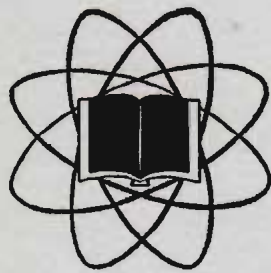


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The fear of the Lord is the beginning of wisdom. Psalm 111:10.

September, 1960

Vol. 12

No. 3

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The American Scientific Affiliation was organized in 1941 by a group of Christian men of science. The purpose of the organization is to study those topics germane to the conviction that the frameworks of scientific knowledge and a conservative Christian faith are compatible. Since open discussion is encouraged, opinions and conclusions are to be considered those of the authors and not necessarily held by others in the organization.

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The Journal of the American Scientific Affiliation

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Erratum—On the inside front cover, Henry D. Weaver, Jr., Ph.D., should be listed as the Vice-President of the American Scientific Affiliation, Inc., instead of Wilbur L. Bullock, Ph.D. This was a printer's error.

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New Testament Christianity and the Morality of Civil Rebellion

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The political principles set forth in the New Testament have recently been discussed by Peterson.¹ He presents the following list of New Testament political principles: (1) the state is a God-ordained institution serving human needs; (2) the sphere of competence of the state is limited in that it cannot (a) require idolatrous worship, (b) forbid the preaching of the Gospel, (c) encroach on the divine prerogatives given to the church and to the family, and (d) claim divine authority for the performance of acts contrary to justice or morality; and (3) some kind of resistance to a state exceeding its competence is legitimate. It is the purpose of this paper to amplify some of these conclusions to bring more clearly to light the relevance of New Testament Christianity to the question of the morality of civil rebellion.

In the light of the whole context of the Bible, we need not labor the point that government is a God-ordained institution. This tends to run contrary to the popular feelings of our day; men have seen governments rise and fall by the hands of men. We must see in such changes the sovereign hand of God's Providence. We must see our own government as the authority which God has set up for the control of the affairs of our country. There is, in fact, only one higher authority than that of the government in the affairs of our life, and that is of course the authority of God Himself.

The principle of proper respect for the authority both of the government and of God was set forth by our Lord Jesus. The Pharisees imagined that they had devised a question which would trick Jesus either into apparent disloyalty to God or into apparent treason to the state. They argued something like this: (1) God does not have respect of persons, (2) we ought to serve God rather than men, (3) but men ask us to pay them taxes for the government, therefore (4) is it right for us to pay taxes? If Jesus answered in the affirmative, they would have Him on religious grounds; if He answered in the negative, they would have Him on civil grounds. Jesus, having asked for a piece of money and questioned them concerning whose picture and writing were on it, replied, "Render therefore unto Caesar the things which are Caesar's; and unto God the things that are God's."²

Now there are several important lessons to be learned from this answer. The government in question was by no means a just and God-fearing government; it was, in fact, that very government which was to persecute Christians and feed them to the lions in the arena. There was no question of whether or not the taxes were just taxes. There was no question of whether taxes should morally be levied without the people having a voice in the decision of taxation. Any consideration of the fitness of the taxes or the method of taxation was irrelevant to the matter in question. Jesus simply said in effect, "The money was coined by Caesar; you are bound to return Caesar's tax to him." The authority of the government and the response of the Christian to the demands of the government relative to taxation did not depend on whether or not the action of the government was justified.

The Holy Spirit speaking through both Paul and Peter supplements this principle set forth by the Lord Jesus. To the church at Rome, Paul writes, "Let every soul be subject unto the higher powers. For there is no power but of God: the powers that be are ordained of God."³ The command is all-inclusive, applying to every soul. The teaching is all-inclusive; no power but of God, every existing power ordained by God. The powers that Paul was referring to in his time were those very Caesars who were to put him to death and who were to scatter the disciples before persecution. Paul goes on, "Whosoever therefore resisteth the power, resisteth the ordinance of God."⁴ It is no small offense, therefore, to resist one's government. (As in all Scriptural teaching, of course, we must not take this phrase by itself to forbid resistance of any kind, but we shall return to this question later as we consider the life of the early church.) "Wherefore ye must needs be subject, not only for wrath, but also for conscience sake. For for this cause pay ye tribute also; for they are God's ministers, attending continually upon this very thing. Render therefore to all their dues: tribute to whom tribute is due; custom to whom custom; fear to whom fear; honour to whom honour."⁵ Paul rephrases the teaching of Jesus. He re-emphasizes that the authority of the government is from God. Peter presents the same testimony, "Submit yourselves to every ordinance of

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1. W. H. Peterson, *J.A.S.A.* 11, No. 4, 16 (1959).

2. Matthew 22:15-22.

3. Romans 13:1.

4. Romans 13:2.

5. Romans 13:5-7.

man for the Lord's sake: whether it be to the king, as supreme; or unto governors, as unto them that are sent by him for the punishment of evildoers, and for the praise of them that do well. For so is the will of God, that with well doing ye may put to silence the ignorance of foolish men. . . . Honour all men. Love the brotherhood. Fear God. Honour the king."⁶ Peter joins with Paul in beseeching the Christians to accept and respect the ordinances of men "for the Lord's sake," because they are part of the system ordained by God; not only to accept, but to submit to them, which is stronger.

Already in this part of the Scriptural record which we have discussed, we have received enough of the flavor of that testimony to recognize how contrary is the spirit of New Testament Christianity to the temper of our times, indeed, to many of the things which we have been taught all our lives. We have been taught and our children are being taught today, by books and teachers and radio and television and movies, how it is great and noble to fight back against injustice in government. The heroes of history are those who have dared to rise up in arms against their unjust governments. It is accepted as a commendable ideal that it is better to die fighting for freedom in bloody revolution than to submit to the dictates of an ungodly government. We cheer as we rehearse the execution of tyrants by their outraged victims who have risen up to overthrow them.

