Date: Mon, 30 Mar 2009 08:46:07 -0700

From: UW ILL Main <interlib@u.washington.edu>

To: natsci@u.washington.edu

Subject: Pull and Scan Request from UW ILL Main - 468515

-----

Article

Call Number: Q1 .S455 v.223

Branch Location: Natural Sciences Stacks

Scientific American

v.223 no.5 p.96-102 1970

Author: Tajfel, H.

Article: Experiments in intergroup discrimination.

Need by: 05/01/2009

Ship via: Scan via ILLiad

Ship to: Crystal Hall

Box 353055

Seattle, WA 98195

Email: hallcc@u.washington.edu

Fax/Ariel: Phone: 206.221.5237

User Name: hallcc

Status: Faculty - Public Affairs / Seattle

Max Cost: Free / UW: ILL - UW

Ref No:

UW-ILL #: 468515

\_\_\_\_\_

Interlibrary Loan FAX: (206) 685-8049

University of Washington Libraries Phone: (206) 543-1878

Box 352900 (800) 324-5351

Seattle, WA 98195-2900 OCLC=WAU

Email: interlib@u.washington.edu

# ina

t	res	ults	while
n	ost	tim	e-

ig your own ith your own rer you want. cessing or the

center line has at you'd rather all.

ART	TOI	FS
$\Delta M$	ICL	وبند

- FAST BREEDER REACTORS, by Glenn T. Seaborg and Justin L. Bloom
  They show promise for meeting the conflicting needs of power generation.
- THE GENETIC ACTIVITY OF MITOCHONDRIA AND CHLOROPLASTS, by Ursula W. Goodenough and R. P. Levine Both have genes of their own.
- WOODHENGES, by Geoffrey Wainwright
  At least four henge monuments enclosed structures built not of stone but of wood.
- 52 SUPERDENSE WATER, by Boris V. Derjaguin
  One of its discoverers holds that its properties are genuine rather than artifactual.
- 72 AUTOMATIC ANALYSIS OF BLOOD CELLS, by Marylou Ingram and Kendall Preston, Jr. They are counted and identified by a computer system.
- THE GREAT ALBATROSSES, by W. L. N. Tickell
  The wandering albatross and the royal albatross hold the record for wingspan.
- 96 EXPERIMENTS IN INTERGROUP DISCRIMINATION, by Henri Tajfel Even in wholly artificial test situations the "ins" discriminate against the "outs."
- WIIY THE SEA IS SALT, by Ferren MacIntyre
  As in so many other instances, sea-floor spreading casts new light on the matter.

#### **DEPARTMENTS**

- 6 LETTERS
- 8 50 AND 100 YEARS AGO
- 10 THE AUTHORS
- 42 SCIENCE AND THE CITIZEN
- 116 MATHEMATICAL GAMES
- 120 THE AMATEUR SCIENTIST
- 126 BOOKS
- 132 BIBLIOGRAPHY

Gerard Piel (Publisher), Dennis Flanagan (Editor), Francis Bello (Associate Editor),
Philip Morrison (Book Editor), Jonathan B. Piel, John Purcell, James T. Rogers,
Armand Schwab, Jr., C. L. Stong, Joseph Wisnovsky

Samuel L. Howard (Art Director), Alan D. Iselin

Richard Sasso (Production Manager). Leo J. Petruzzi and Dorecn Trager (Assistant Production Managers), Pauline Ray

Sally Porter Jenks (Copy Chief), Sally S. Fields, Dorothy Patterson, Julio E. Xavier

R Donald H. Miller, Jr.

AGER Allan Wittman

ANTS TO THE PUBLISHER George S. Conn, Stephen M. Fischer

## Experiments in Intergroup Discrimination ^

MATRIX 1

Can discrimination be traced to some such origin as social conflict or a history of hostility? Not necessarily. Apparently the mere fact of division into groups is enough to trigger discriminatory behavior

MATRIX 2

by Henri Tajfel

ntergroup discrimination is a feature of most modern societies. The phenomenon is depressingly similar regardless of the constitution of the "ingroup" and of the "outgroup" that is perceived as being somehow different. A Slovene friend of mine once described to me the stereotypes-the common traits attributed to a large human group-that are applied in his country, the richest constituent republic of Yugoslavia, to immigrant Bosnians, who come from a poorer region. Some time later I presented this description to a group of students at the University of Oxford and asked them to guess by whom it was used and to whom it referred. The almost unanimous reply was that this was the characterization applied by native Englishmen to "colored" immigrants: people coming primarily from the West Indies, India and Pakistan.

