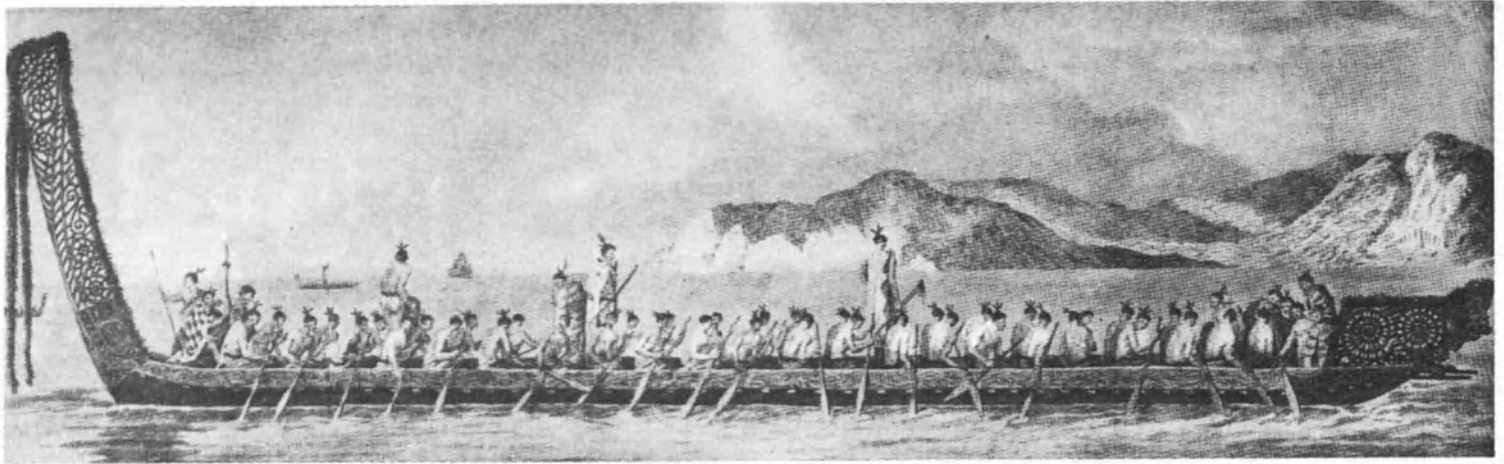
How did they do it? Unfortunately, that question is easier to ask than to answer. Great overseas voyages had ceased long before Captain Cook appeared, though he did learn something about native navigation. And by the time the matter was investigated more thoroughly, still more had been forgotten.

Some have offered highly speculative answers. No less an authority than Admiral Hugh Rodman, U.S. Navy, thought one out from a huge gourd preserved in the Bishop Museum at Honolulu. The smaller end has been cut off, leaving the top of the gourd open. A row of small holes runs all the way around just below the upper rim. Hawaiian tradition credited this gourd or calabash with supernatural powers concerned with navigation.

In an article entitled "The Sacred Calabash," published in the Proceedings of the U.S. Naval Institute (1928), Admiral Rodman suggested that the ancient navigators had filled the gourd with water and used the holes below the rim, in connexion with the level of the water, to obtain a true horizon to fix their position and plot their course.

Unfortunately, Admiral Rodman did not know enough of the tradition. Mrs. Lahilahi Webb, a Hawaiian woman of chiefly lineage

(Cont'd on next page)



**SEA-GOING CANOES** of many types were built by Polynesians. Above, an engraving made from descriptions brought back from South Seas by one of Captain Cook's expeditions in 18th century. Similar canoes with double hulls and vertical sails are still used today in central and eastern Polynesia.

Photo taken from "Polynesians, Explorers of the Pacific"

who had been a retainer of Queen Liliuokalani in her youth, and who spent her elder years as a hostess and guide at the museum, said that she had known of this calabash most of her life. The holes below the rim were for lashings, to hold on a lid, which she remembered but which had since disappeared. The calabash was used to hold, not water, but wind—all the winds. By opening the lid a little and intoning the right chant, an expert could call forth whichever wind he needed. Moreover, Mrs Webb added, she knew the chant. But some unauthorized person had taken off the lid; so all the winds escaped; and that is why the weather is now uncontrollable.

Quite recently the hints to be found in old chants, early European accounts and surviving myths and traditions, have been assembled and analyzed by the astronomer Maud Makemson in her book "The Morning Star Rises: an Account of Polynesian Astronomy" (New Haven, 1941). Whatever can be made out of the scraps available, she has set down. In some respects, one fears, she has set down more than can be made out with all certainty. Yet several points are beyond doubt.

In pre-European times the Polynesians had a considerable knowledge of the heavenly bodies and their movements, varying in some details from one island group to another, yet consistent in the main. They had a calendar based on the annual northward and southward motions of the sun. The year was divided into months, each

subdivided into "nights of the moon," from the moonless night through all the waxing and waning until another dark of the moon. The moons were distinguished from each other by the rising of specified constellations.

The astronomic lore of which the above is an outline was treasured especially by navigators, who exchanged information on guiding stars, landmarks, currents, and winds with their colleagues in whatever islands they visited. In the season of variable winds, a navigator could sail out for a day or several days, steering by a given star; then, if he sighted no land, return when the wind shifted. It is evidently by some such method that the Polynesians gradually explored the Pacific.

Some voyagers, exceptionally bold or else desperate because of some trouble at home, set off on longer sorties into unknown seas. Others, storm-driven, made long voyages unintentionally. Of such pioneers, voluntary or not, many doubtless never found land; and of those who did, not a few never found their way home again. Yet, through the generations and centuries, enough voyages were successfully completed and retraced to build up a body of sailing directions which at last, during the great age of navigation, made most of the Polynesian Islands accessible to each other.

As to the particular long voyages chosen as examples, Dr. Makemson concludes, by combining astronomy and mythology, that the pilots steered from the Society Islands



**'FROM ACROSS THE SEA'.** At time of discovery of America, the Mantas Indians, living on what is today coast of Ecuador, used rafts of balsa wood with vertical sails like those of Polynesians. Legends of the Mantas Indians told of landing on their coast by "men who came from across the sea". The first Spaniard to see a giant balsa raft carrying 50 tons of goods in the 16th century was Bartolomé Ruiz. From afar he took it for a Spanish caravel. Right, the first engraving of a balsa raft by a Milanese traveller, Girolamo Benzoni, in his book "Dell'istoria del Mondo Nuovo", published in Venice in 1527.

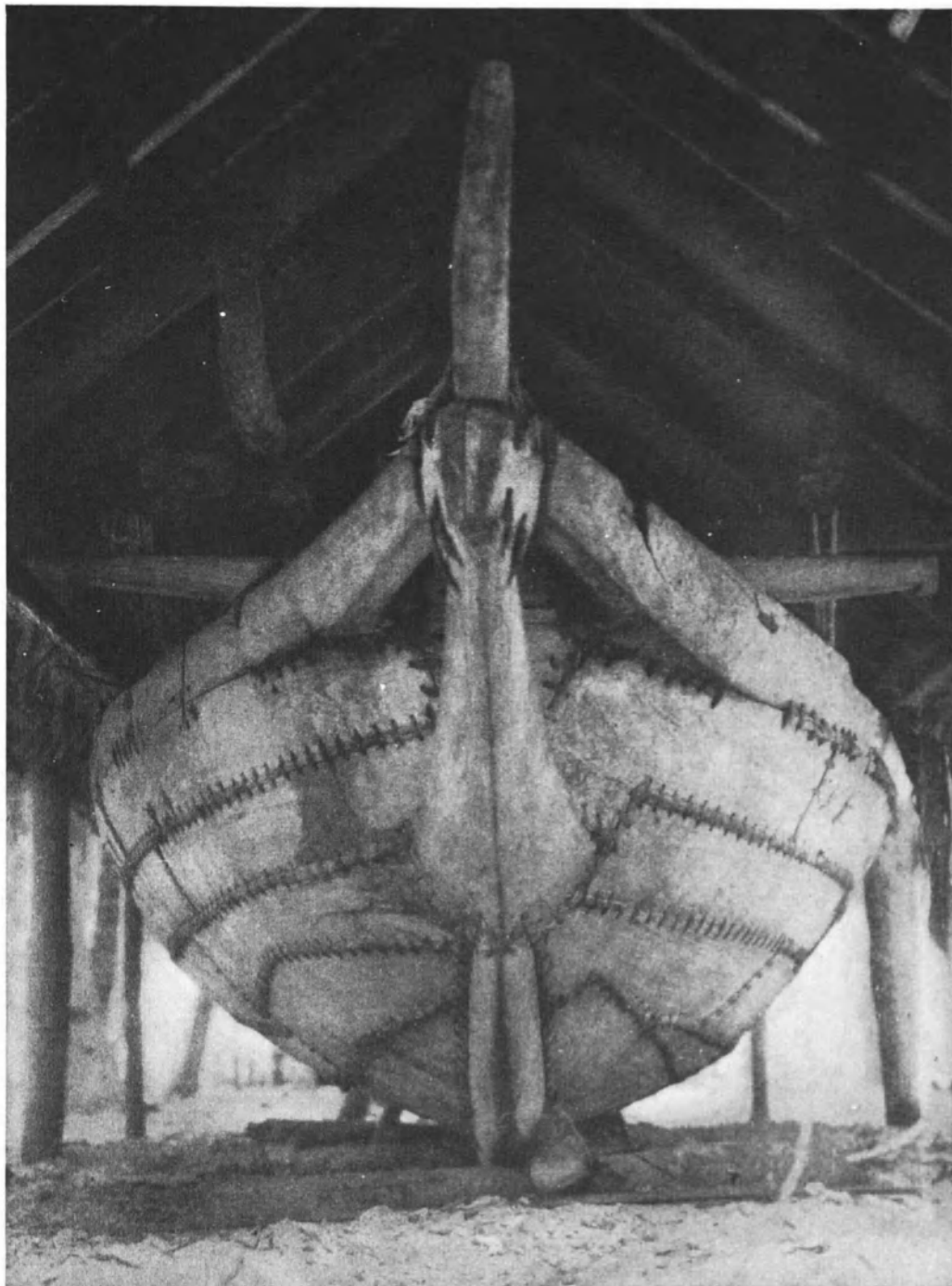


## Polynesian navigators

(Continued)