Are Christians then to be silent against injustices perpetrated by their government? Certainly not. Are Christians to take part in God-displeasing acts of their government? God forbid. We see the role of Christians most clearly when we actually follow the Christians of the early church and see how they reacted to a hostile government. After their miracle of healing the lame man, Peter and John were seized by the Jewish rulers and committed to prison; later they were commanded not to preach again about Jesus. Peter and John answered humbly, "Whether it be right in the sight of God to hearken unto you more than unto God, judge ye. For we cannot but speak the things which we have seen and heard."⁷ Peter and John did not obey the evil command of their government; they held fast to their primary duty of obeying God first. But neither did Peter and John raise up rebellion against their government so that by force of arms they might make the preaching of Jesus lawful; they acted humbly and peacefully, since they recognized that their government represented the authority of God. So the Jewish rulers threatened Peter and John and let them go. They continued to witness with the other apostles and many believers joined them. Once again the Jewish rulers arrested them and put them in prison, but an angel freed them and they were found the next day preaching as before. They were arrested once more and sternly reprimanded. Peter answered quietly, "We ought to obey God rather than men."⁸ After an argument in the council,

the apostles were beaten and freed with the commandment that they should no more speak in the name of Jesus. And we read, "And they departed from the presence of the council, rejoicing that they were counted worthy to suffer shame for his name. And daily in the temple, and in every house, they ceased not to teach and preach Jesus Christ."⁹

Here we have an excellent case history of the spirit of New Testament Christianity in reaction against the ungodly commands of their government. Presumably the reaction of Peter and John embodies the practical operation of Christianity at work. When these apostles found that the commands of their government were contrary to the law of God for their lives, how did they react? (Note that we have here an extreme case. The command of the government was blatantly contrary to the command of God. It was not a case of restricted liberty or the like.) Did they flee to the hills and set up bands of outlaws, armed for robbery of the non-Christians and the slaying of unsuspecting Jewish authorities? When the persecutions became more general and Rome itself threw its power behind the slaughter and torture of Christians, did the Christians then run off to form guerrilla bands to prey on the countryside for sustenance, plot the assassination of Caesar and the overthrow of the government? What they did—the most important essence of the spirit of New Testament Christianity—is summed up in those very unpopular words. "They . . . [rejoiced] that they were counted worthy to *suffer shame* for his name." In his epistle, Peter puts this in his very own words, "For this is thankworthy, if a man for conscience toward God endure grief, suffering wrongfully. For what glory is it, if, when ye be buffeted for your faults, ye shall take it patiently? but if, when ye do well, and suffer for it, ye take it patiently, this is acceptable with God. For even hereunto were ye called: because Christ also suffered for us, leaving us an example, that ye should follow his steps."¹⁰ It is far more popular today to take the sword and the gun and the bomb, to call forth violence and death in battle, to become a hero for freedom by leading rebellion. Whatever virtue such sentiments may have, they do not represent the teaching of New Testament Christianity. There we see no heroes of rebellion, but heroes of faith. It is not quite so glorious for men to see themselves as heroes of faith, but how glorious it is to be seen thus by God, ". . . tortured, not accepting deliverance; that they might obtain a better resurrection: and others had trial of cruel mockings and scourgings, yea, moreover of bonds and imprisonment: they were stoned, they were sawn asunder, were tempted, were slain with the sword: they wandered about in sheepskins and goatskins; being destitute, afflicted, tormented; . . . they

6. I Peter 2:13-17.

7. Acts 4:19, 20.

8. Acts 5:29.

9. Acts 5:41, 42.

10. I Peter 2:19-21.

wandered in deserts, and in mountains, and in dens and caves of the earth."¹¹

In spite of the straightforward Scriptural evidence and the example of the behavior of the apostles under typical conditions, it is still customary to hear the following argument raised: The Bible lays down certain principles which should guide a government in its actions; when a government is not true to these principles, therefore, it is the right of the people to overthrow it and establish a government which will be true to them. Such an argument fails to recognize the basic difference between the responsibilities of a Christian citizen with respect to his government and the responsibilities of a Christian citizen as an organizer of a Christian government. Actually the citizen-state relationship is just one of many similar ones set forth in the Bible, such as the child-parent, the servant-master, and the wife-husband relationship. Certain principles are given to guide the Christian child, the Christian parent, the Christian servant, the Christian master, the Christian wife, the Christian husband, the Christian citizen, and the Christian state. But it is never true in any of these relationships that the failure of one party to live up to its Christian principles absolves the other party of its Christian responsibilities in the relationship. A Christian parent cannot cast off a child who acts in a non-Christian manner, nor can a Christian child despise and scorn a parent who acts in a non-Christian manner. God commands Christian parents, "Fathers, provoke not your children to anger, lest they be discouraged."¹² Likewise God commands Christian children, "Children, obey your parents in all things"¹³ and "Children, obey your parents in the Lord; for this is right. Honour thy father and mother."¹⁴ The fact that a parent may be unkind or unthoughtful does not justify his child's disobedience; a Christian child must continue to give obedience in all things except those which may be contrary to the commands of God. The fact that a child is disobedient does not justify malicious treatment by the parent; a Christian parent must continue to train his child in love. The Bible insists that we rid ourselves of the "if you're not good to me, I don't have to be good to you" attitude. Each member of these related pairs has his own responsibilities which he must live up to regardless of the behavior of the other member of the pair. He must refuse to obey a command contrary to the command of God, but that is the extent of the Scripturally supported resistance. *Christianity demands, not that we be ready to fight for our beliefs, but that we be ready to suffer for them.*

Similar situations prevail with respect to the other related pairs. God commands masters, "And, ye masters, do the same things unto them, forbearing threatening: knowing that your Master also is in heaven"¹⁵ and "Masters, give unto your servants that which is just and equal; knowing that ye also have a Master in heaven."¹⁶ To the servants, He commands,

"Servants, obey in all things your masters according to the flesh; not with eyeservice, as menpleasers; but in singleness of heart, fearing God,"¹⁷ and "Servants, be obedient to them that are your masters according to the flesh, with fear and trembling, in singleness of your heart, as unto Christ,"¹⁸ and "Servants, be subject to your masters with all fear; not only to the good and gentle, but also to the froward. For this is thankworthy, if a man for conscience toward God endure grief, suffering wrongfully."¹⁹ The Christian master must treat his servant with love, justice, and equality; the Christian servant must obey his master in all things even as he would the Lord Jesus Himself. But the Christian master must continue to treat his servant with love, justice, and equality, even if his servant is a worthless scoundrel. The Christian servant must obey his master in all things, even if his master is hard and unjust.