The intensity of discrimination varies more than the nature of the phenomenon. In countries with long-standing intergroup problems-be they racial as in the U.S., religious as in Northern Ireland or linguistic-national as in Belgium-tensions reach the boiling point more easily than they do elsewhere. In spite of differing economic, cultural, historical, political and psychological backgrounds, however, the attitudes of prejudice toward outgroups and the behavior of discrimination against outgroups clearly display a set of common characteristics. Social scientists have naturally been concerned to try to identify these characteristics in an effort to understand the origins of prejudice and discrimination.

The investigative approaches to this task can be roughly classified into two categories. Some workers stress the social determinants of prejudice and discrimination. Others emphasize psycho-

logical causation. In The Functions of Social Conflict, published in 1956, Lewis A. Coser of Brandeis University established a related dichotomy when he distinguished between two types of intergroup conflict: the "rational" and the "irrational." The former is a means to an end: the conflict and the attitudes that go with it reflect a genuine competition between groups with divergent interests. The latter is an end in itself: it serves to release accumulated emotional tensions of various kinds. As both popular lore and the psychological literature testify, nothing is better suited for this purpose than a well-selected scapegoat.

These dichotomies have some value as analytical tools but they need not be taken too seriously. Most cases of conflict between human groups, large or small, reflect an intricate interdependence of social and psychological causation. Often it is difficult, and probably fruitless, to speculate about what were the first causes of real present-day social situations. Moreover, there is a dialectical relation between the objective and the subjective determinants of intergroup attitudes and behavior. Once the process is set in motion they reinforce each other in a relentless spiral in which the weight of predominant causes tends to shift continuously. For example, economic or social competition can lead to discriminatory behavior; that behavior can then in a number of ways create attitudes of prejudice; those attitudes can in turn lead to new forms of discriminatory behavior that create new economic or social disparities, and so the vicious circle is continued.

The interdependence of the two types of causation does not manifest itself only in their mutual reinforcement. They actually converge because of the psychological effects on an individual of his sociocultural milieu. This convergence is often considered in terms of social learning and conformity. For instance, there is much evidence that children learn quite early the pecking order of evaluations of various groups that prevails in their society, and that the order remains fairly stable. This applies not only to the evaluation of groups that are in daily contact such as racial groups in mixed environments, but also to ideas about foreign nations with which there is little if any personal contact.

In studies conducted at Oxford a few years ago my colleagues and I founds high consensus among children of six and seven in their preference for four foreign countries. The order was Ameica, France, Germany and Russia, and there was a correlation of .98 between the preferences of subjects from two different schools. As for adults, studies conducted by Thomas F. Pettigrew in the late 1950's in South Africa and in the American South have shown that conformity is an important determinant of hostile attitudes toward blacks in both places (above and beyond individual tendencies toward authoritarianism. which is known to be closely related to prejudice toward outgroups).

These studies, like many others, were concerned with attitudes rather than behavior, with prejudice rather than discrimination. Discrimination, it is often said, is more directly a function of the objective social situation, which sometimes does and sometimes does not facilitate the expression of attitudes; the attitudes of prejudice may be socially learned or due to tendencies to conform, but they are not a very efficient predictor of discriminatory behavior. According to this view, psychological considerations are best suited to explaining and predict