**BIG SHIPS** built by Polynesians carried large numbers of men, women and children, with supplies of food and water, on long ocean voyages. They were commonly 60 to 80 feet long and sometimes over 100 feet. To build their ships, Polynesians had only simple stone and shell cutting tools and no nails. Their huge canoes were sewn together with coconut husk fibre. Right, one of the last large hulls made in the ancient Polynesian fashion, ribless and with its planks sewn together with fibre.

Photo by K. P. Emery, Bishop Museum



to the Marquesas during the months June to August (months of shifting winds in those latitudes) by following Spica as morning star, and continued on the same course until they reached the latitude of Hawaii, which they recognized by the appearance of Aldebaran just over the sea. Thereafter, she finds, they turned sharply westward and ran before the trade wind, following an evening star, probably Venus, until they saw on the clouds at night the glow of an active volcano in Hawaii.

From the Society Islands to Rarotonga the most likely guiding star is Antares or Fomalhaut, "or by steering a few degrees south of the sun or Venus on the western horizon when near the December solstice." From Rarotonga to New Zealand, one tradition says "Venus by night, the sun by day." Another names Antares. Dr. Makemson finds that both would lead too far west. This problem remains unsolved. Yet there is no question about the fact that Polynesians, steering by the stars, did repeatedly find their way to New Zealand.

Much clearer information is obtainable from Micronesia. In the western Carolines the old lore of navigation is still remembered and, at least in some more remote atolls, still used. The writer had the good fortune to spend several days taking sailing directions from the leading navigator of one of these atolls. Sitting with a compass between us (for Ifaluk, as the navigator was called, had worked on British and American ships, too),

we worked out a celestial chart with 32 stars on it, going all round the compass, and names of islands to which they would lead.

Most spectacular of Micronesian aids to navigation were "stick maps," known only to the Marshall Islanders, but made and used by them up to the first decade or so of the 20th century. These consisted of strips of coconut leaflet midrib lashed together in a rigid frame, with both straight and curved lines, and small white shells representing islands. They were of three main kinds: one used as a teaching device; another an outline of the whole Marshall group or a large part of it; the third representing in more detail a few nearby islands and seas.

Only one source, and that not of the best, says that guiding stars were shown on the map. More likely, unless in some exceptional case, they were memorized separately. Distances and directions were not accurate enough to steer by; indeed it would have been a disgrace for a navigator to consult such a map while at sea. They were used to refresh memory while planning a voyage.

These details from Micronesia suggest some of the resources possibly included in the now forgotten navigation lore of the ancient Polynesians. Whatever its shortcomings, it served to bring the first settlers to islands widely spread in the Pacific, which their descendants still occupy.



European explorers who opened up Americas in 16th century found that Indians were skilled metal workers, having used gold to make ornaments and to decorate religious objects and weapons for some 2,000 years. First engravings depicting exploitation of gold in New World appeared in 1590. They were published by Theodorus de Bry, German engraver and publisher. De Bry visited London, where he met

## Pre-Columbian America

# Civilizations of gold and copper

by Paul Rivet

IT is sometimes said that when America was discovered, the people were still living in the Neolithic or polished stone age. This is only partially true, for many of the native peoples were in fact familiar with the use of metals, though the regions in which metals were known did not form a single group.

Among the different divisions into which they can be placed, the first was North America. The Indians living there used copper from the Great Lakes area and possibly also from Virginia, North Carolina, Tennessee, Connecticut, New Jersey, Arizona, New Mexico, Nova Scotia and even Mexico and Cuba. This copper was cold-hammered and, sometimes, reheated and then hammered again.

The second large area of metal working covered the whole of Central

America, Colombia, the West Indies and the southern tip of Florida, the Guianas, Venezuela and, in general, all the land north of the Amazon and all the territories constituting the old Inca Empire. This region was not a single unit but a complex group of different components.

Gold and copper were generally used throughout the area, so that, from what we know today, it is impossible to say where these metals were first discovered and how the idea of using them spread throughout the region. There may well have been two centres of discovery, one in Peru and the other in the hinterland of the Guianas. Gold was undoubtedly used before copper, since it makes its appearance on the Peruvian coast in early Nazca times (dated by the use of the carbon 14 radio-isotope as 2,211±200 years ago), and in the northern Cordillera of Peru at the beginning of the roughly contemporary Chavin civilization, while copper, which was unknown in Proto-Nazca and Chavin times, was not introduced into Peruvian metallurgy until the advent of the Tiahuanaco civilization

*Professor Paul Rivet, former Director of the Musée de l'Homme, Paris, has devoted more than half a century to the study of the ancient peoples of the Americas and the Indian civilizations of today. His many works include Recherches Anthropologiques sur la Basse-Californie, Ethnographie Ancienne de l'Equateur and L'Orfèvrerie Précolombienne. He is President of the French National Commission for UNESCO.*



famous geographer Richard Hakluyt with whose assistance he collected material for finely illustrated collection of voyages and travels, *Collections Peregrinationum in Indiam Orientalium et Indiam Occidentalium*. Two of de Bry's engravings, above, show: Left, party of Dutchmen landing on Caribbean island, probably Curaçao. Right, caravan of gold-laden llamas (the "camels" of the Incas) crossing Andes under Spanish guard.

about the fourth century of our era.

Throughout the north-eastern area (the West Indies, Florida, the Guianas, Venezuela and the territories north of the Amazon), in Colombia, in the northern and maritime provinces of Ecuador, and on the Peruvian coast, copper was only rarely used for making tools and did not appear on a large scale except in combination with native gold, while in the specifically Inca area it was principally used, either in the pure state or alloyed with tin, for utilitarian purposes.

The working of gold and a gold-copper alloy known as *tumbaga* was most highly developed in Colombia, the Isthmus of Panama and Costa Rica. There are good reasons for believing, however, that *tumbaga* was discovered not in Colombia but much further east, in the hinterland of the Guianas, among the Arawak and Carib tribes of the region, who called it *guanin* and *karakoli* respectively. These tribes, or one of them, must have introduced the alloy into the West Indies, Florida, and Colombia.

The Colombian goldsmiths developed many new techniques, including a

special colouring process, used on alloys of copper and gold to imitate gilding, gold plating, autogenous welding, soldering, and casting by the waste wax process. These improved methods of metal working spread northwards through the Isthmus of Panama to Costa Rica and southwards to the northern part of the inter-Andean valley and the coastal provinces of Ecuador and Peru. On the Peruvian seaboard, *tumbaga* appears in the Early Chimú period (2,823±500 years ago) autogenous welding and soldering in the Middle Chimú period, and the special metal colouring process in the Late Chimú period (1,838±190 years ago).

The Incas did not master the principles of *tumbaga* working until after their conquest of the coastal regions, which, according to Philip Ainsworth Means, took place in the first half of the fourteenth century in the south and in the second half of the fifteenth century in the north.

Silver working was developed, in the main, on the Peruvian seaboard, where it first appeared in the Paracas period (2,257±200 years ago).

Thence it was introduced into the high mountain regions, and reached Ecuador during the Inca conquest.

The use of bronze was certainly discovered in the high mountain regions of Peru and Bolivia. The alloy of copper and tin was unknown on the Peruvian coast until the Late Chimú period. There is no doubt that it was chiefly due to the Incas that the use of bronze spread through all the provinces in their Empire, and with it spread the knowledge of metallurgy acquired from the Peruvian coastal population (the use of *tumbaga*, derived from Colombia, and the use of silver, developed locally). The Inca Empire, as it existed at the time of the discovery of the Americas, was thus a clearly defined metallurgical region, in which the contributions of Colombia, the high mountain regions of Peru and Bolivia, and the Peruvian seaboard were combined.

The use of lead was introduced into Peruvian metallurgy at a very late stage, in Inca times, but we do not know whether it first appeared on the coast or in the moun-

(Cont'd on next page)



## Pre-Columbian America (Cont'd)

tain area. It is even possible that it was first used in Mexico and then spread to Peru, by way of the sea communications between these two countries.