So also God commands wives, "Wives, submit yourselves unto your own husbands, as unto the Lord,"²⁰ and He commands husbands in turn, "Husbands, love your wives, even as Christ also loved the church, and gave himself for it."²¹ Again each member of the related pair has his own particular responsibility as a Christian, regardless of whether the other member of the pair lives up to his responsibility or not.

We have already discussed those passages which deal with the related responsibilities of citizen and state. The command, "Let every soul be subject unto the higher powers," does not carry with it the proviso, "if the higher powers are behaving as Christian higher powers ought to." The Christian has a dual responsibility. As a citizen and a participant in the government, he has the responsibility of working toward such a government as will embody Christian principles. As a citizen and a subject of the government, he has the responsibility of yielding obedience and service to that government. He cannot say, "Because the government is not behaving in the way that it should behave according to Christian principles, therefore, I have the right to overthrow it, i.e., to withdraw my obedience and my service." If the government acts in such a way as is clearly a violation of the commandments of God, then the citizen must indeed withhold his obedience on this point, but only on this point. And in withholding his obedience even on this one point, he must not be surprised if he is called upon to suffer in some way for his conscience-directed commitment.

It is of some interest that the Bible describes a man who fulfilled the earthly expectations of a hero. He was a man who plotted and fought to free his people

11. Hebrews 11:35-38.

12. Colossians 3:21.

13. Colossians 3:20.

14. Ephesians 6:1, 2.

15. Ephesians 6:9.

16. Colossians 4:1.

17. Colossians 3:22.

18. Ephesians 6:5.

19. I Peter 2:18, 19.

20. Ephesians 5:22.

21. Ephesians 5:25.

Israel from the yoke of Roman oppression. He was a man who took to arms and to rebellion to bring his people freedom. When he was captured he was referred to as "a notable prisoner,"²² one "which lay bound with them that had made insurrection with him, who had committed murder in the insurrection,"²³ and as "a robber."²⁴ This man, who followed the way to freedom most often espoused today, is set up as the direct antithesis of our Lord Jesus Christ. His name was Barabbas.

It would not be proper to leave this subject without making a few comments on the relevance of this discussion to the significance of our own American Revolution. Let it be plain at the first that we ought to be thankful to God for the wonderful blessings which have come to our country directly or indirectly as the result of its emancipation. Surely this is the result of the working of God's Providence, which is able to bring good from evil, so that all things work together for good for His people. But it does not obscure the basic fact that the American Revolution—like any civil rebellion—was not in accord with the principles of New Testament Christianity. The Revolution cannot be justified on the basis of the violation of human rights; the Christian is guaranteed no earthly right except the privilege of suffering for the name of Christ. The Revolution cannot be justified on the basis of taxation without representation; the duty of proper payment of taxes is clearly set forth in the

Scriptures with no reference to representation. The attempt to Christianize the Revolution because of the blessings it has brought to our country has obscured the very spirit of New Testament Christianity. Christianity did not come with a sword of steel to transform the world. Christianity came with the sword of the Spirit and the convictions of consecrated men, who were willing to die as martyrs that what they knew to be true might become established, not by the blood shed by their hands, but by their own shed blood in the outworking of the purpose of God. Only after Constantine made the unholy wedlock of Christianity and armed force has the Christian world been confused, weakened, and disabled by this departure from its historic foundation. If the church was built on the blood of the martyrs, it was bound by the swords of its earthly soldiers. To return to the first teachings of the faith is not easy, and it certainly goes contrary to our human natures and our upbringing, but there is no other alternative if we would trust God more than men. In thanking God, therefore, for the freedoms of our own country, let us not fall victims of a movement which would make Democracy our state religion, with the Revolution as its Passover and Exodus.

22. Matthew 27:16.

23. Mark 15:7.

24. John 18:40.

The First Commandment to Man

FRANK ALLEN*

"So God created man in his own image, in the image of God created he him; male and female created he them. And God blessed them, and God said unto them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every living thing that moveth upon the earth."

These verses (Genesis 1:27, 28) contain a three-fold commandment: fill the earth with population; subdue the earth, that is, bring its materials and forces into the service of mankind; and have dominion over its animal life. According to Gesenius the second part of the commandment signifies the subjugation of all animal life, which makes it identical with the third part. But the literal translation of the Hebrew expression reads, "subdue-ye-her," in reference to the earth. These three words, one in Hebrew, therefore constitute the divine charter of science.

With a present population of about three billion souls, the first part of the commandment is amply fulfilled. The third part needs no special comment, for dominion over animal life in the domestication of many animals for food, clothing, and service, and, alas! in the extinction of many species, is apparent to all.

"The heavens are the Lord's: but the earth hath he given to the children of men" (Psalm 115:16). Having entrusted the earth to man with his endowment of high intellectual powers, God has always respected His decision so that everything possible is done by man. Since in the moral and spiritual realms man could not redeem himself from sin, Jehovah became incarnate that He might accomplish that purpose for him. All the problems of nature were left for man to solve with no revealed solution except the brief sketch of creation in Genesis which, as it could not be investigated, was divinely disclosed.

If, as evolutionists assert, man has occupied this planet for a million years, during 994,000 of them he accomplished nothing either in populating the earth or in cultivating science; whereas in the last 6,000 years he has increased the population to three billion; and the knowledge of science has enormously advanced even to the extent that, by the discovery of atomic energy, the whole population could be annihilated in a few hours!

The ancient Greek philosophers were the founders of science, except astronomy. Since experimentation was almost unknown, speculation was the method

adopted. The philosopher Thales of Miletus (640-546 B.C.), "the first of the seven wise men of Greece," advanced the idea that the prime element was water from which everything else originated, since that material combined both "substance" and "motion." Later philosophers adopted the idea, but chose other substances until four were recognized: air, fire, water, and earth; which still later became represented by the properties, cold, heat, moist, and dry, respectively. To these Aristotle added a fifth element or essence, an ethereal "quinta essentia," or quintessence, of which the heavenly bodies were assumed to be composed instead of from gross terrestrial matter. The forces of "Love" and "Hate" were specified to account for the "attraction" of some elements into compounds, and the "repulsion" of others which failed to combine.