В

MATRIX 3

MATRIX 4

\_

MATRIX 5

MATRIX

FIRST E utilized t translate subject to the number number know th member

								a betagen and	,			, -	7.4			
ation	A MATRIX 1	-19	16	-13	-10	<b>-</b> 7	-4	<b>—</b> 1	0	1 -4	2	3	4	5	6	
1	MAIRIX	6	5	4	3	2	1	0	1	-4	<b>—</b> 7	-10	-13	<b>←16</b>	19	
conflict	j.					-										
ere fact	į	p v	1 . 4		<b>1</b> !	1		1	1	: 1			1		å	ı
2havior		12	10	8	6	4	2	0	-1	<b>-</b> 5	-9	-13	-17	-21	-25	
	MATRIX 2											a se constitue	d.	qui de la companya de		
		<b>-</b> 25	21	17	13	<b>-</b> 9	<b>-</b> 5	—1	0	2	4	6	8	10	12	
l		tr.,														
s convergence is ns of social learn- instance, there is ildren learn quite	В	T 1	2	3	4	5	6	· 7	8 j	9	. 10	. 11	12	13	14	And the second s
· of evaluations of evails in their so-	MATRIX 3	14	pp design	No. of agents with the control of th												Company of the last
ler remains fairly only to the evalu-		14	13	12	11	10	9	8	7	6	5	4	. 3	2	1	Name of Street
e in daily contact, in mixed environ-	!		1		,	7										
eas about foreign ere is little if any	!	18	17	16	15	14	13	12	11	10	9	8	7	6	5	COLUMNICATION
d at Oxford a few	MATRIX 4		1				1	'-					1			and the last and the
es and I found a g children of six		5	6	7	8	9	10	11	12	10	14	15	16	17	18	
eference for four order was Amer-			1	*	1	1	1	4	1	i					į.	4
and Russia, and nof .98 between ubjects from two for adults, studies s. F. Pettigrew in h Africa and in the	С	14	12	_10	_8	-6		-2	_1	3	7	11	, 15	: 19	23	Output Services
shown that con- nt determinant of	MATRIX 5								! '	, 3		1	10		1	and the second
rd blacks in both beyond individu- authoritarianism, closely related to	C MATRIX 5	23	19	15	11	7	3	— 1	-2	_4	<b>-</b> 6	-8	-10	-12	<b>—14</b>	
roups).		Paragon access on	anga kasala asawa.	- Jan	1	d	0	ì	i		;			;	3	1
many others, were titudes rather than discretion, it is often	MATRIX 6	17	14	11	8	5	2	<u> </u>	-2	-3	-4	-5	—6	-7	-8	_
nation, it is often		-8	<u>-7</u>	-6	-5	-4	-3	-2	-1	2	5	8	11	14	17	

FIRST EXPERIMENT conducted by the author and his colleagues utilized these six matrices. The numbers represented points (later translated into awards or penalties in money) to be assigned by a subject to other individuals; by checking a box the subject assigned the number of points in the top of the box to one person and the number in the bottom of the box to another person; he did not know the identity of these people but only whether each was a member of his own group or "the other group." (The groups had

a function of the tion, which sometimes does not faof attitudes; the

e may be socially

lencies to conform,

efficient predictor

wior. According to

cal considerations

aining and predict-

been established by the experimenters on grounds that were artificial and insignificant.) Each matrix appeared three times in a test booklet with each row of numbers labeled to indicate whether the subject was choosing between two members of his own group (ingroup) other than himself, two members of the outgroup or one member of the ingroup and one member of the outgroup. Choices were scored to see if subjects chose for fairness, maximum gain to their own group or maximum difference in favor of the ingroup.

ing the genesis and functioning of attitudes; the facts of intergroup discrimination are best related to, and predicted from, objective indexes of a social, economic and demographic nature.

Although I have no quarrel with this view, I am left with a nagging feeling that it omits an important part of the story. The fact is that behavior toward outgroups shows the same monotonous similarity as attitudes do, across a diversity of socioeconomic conditions. This apparent diversity may, of course, obscure an underlying common factor of "rational" conflict, of struggle to preserve a status quo favorable to oneself or to obtain an equitable share of social opportunities and benefits. Another kind of underlying regularity is nonetheless common to a variety of social situations and is an important psychological effect of our sociocultural milieu. It is the assimilation by the individual of the various norms of conduct that prevail in his society.

For the purposes of this article I shall define social norms as being an individual's expectation of how others expect him to behave and his expectation of how others will behave in any given social situation. Whether he does or does not behave according to these expecta-

tions depends primarily on his understanding of whether or not and how a situation relates to a specific set of expectations. If a link is made between the one and the other-if an individual's understanding of a situation in which he finds himself is such that in his view certain familiar social norms are pertinent to it—he behaves accordingly.

There is nothing new to this formulation; it is inherent in most studies and discussions of intergroup prejudice and discrimination that stress the importance of conformity. The point I wish to make is broader. Conformity contributes to hostile attitudes and behavior toward specified groups of people in situations that are usually characterized by a history of intergroup tensions, conflicts of interest and early acquisition by individuals of hostile views about selected outgroups. We are dealing, however, with a process that is more general and goes deeper than the learning of value judgments about a specific group and the subsequent acting out of accepted patterns of behavior toward that group. The child learns not only whom he should like or dislike in the complex social environment to which he is exposed but also something more basic. An individual constructs his own "web of social affiliations" by applying principles of order