In time, the expanding sphere of influence of the Colombian peoples overlapped with that of the Incas, so that in certain areas the two combined; in this way mixed industries, showing some of the characteristics found in both the zones already described, grew up in Ecuador and on the coast of Peru. While bronze, silver and its alloys, and lead were entirely unknown in Colombia, and while the craftsmen in the high mountain areas of Peru and Bolivia were unfamiliar with *tumbaga* and the characteristic techniques associated with that alloy, all these metals and alloys were used in Ecuador and on the Peruvian seaboard.

Once this is established, a comparison of the metallurgy of the Peruvian coast and that of Mexico reveals extraordinary similarities, not to say complete identity, between them. It is clear, moreover, that at the time of the discovery metals were still not employed on a large scale in Mexico, and we know that their use was a recent innovation. At Monte Alban, metals do not appear until about the eleventh century, and then only in small quantities. On the other hand, despite the lack of roots in the past, the period at Monte Alban, corresponding to the beginning of the sixteenth century, shows evidence of the use of remarkably complex me-



Courtesy Société des Americanistes, Paris

**HUMAN BELLOWS.** When Sir Walter Raleigh, the English navigator and explorer, reached Guiana in 1595 at the head of an expedition in search of the fabled city of El Dorado, he was the first white man to see the Indians making a gold-copper alloy. "The Indians", he wrote "used a great earthen pottle with holes round about it and when they had mingled the gold and copper together they fastened canes to the holes, and so with the breath of men they increased the fire till the metall ran, and then they cast it into moulds of stone and clay and so make the plates and images." Sir Walter described this in his fascinating narrative "The Discoverie of Guiana".

tallurgical techniques and a remarkably wide range of metals.

The fact that the art of metal working in Mexico has exactly the same characteristics as on the Peruvian seaboard and that, though

comparatively new and by no means widespread, it shows a remarkable perfection and variety in technique, for which there is no evidence of gradual local development, strongly suggests that the metal working industry was introduced into Mexico as a fully developed craft equipped with all the necessary technical resources, and that it came from the Peruvian coast. We now have proof that there was trade by sea between Peru and Central America in pre-Columbian times. The craft used were *balsas* or rafts, of which the old writers have left us descriptions and drawings.

As a last note in this brief sketch of pre-Columbian metal work, it may be mentioned that platinum nuggets were used in a limited area—the northern coastal strip of Ecuador and the adjacent coastal regions of Colombia. There is evidence that the Indians of Esmeraldas could form a kind of homogeneous mixture of gold and platinum, although, with the techniques they used, neither it nor pure platinum could be melted down.

It is impossible, in such a short article, to describe all the techniques used by the Indian craftsmen—melting down and casting, the metal colouring process, plating, welding, wire-drawing, embossing and repoussé (chasing and work in relief done from the underside of metal) etc. The wealth of technical skills they commanded is yet further evidence of the fertile imagination of the pre-Columbian Indian, for although R. Heine-Geldern has attempted to show that American metallurgy is derived from that of South Asia, I still believe that the industry was indigenous and that no outside influences affected its development.



Bibliothèque Nationale, Paris

**EMPEROR'S RANSOM.** Atahualpa, last of the Inca Emperors, was taken prisoner by the Spaniards who offered to release him if he would fill his prison with gold (22 feet by 16) "to the height of a man with his arms upraised." In this engraving by Theodorus de Bry, the Inca people are seen here bringing gold ornaments and vessels with which to pay their emperor's ransom.

## Knowledge blocked at the frontier

# VIOLINS TAXED BY THE KILOGRAM ART RATED AS 'VEGETABLE FIBRE'



Copyright Roger Viollet

by Philip L. Soljak

News item: *Albert Burri, the controversial Italian artist, became even more controversial. When a U.S. customs inspector examined one of his works—a collage of canvas and other fabrics sewn and stuck together and stretched on a frame—he accepted the buyer's evaluation of \$ 450, but balked at calling it a work of art, which left it free of tax. Under customs law he ruled it a "manufacture of vegetable fibres", which carries a 20 per cent tax. The proud owners, Mr. and Mrs. Donald Peters of New York, paid the \$90 fee and promptly filed an appeal. "It isn't a matter of the money", explained Mrs. Peters firmly, "it's those archaic laws. They've got to be changed some time and this is the only way to do it."* ("Newsweek", New York).

**T**HE world press frequently reports similar incidents showing how complex and illogical trade restrictions bar the international flow of works of art, books, films and other sources of knowledge.

At one busy North American port, it took an art dealer many hours to convince customs officials that three posters by the French painter, Henri Matisse, were "art" and not subject to import duty. The officials claimed that the posters were "packing material" and therefore taxable.

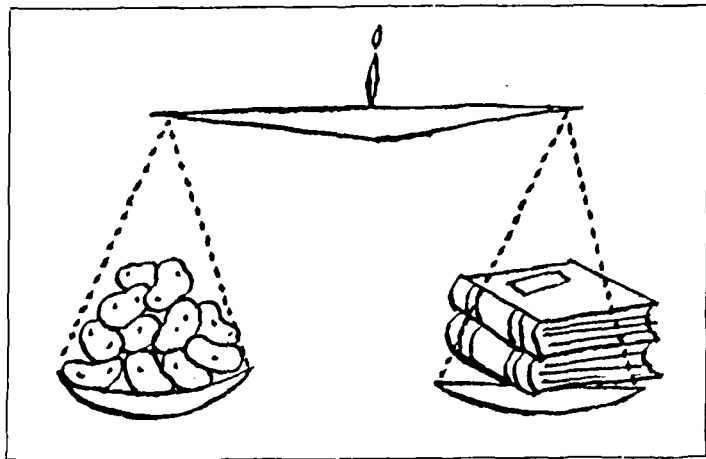
At another port, a piece of abstract sculpture, done in brass by the Rumanian artist Brancusi, was classified as "block matter" and duty was charged for industrial metal.

In Europe, the French producer of scientific films, Jean Painlevé, became so embroiled in customs formalities while travelling to an international conference that he left his films in disgust at the frontier and gave his lecture at the conference without them. Across the English Channel, Sir Stanley Unwin, as president of the International Publishers Association, protested that books were being taxed abroad by the kilo, like bags of potatoes, instead of being treated as "the noblest of man's works."

UNESCO, which is permanently committed to "promote the free flow of ideas by word and image", is waging an extensive campaign to abolish trade restrictions on educational, scientific and cultural materials. Every week it receives protests from people in various countries who find it expensive, difficult or even impossible to obtain these articles from abroad, or send them to other lands because of the restrictions now in force.

A librarian who had arranged to show a UNESCO film about books recently wrote saying he was reluctantly returning the film "because the duty (measured by the foot!) is quite

(Cont'd on  
next page)



# Books worth their weight... in potatoes

exorbitant." A bookseller who had ordered books from another country complained that "although the books cost the equivalent of only 40 cents each, the export licence per copy is \$2.00—just five times the price of the book!" A teacher enquired whether she could obtain wall charts for her school without paying duty. "We have great difficulty in importing visual aids", she added "and our customs officials don't seem to know if wall charts should be taxed or not."

A common problem is that even when exemption is granted under a country's tariff laws, it may not be adequately applied in practice. Protests made to UNESCO on these and other grounds are listed on page 29.



The taxation of knowledge goes back for centuries and has often been associated with "protection" or "privilege". In the early days of printing, rulers of States granted certain printer-booksellers the monopoly to print or publish. Others who produced books were fined, imprisoned or executed and their books destroyed.

In 17th century England, these restrictions evoked the celebrated attack by John Milton in his *Areopagitica*: "Truth and understanding", Milton declared "are not such wares as to be monopolized and traded in by tickets, and statutes and standards. We must not think to make a staple commodity of all the knowledge in the land, to mark and license it like our broadcloth, and our wool packs." Milton's appeal was later re-echoed by Voltaire and also by Benjamin Franklin.

With the development of the popular press during the 18th century, the licensing system was replaced or strengthened by heavy taxes on publications. Designed to stifle political criticism, these taxes curbed the circulation of the cheaper newspapers and pamphlets which were read by the common people. Many liberal thinkers, including John Wilkes in England and Mirabeau in France, opposed these restrictions.



In the 19th century, the battle was renewed by William Cobbett and Charles Dickens in England, and by Victor Hugo and Félécité de Lamennais in France. Gradually, throughout western Europe, the hated "newspaper taxes" were swept away. There was also a move to free the exchange of ideas between countries, and a number of governments reduced import duties on books, printed music, maps and paintings.

The first World War brought this liberal, free trade period to an end. Many countries increased their tariff and licensing restrictions and educational articles were taxed indiscriminately with "ships and shoes and sealing-wax" and other products. The economic depression of the 1930's and the second World War brought more rigid tariff, quota and exchange controls. Frequently the object of these restrictions was to "protect" a local publishing or equipment industry from foreign competition. In most cases, however, the cost of collecting the taxes exceeded the revenue obtained. Their actual result was to "protect" the minds of people from the ideas and attainments of their neighbours in other lands.