Thales also recorded the experiment that amber (Greek—elektron) when rubbed with silk acquired the power of attracting light particles of matter, and thus discovered electricity; and in Magnesia the "lodestone" was discovered which is a natural magnet. The continuity as contrasted with the discontinuity of matter was debated, and the latter, the atomic structure of matter, was finally preferred.

The early Greek philosophers wrote also on vision, light, color, and sound, but nothing of value came from their discussions. The properties of space began to be investigated, and gravitational force was a subject of elementary speculation. The doctrine of energy was strangely unrecognized; though the word itself (Greek—energeia) was employed by Aristotle.

For thirteen centuries, while the ancient world was dissolving and recrystallizing into the modern nations, science remained stagnant. With the fall of Constantinople and the extinction of the last remnant of the Roman Empire in 1453, the Greek scholars fled to Italy and inaugurated the Renaissance, or Rebirth of Learning: which lasted through the Elizabethan Age to 1603, a period of about a century and a half, wherein the mind cast off its medieval lethargy. Following the Renaissance, or the freedom of the mind, came the Reformation under Luther, early in the sixteenth century, in which the spirit regained its freedom. Luther remarked that the knowledge of nature, which had been lost since the time of Adam, was at last being recovered.

In the Age of Giants, as it has been called, great men made a series of discoveries so remarkably ordered that the whole succession of events seems to have been intelligently directed. Bartholomew Diaz (1450-1500; Portugal) placed Africa on the map by sailing around the Cape of Storms, later the Cape of Good Hope. Columbus (1492; Spain) and the

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Cabots (1451-1557; Venice-England) discovered America; Vasco da Gama (1469-1524; Portugal) pointed the way to India and circumnavigated the globe; Magellan (1480-1521; Portugal) rounded Cape Horn, the tip of South America; all within a period (1490-1520) of about thirty years. These geographical discoveries also proved the earth to be a sphere freely poised in space as the Egyptians and Chaldeans had believed; "hanging upon nothing," as Job (26:7) expressed it.

In astronomy, Copernicus (Poland 1543) re-established the original Pythagorean heliocentric theory of the solar system. Tycho Brahe (Denmark), the pretelescopic observer of the planets, who by his accurate determination of their positions enabled Kepler (Germany), the founder of mathematical astronomy, to establish his three celebrated laws. Galileo, "the restorer of reason in Italy," constructed the first telescope, founded experimental science, and laid down the principles governing uniform and accelerated motions. These great observers gathered the material by which Newton, the mastermind of humanity, was enabled by his discovery of the law of gravitation to establish the order of the solar system in all its elegance and perpetuity. "If I have seen farther than others," said Newton appreciatively, "it is because I have stood on the shoulders of giants."

"The culmination of ages of investigation of the solar system," as the writer has elsewhere written, "is the discovery of gravity as the fundamental force of nature." Upon this great principle of attraction the unrivaled interest in physics and astronomy centers. This omnipresent force holds the earth together against the disruptive tendencies of its own rotation, keeps the seas and rivers in their basins, lifts the oceans into tides, and constitutes the driving force of the waves. It depresses the floors of the oceans, it elevates the continents, and preserves the whole in equilibrium. Gravity limits the height and density of the atmosphere and confers upon it the power of transmitting sound vibrations, thus giving mankind the means of intercourse by speech and the basis for the pleasurable art of music. Combined with heat, it establishes the winds and ocean currents. distributes water in the form of vapor over the land, draws the rain and snow to the earth, gives power to the waterfall. To the same force is due the stability of the car, the ship, the submarine, the airplane, thus rendering possible transportation by land and the navigation of the sea and the air. It gives structures firmness and strength, the foundations of the art of architecture. With gentle motion it draws a leaf softly to the ground; it shatters a city with earthquake violence into ruins. By gravity man preserves his upright posture, which gives dignity to his stature, colors his outlook upon the world, determines the shape of his dwellings, the form of his tools, the manner of his occupations.

Gravity molds the sun and planets into spheres;

it gives permanence to their motions; it maintains unchangeable the length of the year; it establishes the orderly succession of eclipses. By this force atoms are united into worlds, planets into systems, stars into clusters, galaxies into a universe. It exercises its invisible sway within the narrow confines of the atom; its inescapable dominion includes the remotest stars; it stamps all nature with the insignia of unity. In the strong imagery of Job, it "binds the sweet influences of Pleiades," it confirms "the bands of Orion," it "brings forth the constellations in their season," it "guides Arcturus with his sons."

The exploration of the surface of the earth, so auspiciously begun in the sixteenth century, has now been completed in the twentieth. After several heroic but unsuccessful attempts had been made, the North and South poles have been reached by land and air, and, in the case of the North Pole, by water. Though ten expeditions to scale Mt. Everest in the Himalayas, the loftiest (29,002 feet) peak in the world, had failed, the eleventh, in 1953, brilliantly succeeded.

In the atmosphere, extending up to a possible height of 500 miles, planes have ascended about as far as the air can support them. Its complex zoned structure, for it is not merely a confused mixture of gases, has been ascertained.

The scantily known Antarctic region or continent has recently been quite well explored and studied by several expeditions during the international geophysical year (1958-59). One expedition in particular crossed the continent over the South Pole.

In a submarine-shaped float called the bathyscaph, descents have been made to depths of 10,335 (1953), 13,287 (1954), and finally 37,800 (1960) feet, or 6.8 miles, the deepest part of the Pacific and of all oceans, known as the Marianas Trench. At the last depth the pressure was 8.5 tons per square inch. Hitherto unknown and strange-looking sea monsters were encountered at the second depth in the Atlantic off North Africa; and living creatures were still observed at the lowest depth, where complete darkness and tranquillity everlastingly prevail.

The last three impressive exploits, the successful ascent of Mt. Everest, the speedy international explorations of Antarctica, and the courageous descent to the ocean's lowest depth, all of which have occurred in seven years since 1953, seem in some mysterious way to have been urgently directed to complete the command to "subdue the earth" in this rapidly expiring Gentile Age.