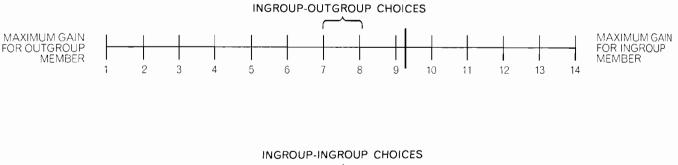
and simplification that reduce the com- hates against the o plexity of crisscrossing human categori. The ingroup. zations. Perhaps the most important principle of the subjective social order we generic norm of be construct for ourselves is the classification, several imp tion of groups as "we" and "they"-as in should follow. The groups (any number of them to which the discrimination we happen to belong) and outgroups. Leven if there is no The criteria for these assignments may of the individual vary according to the situation, and their terms of what he c emotional impact may be high or low, but in our societies this division into groups most often implies a competitive relation between the groups. In other words, intergroup categorizations of all kinds may bring into play what seems to the individual to be the appropriate form of intergroup behavior.

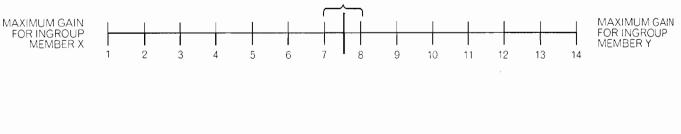
What this essentially means is that the need to bring some kind of order into our "social construction of reality" (a term recently used by Peter L. Berger of the New School for Social Research and Thomas Luckmann of the University of Frankfurt) combines with the hostility inherent in many of the intergroup categorizations to which we are continually exposed to develop a "generic norm" of behavior toward outgroups. Whenever we are confronted with a situation to which some form of intergroup categorization appears directly relevant, we are likely to act in a manner that discrimi-

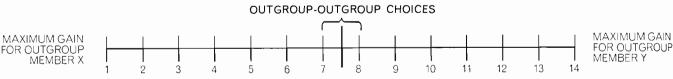
If this is true, if discriminating agai second consequenc such discrimination any previously exis tility or dislike towa the third conseque ly from the second norm may manifes havior toward the attitudes of prejud been formed. If th then discriminator can sometimes be individual is not: even imagined) co has no past histor group hostility.

At the University oration with University of Aixand M. J. Billig, I iments designed and others that fo problem was to co ditions that would effects of intergr se, uncontaminat such as interactio preexisting attitu over, to look at t the attitudes of the own group and sure that this be portance to ther with a clear alter against the outs more "sensible" i

Perhaps the b the way these cr scribe the proce first experiments sequent ones. O 14 and 15 yea "comprehensive Bristol. They ca separate groups each of the gro house in the sar that they knew the experiment. periment serve group categoriz part we assesse gorization on in







RESULTS WERE SCORED by ranking the choices from 1 to 14 depending on which box was checked. The end of the matrix at which the ingroup member got the minimum number of points (and the outgroup member the maximum) was designated 1; the other end, giving the ingroup member the maximum, was 14. The mean choices (colored vertical lines) are shown here. In the intergroup situation the subjects gave significantly more points to members of their own group than to members of the other group. In the intragroup situations, however, the means of the choices fell at Rank 7.5, between the choices of maximum fairness (brackets). ce the coman categoriortant prinal order we e classificathey"—as inm to which outgroups. nments may on, and their igh or low, livision into competitive s. In other ations of all hat seems to opriate form

rder into our ty" (a term erger of the escarch and University of the hostility ergroup catecontinually cic norm" of Whenever situation to up categorivant, we are

KIMUM GAIN INGROUP 1BER

at discrimi-

(IMUM GAIN INGROUP 1BER Y

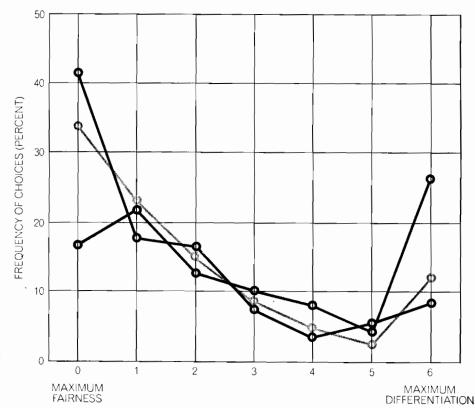
MUM GAIN DUTGROUP 3ER Y

In the interints to memroup. In the pices fell at (brackets). nates against the outgroup and favors the ingroup.