Following its establishment in 1946, UNESCO launched a

campaign to end these restrictions, and before long was receiving the support of a growing number of countries. Its first action was to draft an international agreement which, as described later, exempts a wide range of educational, scientific and cultural materials from import duties. At the same time, UNESCO made a world-wide survey of tariff and trade regulations affecting the international flow of information materials. This report, published as a manual entitled "Trade Barriers to Knowledge", is designed to help publishers, librarians, educators, scientists, film exhibitors and others obtain these articles from abroad, or send them to other countries.

Trade Barriers brings many startling facts to light. The current edition (1) shows, for example, that of 92 major countries throughout the world, eleven (12 per cent) levy import duties on books, newspapers and magazines; 28 (30 per cent) charge duties on paintings and sculpture; and 51 (56 per cent) similarly tax scientific instruments. Newsprint, sound recordings and radio sets are even more widely taxed. Duties are imposed on newsprint by 59 (64 per cent) of the countries; on recordings, by 62 (68 per cent); and on radio sets by 91 (88 per cent). The most widespread obstacle, however,

(1) "Trade Barriers to Knowledge" (Echanges culturels et barrières économiques: Unesco, Paris; 364 pp.; \$5.00; 25/-; 1,250 frs.





is the restriction of imports through exchange controls and licensing; 64 countries (over 70 per cent) limit trade in educational materials in this way.

The restrictions themselves are complex, onerous and at times illogical. Following are some examples, listed according to the main groups of materials with which "Trade Barriers" deals.

**Books and other publications.** Denmark charges a duty of \$0.09 a kilogram on children's books in Danish, but exempts books in other languages. Ethiopia levies a 9 per cent duty on all books. Martinique charges a 12 per cent "sea" duty on books bound in leather, but exempts others. Guatemala exempts most publications from duty but on the other hand levies a consular fee, an import tax, a toll tax and a consignment tax together representing 20 per cent of the value. India, Pakistan and Thailand exempt current newspapers, but impose duties on old ones. Indonesia levies a 100 per cent import charge on newspapers and tourist posters, and 33 per cent on manuscripts.

In Ireland, religious books pay a 30 per cent duty, but other books are free. Italy charges a 13 per cent duty on books bound in leather and 18 per cent on illustrated volumes. Luxembourg and the Netherlands impose a 20 per cent duty on children's picture books and the Netherlands also charges 15 per cent on illustrated magazines. In Norway, children's picture books pay a duty of \$0.34 a kg. if the pictures are in one colour, and a duty of \$1.12 if the pictures are in two or more colours as also do coloured tourist posters.

On books, newspapers and magazines, Panama levies an 8 per cent consular fee, plus a tax of \$0.02 per package, and stamp duty. Paraguay charges a similar consular fee on publications. The USA levies a 7 1/2 per cent duty on children's books and a 5 per cent duty on books in English. This latter duty was established over 50 years ago to "protect" an infant publishing industry which has now become one of the largest in the world. Italy, Mexico, Norway and Portugal also tax imported books in their national languages.

★

**Works of art.** In Australia, an Australian artist who has lived abroad over 7 years pays a \$5 duty if he returns with his own painting. On non-Australian paintings the duty is between \$5 and \$6, and on statues between 12 and 32 per cent. Austria and Czechoslovakia levy varying duties on stone statues weighing over 5 kg., Angola charges a 32 per cent duty on paintings and 27 per cent on sculpture. India's duties on works of art are 25 per cent, Iran's 50 per cent, Iraq's 33 per cent, Jordan's 30 per cent, New Zealand's 45 per cent and the Sudan's 25 per cent.

Burma charges 25 per cent and Pakistan 60 per cent on works of art, unless imported for public exhibit. Canada's and Portugal's duties on foreign works of art range from 15 to 30 per cent. China (Formosa) levies a flat 40 per cent, Ecuador 75 per cent, Morocco 12 per cent and Costa Rica 10 per cent. Czechoslovakia and Denmark exempt canvases, but charge a separate duty on the frames. Indonesia levies a 30 per cent duty on works of art, plus a "luxury" import charge of 300 per cent. Ireland charges 100 per cent on statues in stone, and 75 per cent on those in plaster of Paris. Japan levies a 50 per cent duty on ivory statues, and Liberia charges 25 per cent on wooden ones.

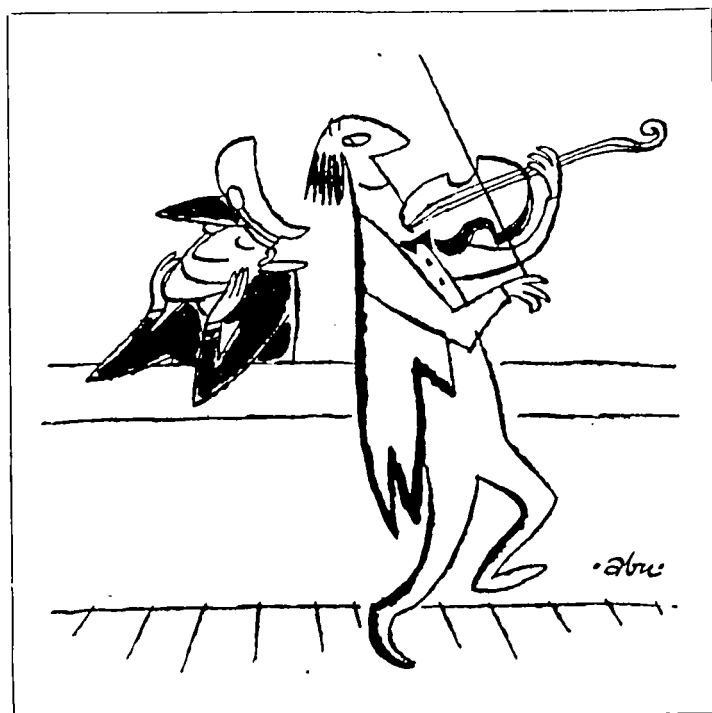
Norway imposes a duty of \$0.28 per kg. on pictures in wooden frames. Panama charges 15 per cent on paintings, and Paraguay 48 per cent, plus consular and other fees. Peru's duty on paintings is \$1.00 a kg. plus 14 per cent, and Venezuela's \$0.30 a kg. plus 15 per cent. Venezuela also has a charge of \$0.60 a kg. on metal statues.

**Educational films and newsreels.** Many countries fail to grant any concessions to these films. Angola levies a general import duty of 30 per cent; Austria, \$32.16 per 100 kg.; the Belgian Congo, 25 per cent; Bulgaria, \$160 per 100 kg.; Burma, \$0.03 a foot; China (Formosa), 80 per cent; Czechoslovakia, \$139 per 100 kg.; Denmark, \$4.33 per kg.; the Dominican Republic, 15 per cent; Ethiopia, \$0.30 per 100

metres plus 9 per cent; Guadeloupe and Martinique, 12 per cent; French West Africa, 20 per cent.

In the German Federal Republic, the rate is 24 per cent (copyable film); India, \$0.05 a foot; Iran, 50 per cent; Italy, \$0.06 a metre (35 mm. film); Japan, 30 per cent; Korea (South), 40 per cent; Luxembourg, \$0.03 a metre; Morocco, 12 to 20 per cent; Mozambique, 23 per cent; the Netherlands, \$0.03 a metre; New Zealand, 45 per cent; Norway, \$1.12 a kg.; Paraguay, 15 per cent plus 8 per cent consular fee; Peru, \$2 a kg. plus 14 per cent; Portugal, \$2.76 a kg.; Saudi Arabia, 30 per cent; Syria, \$14 a kg.; French Togoland, 10 per cent; the USSR, 100 per cent; Venezuela, \$0.78 a kg.

**Educational recordings.** Few countries make any attempt to discriminate between educational and "entertainment" sound recordings, and only Hong Kong, Mexico, Singapore and South Africa grant complete exemption. Countries levying the highest general rates are Angola, 35 per cent; Austria, \$80 per 100 kg.; Bulgaria, \$48 per 100 kg.; Burma, 40 per cent; China (Formosa), 100 per cent; Costa Rica, \$0.53 a kg.; Czechoslovakia, \$0.42 a kg.; Ecuador, \$2 a kg.; Guatemala, \$0.75 a kg.; India, 50 per cent; Iran, 40 per cent; Ireland, \$0.11 a record; Mexico, \$0.95 a kg.; Portugal, \$3.32 a kg.; Saudi Arabia, 35 per cent; USSR, \$12.50 a kg.



**Music.** Twenty countries impose duties on printed music, and over 90 on musical instruments. On music, French West Africa and the USA charge 5 per cent, Panama 8 per cent, Ethiopia 9 per cent, Canada and Costa Rica 10 per cent, French Equatorial Africa and Guadeloupe 12 per cent, French Cameroons and Paraguay 20 per cent, Indonesia 33 per cent. On each kg. Bulgaria levies a duty of \$0.16; El Salvador, \$0.72 plus 8 per cent import tax; Iran, \$1.00; Peru, \$0.06 plus 14 per cent tax; Venezuela, \$0.06. South Africa charges 10 per cent on manuscripts.