These geographical achievements may be summarized: the continents have been delineated and all islands mapped. The surface of the earth has been explored in detail and all lands populated, except the extensive Antarctic region which, though not populated, has been given widespread investigation. The North and South poles have repeatedly been reached; the highest mountain has been scaled; the lowest ocean depth successfully attained; and the atmosphere

investigated by balloon, airplane, missile, and radio waves.

In the realm of the infinitesimal, the complex intra-atomic structure and properties have been elucidated; and, at the opposite extreme, artificial satellites have been projected to the moon and beyond: a missile has reached its surface, its unobservable hemisphere has been photographed, and visions of interplanetary travel have been entertained. The moon (240,000 miles distant), the planet Venus (24,000,000 miles), and possibly the sun, have been struck by radar waves from the earth and the reflected waves identified.

Due to the transparency of the atmosphere, astronomers have been able to determine the place of the earth in the solar system, its stability derived from its rotation, the position of the solar system in the "milky-way" galaxy, and the relation of the galaxy to the billion other galaxies scattered at appalling distances which constitute the material universe.

Two other important laws of the attraction and repulsion of electric and magnetic forces have been discovered which follow the same law of nature as gravity, that is, they diminish in strength as the square of the distance of action increases. In addition, the discovery of the electric current and of electromagnetic induction has given humanity the telegraph and telephone, and all the multitudinous domestic and industrial uses of electricity. The further discovery of electric waves and electrons has, by radio broadcasting, extended communication in a limitless degree. Receptive devices are now available so that one person speaking can be heard by every human being. Television, by making use of the persistence of vision in the eye, as well as of electric waves, is making such remarkable advances that multitudes of people everywhere can now see the animal life, scenery, and people of countries otherwise inaccessible. By combining recording and photography with electric wave radiation, people generally can now see and hear such notable occasions as the opening of parliaments and congresses, and other outstanding events of national importance, which otherwise would be confined to those participating in them.

In the realm of transportation progress has been equally great. For several thousand years travel was largely on foot, precariously beset with danger by robbers. Many instances of this type of travel are related in both the Old and New Testaments. Our Lord Himself suffered weariness from this elementary way of transportation. Gradually improvements were made by using animals, chiefly camels and horses. As paths and trails were developed into roads, chariots and "wagons" (Genesis 45) were devised for travel by land; while small vessels propelled by oars, and by fixed sails were used by sea under favorable weather conditions. Acts 20; 21; 27. Usually the vessels were kept in safe harbors for winter as described in the disastrous voyage of

Paul to Rome. Acts 27:12, 13. As the centuries passed, the art of navigation greatly developed, especially when the magnetic compass was imported into Europe from China, thus delivering mariners from the hazardous necessity of guidance by observing the stars at night. Enormous improvement was effected when the sextant and chronometer were invented which enabled positions at sea to be accurately determined. In the nineteenth century steam engines were invented which rendered travel by land comfortable and rapid, and ocean navigation independent of seasons and weather conditions, with reduction of time to days instead of weeks and months. At last, with the application of electric power, the internal combustion (gasoline) engine, and finally atomic energy, submarines, airplanes, and automobiles have been rapidly developed, so that transportation under the sea, over the land, and through the air has all been achieved. By jet propulsion airplanes now travel at speeds as high as three times the velocity of sound, over 2,000 miles per hour; and by rocket propulsion the era of space exploration has begun; both of them in accordance with Newton's Third Law of Motion, that to every action there is an equal and opposite reaction.

Thus the prophecy of Daniel (12:4) has been fulfilled: "many shall run to and fro, and knowledge shall be increased." For in the last few centuries since the Renaissance, knowledge, especially in all branches of science, has remarkably advanced. The first part of the prophecy, "many shall run to and fro," is amply fulfilled by the flood of travel, especially in the western world, by local automobile traffic, and by tourist travel to many countries, and in winter to favorable climates.

But in reference to this part of the prophecy, "many shall run to and fro," Gesenius, in his Hebrew Lexicon, remarks that the verb really means "metaphorically to run through or over a book, that is, to examine it thoroughly." This translation, therefore, may be interpreted to signify that general education will become widespread, which, in fact, has never in the history of the world been so extensive and advanced as it is today. Whichever interpretation of the prophecy is adopted, therefore, its fulfillment is remarkably verified.

No ancient or medieval science of chemistry was possible as long as the elements were held to be earth, air, fire, and water. In the Middle Ages there flourished the alchemists, an Arabic word like the branch of mathematics called Algebra, whose efforts were directed to transmute the base metals like lead into gold, and to discover the "elixir of life," by which life would be indefinitely prolonged.

The science of chemistry began with the discovery and isolation of the natural elements of matter which now number ninety-two, and their relation to one another as shown by the Periodic Law. In addition to the standard elements there are over 1200 varieties

or isotopes of slightly different weights. One isotope of the heaviest natural element, uranium (238) called "uranium 235," constituted the atomic bomb which, in the Second World War, destroyed the Japanese city of Hiroshima by its colossal power developed by fission of its atoms.

Chemical investigation has led to the production of vast numbers of compounds, and, in the case of metals, alloys. Great industries have been developed to obtain a wide variety of chemical substances for utilization in many spheres of application.

In the fields of organic chemistry and biochemistry, analogous results have been obtained. The human body as a chemical "factory" has been minutely studied, and many of the processes by which it maintains itself as a living organism elucidated. By synthetic chemistry numerous substances of industrial importance, hitherto produced only by nature, have been developed. Indigo, perhaps the earliest dye to be synthetically made, has been followed by the huge aniline dye industry of Germany. Many other substances, notably rubber, have also been synthetically manufactured.

But synthetic chemistry has an economic dark side. The discovery of synthetic indigo ruined the cultivation in India of the plant from which it was originally obtained; and synthetic rubber, if it equals the natural substance in quality, may eventually destroy the great natural rubber industry in Malaya. The ruin of a natural industry may impoverish a multitude of people! In numberless ways chemical science has shown its mastery over the elements of matter, just as physical science has brought under human control the different types of energy.