If this is true, if there exists such a eneric norm of behavior toward outgroups, several important consequences should follow. The first is that there may be discrimination against an outgroup even if there is no reason for it in terms of the individual's own interests—in terms of what he can gain as a result of discriminating against the outgroup. The second consequence is that there may be such discrimination in the absence of any previously existing attitudes of hostility or dislike toward the outgroup. And the third consequence, following directly from the second, is that this generic norm may manifest itself directly in behavior toward the outgroup before any attitudes of prejudice or hostility have been formed. If this reasoning is correct, then discriminatory intergroup behavior can sometimes be expected even if the individual is not involved in actual (or even imagined) conflicts of interest and has no past history of attitudes of intergroup hostility.

t the University of Bristol, in collab-A oration with Claude Flament of the University of Aix-Marseille, R. P. Bundy and M. J. Billig, I have conducted experiments designed to test this prediction and others that follow from it. The main problem was to create experimental conditions that would enable us to assess the effects of intergroup categorization per se, uncontaminated by other variables, such as interactions among individuals or preexisting attitudes. We aimed, moreover, to look at the behavior rather than the attitudes of the subjects toward their own group and the other group, to ensure that this behavior was of some importance to them and to present them with a clear alternative to discriminating against the outgroup that would be a more "sensible" mode of behavior.

Perhaps the best means of conveying the way these criteria were met is to describe the procedure we followed in the first experiments and its variants in subsequent ones. Our subjects were 64 boys 14 and 15 years old from a state, or "comprehensive," school in a suburb of Bristol. They came to the laboratory in separate groups of eight. All the boys in each of the groups were from the same house in the same form at the school, so that they knew each other well before the experiment. The first part of the experiment served to establish an intergroup categorization and in the second part we assessed the effects of that categorization on intergroup behavior.



INTERGROUP DISCRIMINATION was a deliberate strategy in the ingroup-outgroup choices (colored curve) and fairness a deliberate strategy in the ingroup-ingroup (gray) and outgroup-outgroup (black) choices. This is indicated by the fact that the frequencies of intergroup choices differed significantly from those of the intragroup choices only at the extreme points of the distribution, the points of maximum fairness and of maximum discrimination. (For this analysis the two fairest choices in each matrix, the two middle ones, were ranked together as 0 and departures in either direction were scored from 1 to 6.)

In the first part the boys were brought together in a lecture room and were told that we were interested in the study of visual judgments. Forty clusters of varying numbers of dots were flashed on a screen. The boys were asked to estimate the number of dots in each cluster and to record each estimate in succession on prepared score sheets. There were two conditions in this first part of the experiment. In one condition, after the boys had completed their estimates they were told that in judgments of this kind some people consistently overestimate the number of dots and some consistently underestimate the number, but that these tendencies are in no way related to accuracy. In the other condition the boys were told that some people are consistently more accurate than others. Four groups of eight served in each of the two conditions.

After the judgments had been made and had been ostentatiously "scored" by one of the experimenters, we told the subjects that, since we were also interested in other kinds of decision, we were going to take advantage of their presence to investigate these as well, and that for ease of coding we were going to group them on the basis of the visual judgments they had just made. In actuality the subjects were assigned to groups quite at random, half to "underestimators" and half to "overestimators" in the first condition, half to "better" and half to "worse" accuracy in the second one.

Instructions followed about the nature of the forthcoming task. The boys were told that it would consist of giving to others rewards and penalties in real money. They would not know the identity of the individuals to whom they would be assigning these rewards and penalties since everyone would have a code number. They would be taken to another room one by one and given information as to which group they were in. Once in the other room they were to work on their own in separate cubicles. In each cubicle they would find a pencil and a booklet containing 18 sets of ordered numbers, one to each page. It was stressed that on no occasion would the boys be rewarding or penalizing themselves; they would always be allotting money to others. At the end of the task each boy would be brought back into

_														
Α	19	18	17	16	15	14	13	12	11	10	9	8	7	
MATRIX 1	1	3	5	7	9	11	13	15	17	19	21	23	25	MJP
MIP MD														MJP MIP
	23	22	21	20	19	18	17	16	15	14	13	12	11	MD
MATRIX 2	5	7	9	11	13	15	17	19	21	23	25	27	29	
В	7	8	9	10	11	12	13	14	15	16	17	18	19	
MATRIX 3	1	3	5	7	9	11	13	15	17	19	21	23	25	MIP MJP
MD														MIP
MATRIX	11	12	13	14	15	16	17	18	19	20	21	22	23	MD MD
MATRIX 4	5	7	9	11	13	15	17	19	21	23	25	27	29	