Duties on instruments are levied variously by weight, value or type of article concerned. For example, Bulgaria charges \$16 a kg. for hurdy-gurdies, but double that for harps; Mexico's stiffest duty is on mouth organs and street organs (\$3 a kg.); Spain charges \$1 a kg. on hurdy-gurdies and a general duty of \$300 or more on pianos. The USA's duty on violins is 40 per cent, Finland's \$1.47 a kg., and Guatemala's \$1.00 a kg. Norway charges \$0.84 on a zither, Switzerland \$0.16 a kg. on ocarinas and Sweden \$0.68 a kg. on accordions. Australia levies a general duty of 17-47 per cent on instruments; China (Formosa) 40 per cent; Cuba and Sierra Leone 50 per cent; Egypt 53 per cent; Ethiopia 34 per cent; France

(Cont'd on next page)

**BLOCKED  
AT THE  
FRONTIER**  
(Continued)

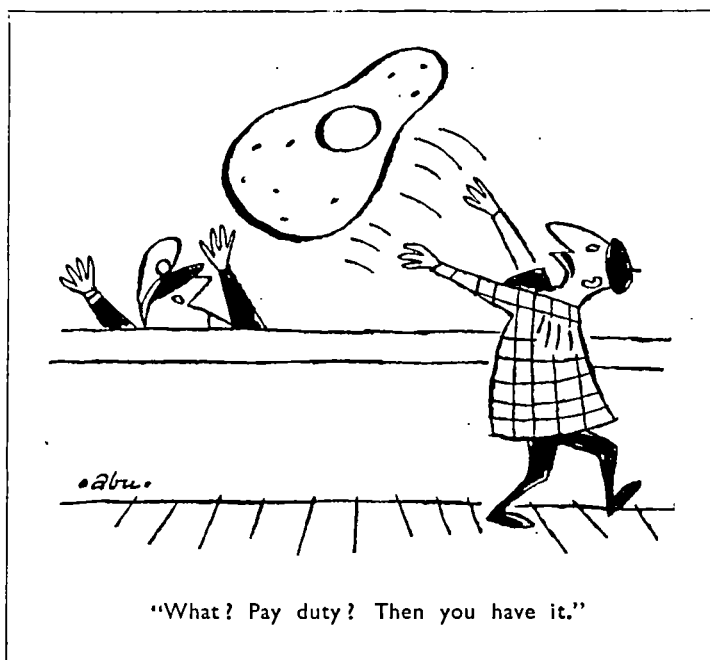


15-40 per cent; Italy 12-21 per cent; India 50 per cent; Indonesia, Sudan and Liberia 30 per cent; Iraq, Ireland and the United Kingdom 33 per cent; Israel 50 per cent; Korea 40 per cent and Pakistan 60 per cent.

**Scientific instruments** are essential to social progress and, in the case of the less developed countries, are needed particularly in raising their health, agricultural and industrial standards. Yet over 70 countries levy duties on these articles.

Angola charges 3-28 per cent; Australia 17 per cent; Burma, Canada, Ethiopia, German Federal Republic, Iraq, Mozambique, French Togoland and Libya, 10 per cent; Morocco, Guadeloupe and Martinique, 12 per cent; Denmark, Portugal and Colombia 7 per cent; China (Formosa), French West Africa, Lebanon, Paraguay, Puerto Rico, Saudi Arabia and Syria, 15 per cent; Luxembourg and the Netherlands, 10-15 per cent; Panama 10-20 per cent; Japan and New Zealand 20 per cent; Jordan 21-34 per cent; Korea 10-40 per cent; USA 20-40 per cent; Sudan 25 per cent; Ireland 30 per cent; and Iran 30-75 per cent. Austria, Bulgaria, Ecuador, Finland, Guatemala, Peru and Venezuela tax instruments by the kg., the highest rates being Ecuador's (\$3.35 a kg.) and Guatemala's (\$0.15-\$3 a kg.)

**Maps, charts and models** are obviously essential to a know-



ledge of the world around us. However, although good quality maps and charts are produced by relatively few countries, some 30 countries levy duties on those from abroad.

Australia charges 17 per cent; Ethiopia 9 per cent; French Togoland and French West Africa 20 per cent; French Guiana and Guadeloupe 5-7 per cent; Indonesia 33 per cent; Ireland 15-50 per cent (in bulk); Italy 13 per cent; Lebanon 25 per cent; Morocco 12-20 per cent; Panama 8 per cent; Paraguay 23-34 per cent; Peru 12 per cent. Bulgaria charges \$1.60 a kg. plus 5 per cent; the Dominican Republic \$1.50; Portugal \$0.14; and Norway \$0.28 if maps are glued; others are exempt.

**Materials for the handicapped.** It is hard to believe that a country would charge duties on articles needed by the blind, the partially sighted and the deaf. Yet over 50 countries tax one or more of these groups of materials.

Duties on all three groups are levied by French Equatorial Africa, French West Africa, German Federal Republic, Indonesia, Iran, Iraq, Japan, Lebanon, Panama, Sudan, and French Togoland. On braille writers, duties are charged by Angola, Bulgaria, Colombia, Costa Rica, Denmark, Dominican Republic, Ecuador, Ethiopia, India, Mexico, Mozambique, Portugal and Spanish Morocco. Hearing aids are taxed by Algeria, Australia, Burma, Cambodia, Colombia, Costa Rica, Ecuador, Egypt, El Salvador, Ethiopia, France, Morocco, Guadeloupe, Martinique, Greece, India, Italy, Laos, Libya, Pakistan, Paraguay, Philippines, Sweden, Switzerland, Thailand, Venezuela.

Highlighting this maze of restrictions on the flow of knowledge, "Trade Barriers" has evoked widespread interest in the world press. Sir Stanley Unwin, who has particularly championed the cause of books over many years, wrote of the handbook: "It is a sad reflection upon the age in which we live that it should require a large and closely set volume merely to summarize all the many artificial barriers which obstruct the free flow of information from one country to another... Let us hope that the energy to sweep away these 'Trade Barriers to Knowledge' will not be lacking."

Governments have, in fact, shown an increasing willingness to support UNESCO's efforts to this end. In 1949, the 34 nations which are the Contracting Parties to the General Agreement on Tariffs and Trade (GATT) helped UNESCO to draft an international convention (The Agreement on the Importation of Educational, Scientific and Cultural Materials).

Countries joining this agreement grant duty-free exemption to books, newspapers, periodicals, music scores, works of art, maps and charts. Also exempt are newsreels, educational films, recordings, models, scientific instruments and articles for the blind if for approved institutions or organizations.

In addition, internal taxes on imported articles may not exceed those charged on domestic products, and import fees

must be limited in amount to the cost of the services rendered. Under another provision, governments agree to grant import licences and foreign exchange for books and other publications needed by public libraries. They also undertake to simplify their import procedures, to ease the customs clearance of educational, scientific and cultural materials, and continue their efforts to promote the free flow of these articles.

The UNESCO agreement entered into force in May 1952 and is now being applied by 22 countries, embracing over 450 million people. These countries are Belgium, Cambodia, Ceylon, Cuba, Egypt, Finland, France, Greece, Haiti, Israel, Laos, Monaco, Pakistan, the Philippines, El Salvador, Spain, Sweden, Switzerland, Thailand, United Kingdom, Viet-Nam and Yugoslavia. The United Kingdom has also extended the convention to almost all of its overseas territories, so that millions of British subjects abroad are now sharing the benefits of the agreement equally with those at home. Twelve countries have signed but not yet ratified it (1).

Urging the United States to join the Agreement, the "New York Times" commented: "It is hardly likely that placing on the free list any such items on which tariffs are now collected would result in dire consequences for this country... This is one field in which it might be easy to beat the protectionists. In the first place, the United States is a book exporting country, and in the second place the tariff we do impose on books is low and has little economic significance anyway... Approval of the pact on free importation of educational, scientific or cultural materials would give a psychological boost to the whole movement for freer cultural exchange among the nations." These points might well be considered by other countries which have not yet joined the agreement.

The convention has received support from the UN Economic and Social Council and the Council of Europe, which have urged governments to adhere to it. It has also been endorsed

by over 20 international associations, including the World Federation of United Nations Associations, the League of Red Cross Societies, the International Publishers Association and the International Federation of Newspaper Publishers (FIEJ). Most of these associations have asked their national member associations to urge the governments of their countries to join the agreement. These appeals indicate that perhaps the most effective way of reducing taxes on knowledge would be to secure universal adoption of the UNESCO convention.

Meanwhile, UNESCO has sought directly to encourage international negotiation for the reduction of tariffs on information materials. Early in 1956 it requested the Contracting Parties to the GATT that they consider removing duties on these articles at their tariff negotiating conference in Geneva. In response, the conference noted that the 26 participating countries were urged to "eliminate or reduce barriers to the free flow in international trade" in the items covered by the UNESCO agreement.

The conference ended in May with 14 nations agreeing to grant reductions. The U.S.A. is cutting tariffs on maps and charts; Chile and Sweden, on films; Belgium, German Federal Republic, Italy, Luxembourg and the Netherlands, on sound recordings; German Federal Republic, Norway, Sweden and the United Kingdom on radio receivers or parts; Japan on television receivers; Sweden, the United Kingdom and the U.S.A. on certain musical instruments; Australia, Canada, France, Italy, Sweden and the U.S.A. on various scientific instruments; Canada on newsprint; and the United Kingdom on printing paper. These concessions mark new gains in Unesco's campaign to make articles of knowledge more fully available to the world's peoples.