In the microscopic study of plant life by botanists, and of the minute and gross anatomy of animal life by zoologists, and of the human body by anatomists and physiologists, the structures of living forms have been infinitesimally examined and their functions ascertained. As one result, new and improved varieties of both plant and animal life have been developed from recessive qualities in the primitive structures, which, under human guidance, have become dominant. But despite the theory of evolution, no new species have ever been developed.

The most remarkable piece of living matter is the brain, a vast "unraveled complex" as it has been termed. The brain of an ant has been described as the most remarkable bit of matter to be found. For in that tiny assemblage of cells reside all the instincts that govern the communal life of its possessor.

But the human brain is unquestionably the crowning material organism of the Creator. To this billion-celled structure are carried most of the nervous impulses initiated by stimulation of the neural receptors for light, sound, touch, pressure, heat, cold, tastes, odors, pain, hunger, thirst, and many others, which, though alike as impulses, yet in the various centers

of the brain mysteriously excite an amazing variety of sensations. How a sensation is excited and what cerebral structural differences there are to vary the sensations are entirely unknown.

The brain is the seat of consciousness. In it are also centers for speech and memory, and for the intellect, emotions, and will, the elements of all social and intellectual life. There are centers which originate and control the motions of the body. We know not how the neural processes operate by which we raise a finger or a foot. The great Newton, someone has said, could elucidate the order of the solar system, but he could not explain how he raised his arm!

Psychology (Greek—*psuche*, soul) is concerned with the feelings, traits, actions, sensations, and attributes, collectively, of the mind. The mind fundamentally is concerned with the study of itself! But psychology is not empowered to study the spiritual (Greek—*pneuma*, spirit) attributes of our nature. These are in a different and higher realm, into which psychology cannot enter.

Many distinguished investigators in all branches of science have been atheists or, to use Huxley's term, agnostics, and they have contributed much to the advancement of knowledge. Such an admission, however, does nothing to justify atheism.

In Genesis (Chapter 4:22) it is stated that a son of Lamech, a descendant of Cain, named Tubalcaïn, was "an instructor of every artificer in brass and iron." Evidently his inventive skill in the working of metals contributed greatly to the building of the ark by Noah to escape the Flood, in which all the descendants of Cain perished. So unbelievers, who may have contributed much to knowledge, will fail to share in its future glory by their repudiation of eternal life in the only way, through belief in Christ, in which it can be obtained.

How far toward a complete knowledge of the material universe scientific research has gone is unknown. Doubtless much still remains to be discovered. The ultimate explanation of phenomena seems impossible to obtain: the best that science at present can do is to describe them. The laws of nature are but descriptions of observed uniformities. Possibly the command "to subdue the earth" implies that ultimate explanations of all the fundamental processes of nature will be forthcoming.

Though attempts have been made to do so, it is impossible to define "life," the greatest mystery of all, for a definition must be made in terms simpler and more fundamental than the one to be defined. But "life" itself is fundamental, and therefore cannot be described in simpler terms.

It has often been remarked that in the nineteenth century, and more especially in the twentieth, scientific knowledge has increased at an ever enlarging rate. This enormous expansion has been attributed to the remarkable activity and deepening insight of

investigators. This is indeed true. But probably it should rather be regarded, as before remarked, as the urgently needed acceleration of investigation to accomplish the "subjugation of the earth" before this rapidly closing Gentile Age is completed.

Coincidental with exploratory and scientific urgency has been the rise and spread of missionary

activity, together with increasing world evangelism, during the last century and a half, coupled with the translation of the Bible, in whole or in part, into over 1100 languages, reaching 95 per cent of the population of the world.

Urgency on the world scale is the watchword of the age!

*The American Way of Life and Scriptural Christianity**

PETER TRUTZA**

It is the purpose of this paper to present a gestalt view of the American way of life within the frame of reference of its culture as we find it projected in the social organization of the American people. This presentation will be based on a fourfold comparative study of American Christianity.

A historical comparison will be drawn in order to determine the lines along which the pilgrims and the successive waves of immigrants have built in the new world the kind of religious values and the type of society in which they have believed.

A contemporary cultural profile will be presented offering specific as well as a more general characterization of the American society and its religious climate, as it becomes easily apparent both to the Americans and to the non-American world.

From a study made by the writer in the area of religious acculturation an attempt will be made to portray those traits in the American culture which have affected most significantly the submerging new religious groups and cultures coming to our shores.

Then, an attempt will be made to interpret in the light of the Scriptures—on one hand—the developments in the American religious culture which represent in a fuller measure the Scriptural ideals for a "divine society," and—on the other hand—to show the tendencies of departure from the Scriptures, as the spiritual climate of America becomes influenced more and more by old erosive forces which bring decay and newer damaging philosophies and theologies which tend to reduce the power and the vitality of evangelical Christianity in America.

Finally, the writer would like to conclude this paper with a projection into the future of American Christianity, the alternatives which are being chosen

and the ends to which they lead, as we can see these developments in the light of history.

The writer is very much aware that the nature and the extent of such a paper will impose serious limitations upon the treatment of this subject and that an adequate discussion cannot very well be contemplated here. Recently I heard a story which describes very well the way I feel. In approaching this subject I feel something like the two cows which saw a milk truck passing by and bearing in large letters the words, "homogenized, pasteurized, vitaminized." As it passed one said to the other, "It makes one feel so inadequate." To treat an area so comprehensive within the limits of this paper giving sufficient attention to all the factors considered, will be an impossible task. We will be forced to mention only, rather than to discuss, many peculiar cultural traits for the purpose of presenting the broad configurations of the religious cultures we have chosen.

I

It is an undisputed fact that our cultural roots go back to Europe. Every aspect of American history, every phase of American life, bears testimony to this fact.¹ To understand, therefore, the religious culture of America it will be necessary to examine the religious situation in England and other European countries which contributed so significantly to the peopling of the new world.