SECOND EXPERIMENT involved new matrices. Each was presented in four versions labeled (as in the illustration at the bottom of this page) to indicate whether the choice was between members of different groups or between two members of the same group; the intergroup choices sometimes had the ingroup member's points in the top row and sometimes had them in the bottom row. The objective now was to analyze the influence of three variables on the subjects' choices: maximum ingroup profit (MIP), maximum joint profit (MJP) and maximum difference in favor of the ingroup member (MD). These varied according to different patterns in the Type A and Type B matrices and in the different versions; in some cases the maxima were together at one end of the matrix and in other cases they were at opposite ends. For example, in the ingroup over-outgroup version of Type A matrices the maximum ingroup profit and maximum difference were at one end and the maximum joint profit at the other end (colored type); in the outgroup-overingroup version of the same matrices the three maxima were to gether at the right-hand end of the matrices (black type). Type B ingroup-over-outgroup versions, on the other hand, distinguish the difference in favor of ingroup from the other two gains (color),

#### Booklet for group preferring Klee

member no. 74 of Klee group member no. 44 of Kandinsky group Please fill in below details of the box you have just chosen: Amount 17 Reward for member no. 44 of Kandinsky group

PAGE OF BOOKLET, presenting a single matrix, is reproduced as a subject might have marked it. In addition to checking a box, the subject filled in the blanks below it to confirm his choice. The page heading reminded him which group he was in. The awards were made to persons identified only by number and group; the subject did not know who they were but only their group identification,

the first room amount of mo awarded him. they were awa penny (about M. After these ins boys were led cles to fill out the

On each pag one matrix co taining two nu in the top ro penalties to b and those in the to be awarded labeled "These for member N "...of the ot had to indica ing one box in of each book page was wri of the \_\_\_ gr MIP

 $T_{tion\ on\ p}^{
m here\ were}$ appeared the once for eac There were top and the rewards and two member (other than outgroup ch fying the re member of there were choices, one and penalti group mem the other t member. (T of ingroup varied at ra

The resu were first choices. In the choice member of possible nu Rank 14, a matrix, sto number of complex) r ed for the ingroup c and for co those mad

> The re their inte of the sub ditions, g their own other gro very high

the first room and would receive the amount of money the other boys had awarded him. The value of each point they were awarding was a tenth of a penny (about a tenth of a U.S. cent).

MJP After these instructions were given, the boys were led individually to their cubicles to fill out their booklets.

MIP

MIP

in some

x and in

ingroup.

ingroup

naximum:

oup-over-

were to-

. Type *B* 

zuish the

(color).

On each page in the booklet there was one matrix consisting of 14 boxes containing two numbers each. The numbers in the top row were the rewards and penalties to be awarded to one person and those in the bottom row were those to be awarded to another. Each row was labeled "These are rewards and penalties for member No. \_\_\_ of your group" or "... of the other group." The subjects had to indicate their choices by checking one box in each matrix. On the cover of each booklet and at the top of each page was written: "Booklet for member of the \_\_\_ group."

There were six matrices [see illustra $oldsymbol{1}$  tion on page 97] and each of them appeared three times in the bookletonce for each of three types of choice. There were ingroup choices, with the top and the bottom row signifying the rewards and penalties to be awarded to two members of the subject's own group (other than himself). Then there were outgroup choices, with both rows signifying the rewards and penalties for a member of the other group. Finally there were intergroup, or "differential," choices, one row indicating the rewards and penalties to be awarded to an ingroup member (other than himself) and the other the points for an outgroup member. (The top and bottom positions of ingroup and outgroup members were varied at random.)

The results for the intergroup choices were first scored in terms of ranks of choices. In each matrix Rank 1 stood for the choice of the term that gave to the member of the ingroup the minimum possible number of points in that matrix; Rank 14, at the opposite extreme of the matrix, stood for the maximum possible number of points. Comparable (but more complex) methods of scoring were adopted for the other two kinds of choice, the ingroup choices and the outgroup ones, and for comparison of these choices with those made in the differential situation.

The results were striking. In making their intergroup choices a large majority of the subjects, in all groups in both conditions, gave more money to members of their own group than to members of the other group. All the results were—at a very high level of statistical significance

-above both Rank 7.5, which represents the point of maximum fairness, and the mean ranks of the ingroup and outgroup choices. In contrast the ingroup and outgroup choices were closely distributed about the point of fairness. Further analysis made it clear that intergroup discrimination was the deliberate strategy adopted in making intergroup choices.