(1) Afghanistan, Bolivia, China, Colombia, Dominican Republic, Ecuador, Guatemala, Honduras, Iran, Luxembourg, Netherlands, New Zealand.

## S. O. S.

**H**ERE are typical examples of the many appeals for help or advice which UNESCO has received from people trying to obtain books, works of art, films and other educational articles from abroad.

★ **Belgian teacher** : Our schools have the right to obtain books free of duty if they import them directly. However, import procedures are so onerous that few schools can undertake this work. Most schools therefore ask agents to do the importing. But they then lose their right of exemption, which apparently exists only in theory.

*This problem is solved, now that Belgium has joined the UNESCO Agreement on the Importation of Educational, Scientific and Cultural Materials. The Agreement grants duty-free entry to all books, regardless of destination, as well as to many other articles.*

★ **Indian importer of documentary films.** We have imported a film on agricultural training which would be most useful in an under-developed country like ours. Although the film is purely instructional and was made by another government (United States of America), our authorities have refused to classify it as educational. They have accordingly charged a

duty equivalent to \$43.75, whereas the film itself cost only \$36.27 to rent.

*When India joins the UNESCO Agreement, films like this could be granted duty-free entry without the formality of classification. The importing organization would, however, need to obtain recognition from the authorities as an approved importer of educational films.*

★ **French museum director** : I have just paid duty on three sound recordings from abroad and must now pay an even higher tax on a fourth record, although it is not new. Can I obtain tax exemption and have these payments refunded?

*France has joined the UNESCO Agreement, which exempts sound recordings under certain conditions. If the records were educational, scientific or cultural and were consigned to the museum, the authorities would probably agree to refund the sums paid.*

★ **United States publisher** : We export numerous technical books but often find that booksellers abroad have trouble in obtaining foreign currency to pay for the books after they have arrived. The booksellers fall behind in their payments to us and we naturally hesitate to extend them further credit. The ultimate losers are schools and libraries, who are the booksellers' largest customers.

*A shortage of foreign exchange prevents many countries from making funds readily available for the importation of numerous articles, including books from U.S.A. and other "hard currency" countries. However, this obstacle may be overcome through the UNESCO International Coupon Scheme, which enables persons in "soft currency" countries to obtain books from "hard currency" ones. The scheme also applies to periodicals, educational films and scientific equipment.*

★ **British educational foundation** : Despite UNESCO's help in making a film on Shakespeare's theatre available to us, we have run into an unexpected snag. The film is being held by the customs until we get an import licence, which will take weeks to obtain. Since most of the schools will then be closed for the holidays, my only course is to return the film to you.

*The British Board of Trade points out that although the United Kingdom exempts educational films from duty under the UNESCO Agreement, importers (or exhibitors) in many cases are required to obtain an import licence for the necessary foreign currency. Application for the licence should be made well in advance, to avoid delay in delivery of the film.*





# THE SCHOOL BEYOND EBOLI

*by Jean Marabini*



CRACO is a village in southern Italy. It lies on a hilltop, somewhere on the borders of Lucania and Calabria, in a region rich in folk traditions, which is still little known even to most Italians.

Describing this part of Italy—beyond Eboli—the novelist Carlo Levi has said that it is like a series of “islands” each with its own folklore and ancient traditions. The description is apt since in these mountain valleys

thunder, heavy rain began to fall and we burst a tyre.

But the next day the “evil eye” seemed to have been exorcised. The sun was shining brightly and I set off to visit the 234 children who are attending school in the converted barn of a former monastery. The headmistress, a stout and friendly woman, was anxious about the lack of space in her school. “We get a subsidy from the Government and from

eight-year-old Maria who comes to school with her goat because there is no one to look after it at home. The goat bleated pitifully during the arithmetic class but at lunchtime it provided a large bowl of milk for its young mistress. There seemed to be more boys than girls in the school, probably because you must be able to read to obtain a driver's licence for a motor-bike or car. Unfortunately, this obligation does not reduce the number of accidents on the roads. However, it is not so much because of motor-bikes as through the Government's efforts that illiteracy is practically wiped out in Craco.

But in spite of the changes wrought by modern techniques, the peasants of Calabria and especially of Lucania remain very much attached to their ancient traditions. Side by side with religious ceremonies, they still practise ancient rites which seem to be the heritage of a distant, pre-Christian past. It is a hard struggle to eke out an existence on these barren hillsides, and their belief in the power of magic is a kind of defence against the uncertainties of life. In the end they almost confuse these practices with religion.

They believe that on occasions such as births and weddings it is particularly important to protect their families from evil influences. Many of the schoolchildren in Craco still wear a tiny bag suspended on a chain round their necks which contains the ashes of their umbilical cord. And a nine-year-old schoolboy, Giorgio, told me how, when his little brother was born, his parents made a show of putting the baby into the oven so as to protect him all his life from the dangers of fire.

Similarly it is not unusual for young people to ask their relations to stand watch over their house on their wedding night in order to keep out the *monacello* (little monk) a mischievous goblin whom they hold responsible for all the misfortunes of

On way to Craco village school set up in converted barn of former monastery, farmer's children in southern Italy's Calabria region take many paths, often walk miles to class. Upper left, Giovanni follows railroad track; lower left, Maria crosses village dragging nanny goat along. Goat attends all classes, particularly dislikes arithmetic lessons, but serves as free milk bar for Maria at luncheon break. Right, improvised dining hall in former monastery gets so cramped during lunch hour that children often eat their meal standing up.

(UNESCO)



Greek and Albanian are spoken as well as Italian. Byzantine churches adjoin cave dwellings, and Protestant sects still subsist together with Jewish communities and so-called “Tolstoyan” hermits.

Craco is a typical village of these parts. I arrived there late one afternoon over a rough, winding road fringed with olive trees which seemed to be clinging to the bare hillsides. A storm was threatening and my driver remarked: “You have to beware of the evil eye in this part of the country.” As we drove into the village we met a group of women dressed in black; there was a sudden clap of

the Food and Agriculture Organization, to serve a hot meal at midday”, she explained. “But our improvised dining hall is so cramped that the children have to eat standing up.”

It was quite a task, the headmistress told me, to persuade parents to send their children to school instead of putting them to work in the fields. Of course, the 3,000 sheep, 60 cows and 300 mules owned by the villagers all need looking after. But thanks to the skill and diplomacy of her eight assistant-teachers, the headmistress has gradually succeeded in winning over the parents.

In one of the classrooms, I met

## BEYOND EBOLI

(Continued)



married life. To keep the "little monk" from doing any harm, a scythe is placed by the door with its tip pointing upwards, or newspapers are laid on the ground. Since the *monacello* considers himself obliged to count every single letter or symbol in the paper, he will be kept busy for a long time—at least till morning.

Such practices, however, are fast disappearing. Since the opening of the school and the introduction of books and newspapers in the village, young people view these ancient superstitions with increasing scepticism.

But they still retain their gift of poetic expression. Tales are told on winter evenings when the family gathers round the hearth, and at funerals long poetic laments are improvised by the deceased's next-of-kin and recited by all the mourners.

Schools can play an important part in helping to improve living conditions in isolated villages such as Craco. They are headquarters in the fight against illiteracy and help to banish out-dated ideas. They can also help to build up a written record of the tales and legends composed by local poets and which form the basis of a cultural heritage of colourful and varied folklore and traditions.

## NEW PATHS TO THE EAGLE'S NEST

Village of Craco looms against sky like mountain eagle's nest, its houses huddled together in serried clump. Once practically cut off from new ideas from the outside world, Craco, like hundreds of other small villages in Calabria and Lucania, has been waging campaign against illiteracy since 1947 with support of Italian Government and voluntary organizations. Unesco experts have also aided these campaigns. Local doctors, engineers, veterinarians and parish priests have come forward as volunteer teachers of reading and writing for adults. Since opening of new schools illiteracy has been practically wiped out in many places. Parents now send children to school (below) instead of putting them to work in the fields or to look after animals.

Credit UNESCO





# From the Unesco Newsroom

**MISSION TO BOMBAY:** An international UNESCO mission of scientists and engineers recently went to India to work with the Indian Government in setting up an institute of technology in Bombay. The team, led by the Deputy Director of UNESCO's Department of Natural Sciences, included six engineers from the Soviet Union and a British aeronautical engineer. Other UNESCO experts joined it in New Delhi. The mission which was sent to India under the U. N. world programme of technical assistance for economic and social development, will help to draw up final plans and determine equipment requirements for the Western Higher Institute of Technology, the second of four technological institutes being set up by the Government of India. Following this preliminary work, UNESCO will begin a long-term programme of aid to the new institute, supplying both professors and equipment.

■ **CENTRE OF CULTURE:** *The Burmese Government is setting up a national cultural centre in Rangoon consisting of a library, museum and an art gallery. UNESCO is aiding in planning and organizing the centre by contributing \$2,500 for architects' fees, and \$2,000 worth of equipment for the museum and library. UNESCO has also offered four fellowships for Burmese librarians and museum specialists to study abroad.*

**USE YOUR MUSEUM:** Forty-four countries intend to take part in UNESCO's world-wide campaign next October to highlight the role of museums in community life. The campaign aims to show how important a part museums can play in educating the public, just as libraries, newspapers, films and radio do in their respective spheres. To help national, regional and local authorities who plan to hold special exhibitions, UNESCO has just issued a poster illustrating the development of museums.