The first colonists came from the *British Isles*. They made the largest part of every colony. It is, therefore, of interest to us to know the religious situation in England, Scotland, and Ireland. "From these countries came the Puritans, the Cavaliers, the Quakers, the Catholics, and the Scotch-Irish. Out of these groups came Congregationalism, the Established Church, the English Catholic Church, the Baptists,

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1. Will Herberg, *Protestant-Catholic-Jew, An Essay in American Religious Sociology*. Garden City: Doubleday & Company, 1956, p. 18.

the Friends, and the Presbyterians."² These were the most important of the colonial churches. After them came the Dutch and the German elements in the middle colonies who were not far behind in numbers and in influence. From these groups came the Reformed churches, the Lutherans, besides the Mennonites, the Dunkers, and the Moravians. At the time of the Revolution, the "Anglo-Saxons" constituted at least 75 per cent of the 3,000,000 whites who together with about three quarters of a million Negroes made up the new nation. They were predominantly Protestant and from the very beginning they gave a Protestant direction to American religious life.

The largest number of immigrants came in the next century. Over 35,000,000 men and women came in three huge waves, stretching over more than a hundred years. By the time the great migrations were past they reduced the British-Protestant element to less than half the population. Thus linguistically, ethnically, and religiously the Americans had become the most heterogeneous people on earth.

Behind them all the newcomers left a continent whose economic, social, political, and particularly religious climate they considered to be unfavorable and unhealthy. What was true at that time and what continues to be true now, even though in a lesser degree—about the religious climate of Europe? Have the Pilgrim Fathers, the Puritans, the Separatists, and all the religious dissenters succeeded in building in the new world a new Christianity, a different Christianity from the one they have known in Europe? What are the traits of the religious culture they left behind?

"The keynote of the New Testament is that all external observance of the law is worthless unless it is based on the obedience of the heart,"³ says George M. Stephensen in his book, *The Puritan Heritage*. One general characterization of the European Christianity is to be found in the emphasis which is placed upon form. Rigid religious rituals, devoid of meaning, automatically performed, transform the clergy into religious robots, the believers into superstitious practitioners, and the churches into empty tombs.

As a European, reared and educated in Europe, and having visited Europe twice in the last four years, in each trip traveling through about fifteen countries, I have had the opportunity to observe the spiritual barometer of Europe in country after country. The empty churches speak too eloquently for one of the many reasons why people do not attend church: exaggerated religious formalism. Abbe G. Michonneau, the author of *Revolution in a City Parish*, speaking about church absenteeism, says: "Our contention that these souls are 'Christifiable' but not 'Ecclesiasticable,' should not cause any apostle to become discouraged; it merely points out the proper approach."⁴

Another trait of the European Christianity is the concept of the Parish church, a church not separated from but identified with the world. Once more Abbe

G. Michonneau, speaking about the Catholic Christians of France, in a Parish church situation, says: "... if we wish to restrict the title of Christian (and we are not saying 'good Christians') to those who have the Faith, to those to whom Christ is a reality, we must have the courage to stand by the opinion of 'France, a Mission Land,' and that the mass of the working class is pagan. Not because they do not practice the Faith, but because (and the evidence is so clear on this point that we are amazed at any discussion of it), their mentality is pagan and completely foreign to the Christian spirit, indifferent to our creed, and careless of the demands of our moral code."⁵

The comers to our shores left in Europe a Christianity in which the church and the state unitedly conspired against the sacred rights and freedoms of the individual. Freedom is dependent on the right to dissent. When there is no separation of church and state, individuals as well as religious groups are not treated as equals before the law. Persecutions and restrictions of all forms are used to bring about conformity; the outcome is stagnation, degeneration, regress—spiritually, politically, economically. Those suffering under such conditions look toward other lands where they can begin life again with better hopes for a better future.

But, the Christian culture of Europe was not in the past and is not now characterized only by exaggerated religious formalism, the application of the concept of a parish church and union of church and state. There are other features which must be mentioned here. These features are: intolerance toward other religious faiths, authoritarian overbearing attitude of ecclesiastical leaders, the role of observers rather than of participants of laity—a passive laity, lack of vital religious experience in the individual Christian, lack of evangelistic zeal, absence of missionary interest, separation of religion from daily life, Scriptural illiteracy among laity and clergy, an extensive churchianity which has reduced significantly the meaning of intensive and vital Christianity.

There are, certainly, positive aspects which should be offered here for a complete picture of the religious culture of Christian Europe. There is a real value in every religion which serves as integrator and stabilizer of human personality. The value of any religion is relative and is determined by the historical factors which shape the culture of any given place and time. History can prove also how damaging certain religious creeds can be when they do not favor the welfare of every man and his free development and

2. William Warren Sweet, *The Story of Religion in America*. New York: Harper & Brothers Publishers, 1960, p. 1.

3. George M. Stephensen, *The Puritan Heritage*. New York: The Macmillan Company, 1952, p. 11.

4. Abbe G. Michonneau, *Revolution in a City Parish*. Westminster, Maryland: The Newman Press, 1956, p. 7.

5. *Ibid.*, p. 1.

progress. The characterization of European Christianity as portrayed above shows a deviation from Scriptural Christianity which led Europe to continuous persecutions, wars, devastations, and spiritual degeneration. Is it a wonder then that millions left Europe and turned toward America, the Promised Land?

II

Have the Pilgrim Fathers, the Puritans, the Separatists, the newcomers of later years, been able to establish in the new world the foundations of a purer, truer, better, and higher form of Christianity? Can we speak about the American Christianity as being different from the Christianity from which it emerged? What are the structural components of American Christianity? What is the profile of the American Christian? Such questions are not easily answerable.

S. Angus reminds us that "the briefest review of Christianity must convince us that it has not been always the same. It has ever manifested continuity through change. . . . It has shown permanence through countless mutations.⁶ . . . Christianity has contributed to the making of every age, and every age has contributed to the making of Christianity as an historical movement. . . . Christianity, like every great movement of the human spirit under divine inspiration, has to live and move in a given environment, upon which it reacts and from which it also suffers reaction."⁷

In the new social and political climate of America, the newcomers, inspired by higher ideals and hopes in life, have been able to establish the foundations of a new Christianity, truer to the Scriptures, and freer and more dedicated to the redemptive work of Christ in the building of a new humanity.

As over against the religious formalism of Europe, the American Christians show a perennial eagerness to free themselves from the heaviness and coldness of dead form and have developed greater simplicity, spontaneous freedom, and wider lay participation in the worship services of the church.