Before continuing, let us review the situation. The boys, who knew each other well, were divided into groups defined by flimsy and unimportant criteria. Their own individual interests were not affected by their choices, since they always assigned points to two other people and no one could know what any other boy's choices were. The amounts of money were not trivial for them: each boy left the experiment with the equivalent of about a dollar. Inasmuch as they could not know who was in their group and who was in the other group, they could have adopted either of two reasonable strategies. They could have chosen the maximum-joint-profit point of the matrices, which would mean that the boys as a total group would get the most money out of the experimenters, or they could choose the point of maximum fairness. Indeed, they did tend to choose the second alternative when their choices did not involve a distinction between ingroup and outgroup. As soon as this differentiation was involved, however, they discriminated in favor of the ingroup. The only thing we needed to do to achieve this result was to associate their judgments of numbers of dots with the use of the terms "your group" and "the other group" in the instructions and on the booklets of matrices.

The results were at a very high level of statistical significance in all eight separately tested groups of eight boys. In view of the consistency of the phenomenon we decided to analyze it further and also to validate it with a different criterion for intergroup categorization. We tested three new groups of 16 boys each, this time with aesthetic preference as the basis of the division into two groups. The boys were shown 12 slides, six of which were reproductions of paintings by Paul Klee and six by Wassily Kandinsky, and they were asked to express their preference for one or the other of these two "foreign painters." The reproductions were presented without the painter's signature, so that half of the subjects could be assigned at random to the "Klee group" and half to the "Kandinsky group."

The matrices that confronted the boys

subsequently in their individual cubicles were different from those in the first experiment. We were now interested in assessing the relative weights of some of the variables that may have pulled their decisions in one direction or the other. In this experiment we looked at three variables: maximum joint profit, or the largest possible joint award to both people; maximum ingroup profit, or the largest possible award to a member of the ingroup, and maximum difference, or the largest possible difference in gain between a member of the ingroup and a member of the outgroup in favor of the former.

There were four different matrices [see top illustration on opposite page]. As in the first experiment, there were three types of choice: between a member of the ingroup and a member of the outgroup, between two members of the ingroup and between two members of the outgroup. In the outgroup-over-ingroup version of Type A matrices, (that is, where the numbers in the top row represented amounts given to a member of the outgroup and in the bottom row to a member of the ingroup) the three gains-joint profit, ingroup profit and difference in favor of the ingroup-varied together; their maxima (maximum joint profit, maximum ingroup profit and maximum difference) were all at the same end of the matrix. In the ingroupover-outgroup version, ingroup profit and difference in favor of ingroup went together in one direction and were in direct conflict with choices approaching maximum joint profit. In the Type Bmatrices outgroup-over-ingroup versions again represented a covariation of the three gains; in the ingroup-over-outgroup versions, difference in favor of ingroup varied in the direction opposite to joint profit and ingroup profit combined.

A comparison of the boys' choices in the various matrices showed that maximum joint profit exerted hardly any effect at all; the effect of maximum ingroup profit and maximum difference combined against maximum joint profit was strong and highly significant; the effect of maximum difference against maximum joint profit and maximum ingroup profit was also strong and highly significant. In other words, when the subjects had a choice between maximizing the profit for all and maximizing the profit for members of their own group, they acted on behalf of their own group. When they had a choice between profit for all and for their own group combined, as against their own group's win-

rds were e subject ification.

101

## Oxford

#### The Face of the Deep

By BRUCE C. HEEZEN, Lamont-Doherty Geological Observatory, Columbia University, and CHARLES D. HOLLISTER, Woods Hole Oceanographic Institution. This volume offers a vivid picture of the ocean bottom in more than 600 photographs, eight of which are in color. Text and captions provide a full description of this nearly unexplored area. In discussing such features as the Mid-Oceanic Ridge, turbidity currents, bottom currents, and abyssal tracks and trails, the authors present a highly readable and current introduction to physical oceanography.

to physical occanography.

March 1971 650 pp. 658 illus. cloth \$25.00 paper \$12.50

### Exploring the Universe Second Edition

Edited by LOUISE B. YOUNG, Science Editor, American Foundation for Continuing Education. Providing an orientation for an understanding of the principles upon which the space age has been built, this book of readings further suggests the methods and nature of man's exploration of the universe. The reader is introduced, through the use of original writings, to the attitudes and motivations of scientists ranging from Newton and his discussions of the refraction of light to the modern cosmologists and their debates over the theories of creation. Emphasis is placed upon the relation of science to art, philosophy, and literature.

Spring 1971 650 pp. 200 illus. cloth \$12.00 paper \$6.50

#### An Introduction to Stellar Atmospheres and Interiors

By EVA NOVOTNY, Staff Scientist, Astronomy Branch, Manned Spacecraft Center, Houston. Written at the intermediate level, this introduction to astrophysics explores the basic theoretical concepts of stellar atmospheres and interiors. It includes such topics as radiation transfer theory, model atmospheres, absorption-line formation, energy generation, degenerate matter, and stellar evolution.