■ **MULTI-RACIAL UNIVERSITIES:** *The opening of new African universities "brings the principle of race equality to the forefront in central Africa" states a recent report of the U. N. General Assembly's Committee on Information from Non-Self-Governing Territories. The growing list of universities in African non-self-governing territories could prove an important ingredient in a changing racial situation, it adds. Among the 92 students last autumn at the University of Leopoldville in the Belgian Congo, which opened its courses in 1954, 77 were Africans and 15 were Europeans. The report also quotes a British statement that the new Rhodesia-Nyasaland University will be on a multi-racial basis which it is hoped,*

*"will prove a potent influence in the improvement of race relations in this part of Africa within the concept of partnership."*

**BRINGING ASIA INTO FOCUS:** Teachers and historians from 16 Western countries and from Asia held a series of meetings in Paris on May 2 to study how the presentation of Asia in Western textbooks and teaching materials can be improved. Basis of the discussions were reports sent to UNESCO by its National Commissions in 18 Western countries where educators have examined the place given to Asia in their textbooks. Summarizing national reports, a discussion paper before the Committee stated that the treatment of Asia was in general "superficial, episodic, incomplete and impersonal". (See "Asian History Through Western Glasses," in The UNESCO COURIER, March 1956; U.S.-May).

■ **HELLO OLD FELLOWS:** *Over 1,300 men and women who have followed courses in other countries through UNESCO fellowships and who are now back at work in their own lands are today linked in all parts of the world through a UNESCO Fellowship Bulletin. When this was put out as a trial issue at the end of 1955 UNESCO fellows in 40 countries wrote back to say what they were now doing. The second number of the bulletin issued recently shows the wide variety of fields in which these men and women are using knowledge gained abroad. It is now proposed to form associations of UNESCO fellows in different countries.*

**OLD JOB—NEW LAND:** Leather workers, joiners, shop assistants and dairy workers have been taking part in a long-term workers exchange initiated last year by UNESCO to enable European workers to visit other countries for from three to 12 months and to learn about the life there by working among the people. The first person to take part in the scheme, a 25-year-old Swedish leather worker, has just returned home after working for nine months in a shoe factory at Leicester, England. Other exchange workers have come from Austria, Belgium, Denmark, Germany and Switzerland. The plan is administered with the help of international trade union and co-operative organizations and travel expenses are paid by UNESCO.

■ **CYBERNETICS AND YOU:** *Scientists from many countries were present at an International Congress on Cybernetics which was held in Namur, Belgium, from June 26 to 29, under the sponsorship of the Belgian Ministry of Education and UNESCO. Today, the term cybernetics means little to the average*

*person. One dictionary defines it as "the comparative study of the human nervous system and of complex electronic calculating machines aimed at increasing the understanding of how the human brain functions" while another describes it more briefly as "the theory of control and communication in the animal and the machine". This new science, however, is radically transforming industry and is bound to affect all sectors of human activity. At Namur, scientists will consider its implications in such varied scientific fields as the mathematical theory of communications, mechanical computation, biology, physiology, medicine, psychology and social sciences.*

**NOMAD SCHOOLS:** Seventy-six nomad schools were set up in southern Iran during 1954-55 to provide classes for children of wandering tribes. During the present year these schools will be increased by 41. More than 500 of these schools, organized by the Iranian Higher Council for Education, are now operating throughout Iran.

■ **'TALKING BOOKS':** *Libraries from which blind people can borrow "talking books"—the texts of literary works recorded on magnetic tape or discs—are a well-established institution in the United States. Their development in Europe, where they are at present in the experimental stage, can now be expected following a recent meeting of representatives from 15 countries to discuss a European edition of "talking libraries".*

**BRITISH BOOK BOOM:** A record annual total of 19,962 titles published was reached by publishers in the United Kingdom during 1955. Of these titles—an increase of 774 over the previous year—5,770 were reprints or new editions. As in 1954, the four largest classes were fiction, children's books, educational works and books on religion.

■ **ONE GOOD TURN:** *A Dutch organization "to promote international solidarity by giving technical, economic and financial assistance" to less-developed countries was recently set up in Amsterdam. In providing technical assistance it will co-operate with the U.N. and Specialized Agencies, using funds raised through employers' associations, workers' unions, youth movements, religious groups and other organizations. The new organization was founded, in part, as a response to the aid which many countries gave to Netherlands when disastrous floods devastated part of the country in February, 1953.*

# Letters to the Editor

Sir,  
The January issue (N° 11, 1955, European edition) of The UNESCO COURIER on the changing role of women is most excellent, as your issues uniformly are. There is, however, one aspect of woman's accomplishment which is rarely noted. I refer to the opportunities afforded and realized in the Church. Notable jobs are being done by nuns as administrators of widespread religious orders, as deans and presidents of colleges, as heads of hospitals and orphanages etc. Much of this activity is centuries old. Some is new, like the nun doctors for the medical missions.

Francis Burke

Matawan, New Jersey,  
U.S.A.

Sir,  
The article by Prof. Ashley Montagu of issue N° 11, 1955 (U.S.-January 1956) of The UNESCO COURIER was rather sensational. I have been waiting for comments by the scientists but so far I have seen none. However, it was interesting to read the newspaper and magazine extracts in the March issue (U.S.-May). I have not—since I was a little boy—believed in the general inferiority of a woman. I find it as difficult to believe in her general superiority. I am no scientist, but a good common sense view seems to be that the sexes are rather equal as to quality.

Is Prof. Montagu recording a scientific fact? If so, we shall have to accept it. If not, it seems to me that René Leyraz is right when writing (in the *Courier*, Geneva): "Masculine superiority and feminine superiority are two equally dangerous myths." While waiting for the scientists' comments to the statements of Prof. Montagu, I quote from Murphy and Newcomb—*Experimental Social Psychology*. "From such material as we have, we can therefore say that as a rule sex differences in intelligence are not found." Otto Klineberg seems to take the same position, when talking of intelligence—as most other traits as well.

I often wonder: Of what use are those "scientific" speculations of the superiority of the one sex (or race) as compared with the other? No "inferiority" or "superiority" follows sex or colour of skin. Wouldn't that assumption be a more useful starting-point? Isn't the attempt to prove something else a waste of time and powers?

Johan Schiong

Bergen, Norway.

Sir,

In your March (U.S.-May 1956) issue of The UNESCO COURIER there is a serious error in the answer to one of the questions in the Asia Quiz, namely that the inhabitants of Ceylon are called Sinhalese. The inhabitants of Ceylon are called Ceylonese and not Sinhalese. The Ceylonese Community consists of Sinhalese, Ceylon Tamils, Indian Tamils, Muslims, Malays, Burghers and Europeans. Of these the Sinhalese form the majority community in the island. According to available population statistics, Sinhalese form 69.3 percent of the total population. The Ceylon Tamils are second, forming 11.2 percent of the total population. The Muslims total 503,770, Malays 28,736, Burghers 43,916, Europeans 5,418. The total population of Ceylon is 8.1 million. I am aware that in most publications the mistake of calling the inhabitants of Ceylon Sinhalese still exists though some have rectified it in recent years.

S.N. Jeeveswara

University Park,  
Peradeniya, Ceylon.

EDITOR'S NOTE: Our reader is right. The people of Ceylon are commonly called Sinhalese (or Cingalese, etc.) and though most dictionaries give these names, the official and correct term is Ceylonese. The Burghers referred to are the descendants of the original Portuguese and Dutch settlers in Ceylon.

Sir,

After I received The UNESCO COURIER (March 1956; U.S.-May), first I tried the "Asia Quiz" and I got 13 questions right out of 47, but now I have read all the issue and I can answer almost all the questions.

Christiane Dazaud

Brighton, England.

Sir,

I have just received and read with great interest the issue of The UNESCO COURIER devoted to the learning of history by our children (March, 1956-U.S. May). Congratulations to Unesco on producing a study which should undoubtedly attract the attention of all teachers and persons interested in Education.

In the article "Asia Quiz" it is said that the Nobel Prize has been awarded to Asian

Scientists or Thinkers three times only. To the best of my knowledge I mention that Jagadis Chandra Bose (India) has also been awarded a Nobel Prize for his scientific research. He proved that the plant has also life and feeling like man.

B.P. Desai

Dar es Salaam,  
East Africa.

EDITOR'S NOTE: Sir Jagadis Chandra (or Chunder) Bose (1858-1937) was one of India's great geniuses of science. For his important contributions to plant physiology and physics he was knighted in 1917 and elected Fellow of the Royal Society in 1920. But he was never awarded the Nobel Prize. His work in animal and particularly plant physiology was much in advance of his time. He introduced new experimental methods and invented many delicate and sensitive instruments, such as the crescograph for recording plant growth, magnifying a tiny movement as much as 10 million times. He devised an apparatus which rang a bell with every bubble of oxygen produced by a plant, and others for demonstrating the effects of air, food, drugs, rest, etc., on plants. He proved there was a complete parallelism between the responses of plant and animal tissues. During tours of Europe in the 1920's and '30's he astounded scientists by his original approach and great technical genius.