Fall 1971 approx. 350 pp. \$9.50

#### Molecular Quantum Mechanics:

An Introduction to Quantum Chemistry

By P.W. ATKINS, Oxford University. This book introduces the ideas of quantum mechanics in Part I. Part II deals with the mathematical foundations of the theory, while Part III offers an account of atomic and molecular structure and spectra and further describes electric and magnetic properties of molecules. The work is available as a two-volume paperbound set, or in one volume, clothbound, \$17.75.

1970 Vol. I (Parts I, II) 230 pp. Vol. II (Part III) 252 pp. paper, each \$5.50

#### OXFORD 👑 UNIVERSITY 👑 PRESS 날

200 Madison Avenue, New York, N.Y. 10016 ning *more* than the outgroup at the sacrifice of both of these utilitarian advantages, it was the maximization of *difference* that seemed more important to them.

Evidence leading in the same direction emerged from the other two types of choice, between two members of the ingroup and between two members of the outgroup: the ingroup choices were consistently and significantly nearer to the maximum joint profit than were the outgroup ones-and this was so in spite of the fact that giving as much as possible to two members of the outgroup in the choices applying solely to them presented no conflict with the ingroup's interest. It simply would have meant giving more to "the others" without giving any less to "your own." This represented, therefore, a clear case of gratuitous discrimination. We also included in the second experiment some of the original matrices used in the first one, with results much the same as before. Again all the results in this experiment were at a high level of statistical significance.

In subsequent experiments we tested the importance of fairness in making the choices, the effect on the choices of familiarity with the situation and the subjects' ideas about the choices that others were making. Fairness, we found, was an important determinant; most of the choices must be understood as being a compromise between fairness and favoring one's own group. We found that discrimination not only persisted but also increased when the entire situation became more familiar to the subjects. With familiarity there was also an increase (when the boys were asked to predict the other subjects' behavior) in their expectation that other boys were discriminating.

Much remains to be done to analyze the entire phenomenon in greater detail and to gain a fuller understanding of its determining conditions, but some clear inferences can already be made. Outgroup discrimination is extraordinarily easy to trigger off. In some previous studies of group conflict, such as one conducted by Muzafer Sherif at the University of Oklahoma, groups had to be placed in intense competition for several days for such results to occur [see "Experiments in Group Conflict," by Muzafer Sherif; Scientific American, November, 1956]; in other situations behavior of this kind can occur without direct conflict if it is based on previously existing hostility. Yet neither an objective conflict of interests nor hostility had any relevance whatever to what our subjects were asked to do. It was enough for them to see themselves as clearly categorized into an ingroup and an outgroup, flimsy as the criteria for this division were-even though the boys knew one another well before the experiments, their own individual gains were not involved in their decisions and their actions could have been aimed to achieve the greatest common good.

It would seem, then, that the generic norm of outgroup behavior to which I have referred does exist and that it helps to distort what might have been more reasonable conduct. This norm determines behavior-as other social norms do-when an individual finds himself in a situation to which, in his view, the norm applies. Behavior is never motiveless, but it is a crude oversimplification to think that motives in social situations include no more than calculations of self-interest or that they can be derived from a few supposedly universal human drives such as aggression toward the outsider, the need to affiliate and so on. To behave socially is a complex business. It involves a long learning process; it is based on the manipulation of symbols and abstractions; it implies the capacity for modification of conduct when the situation changes-and social situations never remain static. To behave appropriately is therefore a powerful social motive, and attempting to do so means to behave according to one's best understanding of the situation. Judgments of what is appropriate are determined by social norms, or sets of expectations.

It seems clear that two such norms were understood by our subjects to apply to the situation we imposed on them: "groupness" and "fairness." They managed to achieve a neat balance between the two, and one might assume that in real-life situations the same kind of balance would apply. Unfortunately it is only too easy to think of examples in real life where fairness would go out the window, since groupness is often based on criteria more weighty than either preferring a painter one has never heard of before or resembling someone else in one's way of counting dots. Socialization into "groupness" is powerful and unavoidable; it has innumerable valuable functions. It also has some odd side effects that may-and do-reinforce acute intergroup tensions whose roots lie elsewhere. Perhaps those educators in our competitive societies who from the earliest schooling are so keen on "teams" and "team spirit" could give some thought to the operation of these side effects.