Sir,

I have just read the March 1956 (U.S.-May) issue of The UNESCO COURIER and in particular the article "How Biased Are Our History Textbooks?" by Herbert Abraham. Congratulations on an excellent practical piece of work to aid understanding and international co-operation through the intermediary of history teachers.

Widely distributed in Eastern and Western countries, this issue will undoubtedly have a beneficial influence on the basic conception of history teaching programmes and on the writing of textbooks. I hope it will also persuade "National" Ministries of Education to give a greater place to international history in school programmes.

Louis Verniers

Brussels, Belgium.

## WHERE TO SUBSCRIBE

Unesco's National distributors from whom the English, French and Spanish editions of the UNESCO COURIER can be obtained are listed below.

**AUSTRALIA.** — Melbourne University Press, 301, Flinders Street, Melbourne, Victoria.

**AUSTRIA.** — Wilhelm Frick Verlag, 27 Graben, Vienna I.

**BELGIUM.** — Louis de Lannoy, Editeur-Libraire, 15, rue du Tilleul, Genval (Brabant), 80 Belgian francs.

**CANADA.** — University of Toronto Press, Toronto 5, Periodica Inc., 5090, Avenue Papineau, Montreal 34.

**CEYLON.** — The Associated Newspapers of Ceylon Ltd., Lake House, P.O. Box 244, Colombo I.

**CHINA.** — World Book Co. Ltd., 99 Chungking South Rd., Section I, Taipeh, Taiwan (Formosa).

**CYPRUS.** — M.E. Constantinides, P.O. Box 473, Nicosia.

**DENMARK.** — Ejnar Munksgaard Ltd., 6, Nørregade, Copenhagen K.

**FINLAND.** — Akateeminen Kirjakauppa, 2 Keskuskatu, Helsinki.

**FRANCE.** — Unesco Sales Section, 19, Avenue Kléber, Paris, 16<sup>e</sup>, C.C.P. 12598-48, Unesco Bookshop, Paris.

**GERMANY.** — R. Oldenbourg K.G., Unesco-Vertrieb für Deutschland, Rosenheimerstrasse 145, Munich 8.

**GREECE.** — Librairie H. Kauffmann, 28, rue du Stade, Athens.

**HONG-KONG.** — Swindon Book Co., 25, Nathan Road, Kowloon.

**INDIA.** — Orient Longmans Ltd. Indian Mercantile Chamber, Nicol Road, Bombay I; 17, Chittaranjan Avenue, Calcutta 13, 36a, Mount Road, Madras 2. Sub-Depots: Oxford Book & Stationery Co., Scindia House, New Delhi; Rajkamal Publications Ltd., Himalaya House, Hornby Road, Bombay I.

**INDONESIA.** — G.C.T. Van Dorp & Co., Djalan Nusantara 22, Postrommel 85, Jakarta.

**IRAN.** — Iranian National Commission for Unesco, Avenue du Musée, Teheran.

**IRAQ.** — Mackenzie's Bookshop, Baghdad.

**ISRAEL.** — Blumstein's Bookstores Ltd., P.O. B. 4154, Tel-Aviv.

**ITALY.** — Libreria Commissionaria Sansoni, Via Gino Capponi 26, Casella Postale 552, Florence.

**JAMAICA.** — Sangster's Book Room, 99, Harbour Street, Kingston. Knox Educational Services, Spaldings.

**JAPAN.** — Maruzen Co. Ltd., 6, Tori-Nichome, Nihonbashi, P.O. Box 605 Tokyo Central, Tokyo.

**KOREA.** — Korean National Commission for Unesco, Ministry of Education, Seoul.

**MALAYAN FEDERATION AND SINGAPORE.** — Peter Chong & Co., Post Office Box 135, Singapore.

**MALTA.** — Sapienza's Library, 26, Kingsway, Valetta.

**NETHERLANDS.** — N.V. Martinus Nijhoff, Lange Voorhout, 9, The Hague.

**NEW ZEALAND.** — Unesco Publications Centre, 100, Hackthorne Road, Christchurch.

**NIGERIA.** — C.M.S. Bookshop, P.O. Box 174, Lagos.

**NORWAY.** — A.S. Bokhjornet, Stortingsplads 7, Oslo.

**PAKISTAN.** — Ferozsons: 60, The Mall, Lahore; Bunder Road, Karachi and 35, The Mall, Peshawar.

**PHILIPPINES.** — Philippine Education Co. Inc., 1104 Castillejos, Quiapo, P.O. Box 620, Manila.

**SWEDEN.** — A/B C.E. Fritzes, Kungl. Hovbokhandel, Fredsgaten 2, Stockholm 16.

**SWITZERLAND.** — Europa Verlag, 5, Rämistrasse, Zurich. Payot, 40, rue du Marché, Geneva.

**TANGIER.** — Paul Fekete, 2, rue Cook, Tangier.

**THAILAND.** — Suksapan Panit, Mansion 9, Rajdamern Avenue, Bangkok.

**UNION OF BURMA.** — Burma Educational Bookshop, 551-3, Merchant Street, P.O. Box 222, Rangoon.

**UNION OF SOUTH AFRICA.** — Van Schaik's Bookstore, Libri Building, Church Street, P.O. Box 724, Pretoria.

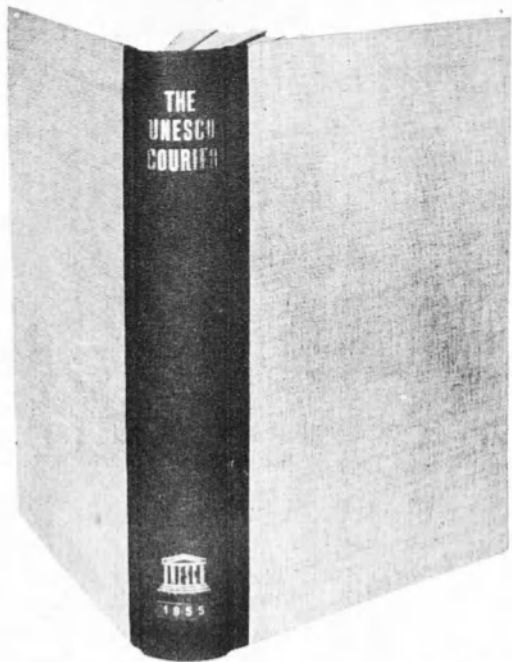
**UNITED KINGDOM.** — H.M. Stationery Office, P.O. Box 569, London, S.E.1.

**UNITED STATES.** — Unesco Publications Center, 152 West 42nd St, New York, 36, N.Y.

Columbia University Press, 2960, Broadway, New York, 27, N.Y. (except periodicals).

**U.S.S.R.** — Mezhdunarodna Kniga, Moscow.

**YUGOSLAVIA.** — Jugoslovenska Knjiga; Terazije 27/11, Belgrade.



## 'Unesco Courier' binders now available

In response to widespread demand we now offer subscribers special binders for The UNESCO COURIER. These are hand-somely produced in half-cloth with the spine in an attractive blue, and the title and UNESCO colophon embossed in gold. Each binder will hold 12 issues. Copies can be bound easily at home, and once in place are held securely. Issues can be removed at will. A series of stick-on gold embossed labels will accompany each order thus enabling readers to use binders for any year desired.

**PRICE** : \$2.50, 12/6, French fr. 600, Belgian fr. 100. Price includes special packaging and postage. Orders can be placed in other currencies through your local UNESCO agent.

### HOW TO ORDER BINDER

1. — Remittances should be sent to UNESCO agent in your country, or direct to UNESCO (DPV), 19, avenue Kléber, Paris, 16\*, France. (For payments in French francs: CCP 12598.48 Librairie Unesco, 19, avenue Kléber, Paris, 16\*.)
2. — Remittances must be accompanied by wrapper of latest issue of UNESCO COURIER received. For CCP orders wrapper should be addressed separately.
3. — Supplies are limited. Offer is reserved for subscribers only. If you are not a subscriber, your subscription must accompany order for binders.



Coming in the  
September issue

# WONDERLAND OF MUSEUMS

- ★ A voyage of discovery into art, natural history, science and industry
- ★ 'Cemeteries' of yesterday transformed



*Don't miss this issue*  
*Subscribe today to the*  
*'Unesco Courier'*

Annual subscription rate 8/-,  
\$2.50 or 400 French francs

## TO OUR SUBSCRIBERS

For administrative reasons, this 36-page issue of THE UNESCO COURIER has been dated July-August. Subscribers, however, should not regard it as a double number. All subscriptions will automatically run for an extra month. Thus, a reader whose subscription expires with the December 1956 issue will also receive the January 1957 issue.





## MEDICINE NOT MAGIC

The activities of the primitive medicine man are brushed away by the average person as "hocûs-pocus". In reality they are not. In the course of rituals of religion and magic, whether they take place in the African bush, the South American forest, or among the Navaho of arid Arizona, magic potions are imbibed (as in photo above of Tarupi Indians in the Amazon), which very often contain highly effective drugs; magic manipulations and purification rites are performed (Tarupi Indians below) which correspond largely to our own physiotherapy. (See story on page 4)