American Christianity has emphasized the need of Christians to turn from tradition back to the Bible, to turn from sacramentalism back to an experiential Christianity, to turn from clericalism back to the universal responsibility of all believers—back to the priesthood of all believers. The American Christians have given themselves to the transformation of a Sunday religion into an everyday religion, have given themselves to the task of the separation of church from the world (as it is clearly indicated in the wide acceptance of the concept of "gathered church" and in the existence of such a great diversity of Christian denominations) and to the task of winning the world to Christ. The American Christians have emphasized activity over against pious mysticism; and, in a

dynamic culture in a fast changing world they emphasized the need for change and progress in contrast to the restrictive spirit of conformity of the established churches of Europe.

The American Christians have fought for a complete freedom of the individual in the church and in the state and for the separation of church and state and have been able to build the freest society and the highest standards of living in the history of man.

The American Christians have de-emphasized Christian fetishism, the worship of sacred objects, pilgrimages in sacred places, and have called the followers of Christ to worship Him in spirit and truth. Preaching has won an honored place in Christian worship in America while the chanting of the Gospel has come to be looked upon as an imported, strange, exotic, religious ritual. Evangelism and Missions have come to be considered in America as two modes of genuine demonstration of the real life and power of a true church of Christ while the European churches from times immemorial have lost their meaning of Evangelism and Missions.

A portrait of some general features of American Christianity against the background of European Christianity was attempted here. While there are some smaller Christian groups in Europe which will not be able to recognize their image in the profile presented here it is not too difficult to identify these negative features with the vast majority of Christians and Christian churches, particularly in continental Europe. When we look to the American features and colors in this portrait we are forced to recognize configurations and shades which depict quite great variations from time to time, from place to place, and particularly from religious group to religious group. In general we can say, however, that these positive traits persist in our Christian culture while one will have a difficult time to recognize them in the Christian culture of Europe.

Have the Christians of America succeeded in building a new and different Christianity in the new world? To this question I believe that we can give an emphatic yes!

Ronald E. Osborn in the fourth chapter of his book, *The Spirit of American Christianity*, provides eight characteristic expressions of American religious culture.

"Our Christianity," says Dr. Osborn, "is the product of obedience to God and searching of the Scriptures on the part of earnest men and women living in the peculiar American environment."⁸

6. S. Angus, *Essential Christianity*. New York: The Macmillan Company, 1939, p. 12.

7. *Ibid.*, p. 15.

8. Ronald E. Osborn, *The Spirit of American Christianity*. New York: Harper & Brothers Publishers, 1958, p. 83.

Dr. Osborn analyzes the characteristic expressions of American Christianity under the following headings: activism, the prominence of preaching, the ministry of friendship, lay leadership, the continuity of a living faith, the spirit of independence, the concern for human welfare, and "Simple Faith."

We have talked up to his point about the Protestant Christianity of America. In the general picture we should be able, however, to look to a growing non-Protestant population in the United States and to a characterization of its religious culture as compared with European Christianity.

In terms of a Spenglerian dichotomy we can think of the non-Protestant Christianity and the Protestant Christianity of America as being approximations of two characteristic types: the Appolonian and the Faustian. We realize how difficult it is to present too vastly different religious communions in the form of two ideal constructs. For a very general presentation of the spiritual and psychological structure of the two great faiths this typological approach may serve profitably the purpose. A closer analysis of the two religious systems will convince us of the evident high degree of correlation between the non-Protestant and Appolonian ideal construct and the Protestant and the Faustian ideal construct.

"The Appolonian man conceived of his soul as a cosmos ordered in a group of excellent parts. There was no place in his universe for will, and conflict was an evil which his philosophy decried. The idea of an inward development of the personality was alien to him, and he saw life as under the shadow of catastrophe always brutally threatening from the outside. His tragic climaxes were wanton destructions of the pleasant landscape of normal existence."⁹ This picture seems to portray quite vividly the American non-Protestant and the European Christian.

The Protestant culture might be thought of as fairly Faustian. "Man's existence is as a force endlessly combating obstacles. His version of the course of individual life is that of an inner development, and the catastrophes of existence come as the inevitable culmination of his past choices and experiences. Conflict is the essence of existence. Without it personal life has no meaning, and only the more superficial values of existence can be attained. Faustian man longs for the infinite and his art attempts to reach out toward it."¹⁰

The preceding characterizations of the American religious culture show some great variations as well as some unifying features giving it an "overarching sense of unity." In the words of Will Herberg: "A realistic appraisal of the values, ideas, and behavior of the American people leads to the conclusion that Americans, by and large, do have their 'common religion' and that that 'religion' is the system familiarly known as the American Way of Life."¹¹

"The American Way of Life is, of course, anchored

in the American's vision of America. The Puritan's dream of a new 'Israel' and a new 'Promised Land,' in the New World, the 'novus ordo seclorum' on the Great Seal of the United States reflect the perennial American conviction that in the New World a new beginning has been made, a new order of things established, vastly different from and superior to the decadent institutions of the Old World."¹²

"The American Way of Life is individualistic, dynamic, pragmatic. It affirms the supreme value and dignity of the individual; it stresses incessant activity on his part, for he is never to rest but is always to be striving to 'get ahead'; it defines an ethic of self-reliance, merit, and character, and judges by achievement: 'deeds, not creeds' are what count. The American Way of Life is humanitarian, 'forward looking,' optimistic."¹³

Some of the "values" embodied in the American Way of Life are listed by Dorothy Canfield Fisher in her book, *Vermont Tradition*. She mentions: "individual freedom, personal independence, human dignity, community responsibility, social and political democracy, sincerity, restraint in outward conduct, and thrift. With some amplification—particularly emphasis on the uniqueness of the American 'order' and the great importance assigned to religion—this may be taken as a pretty fair summary of some of the 'values' incorporated in the American Way of Life."¹⁴ Will Herberg adds: "It should be clear that what is being designated under the American Way of Life is not the so-called 'common denominator' religion; it is not a synthetic system composed of beliefs to be found in all or a group of religions. It is an organic structure of ideas, values, and beliefs that constitutes a faith common to Americans and genuinely operative in their lives, a faith that markedly influences, and is influenced by, the 'official' religions of American society. Sociologically, anthropologically, if one pleases, it is the characteristic American religion, undergirding American life and overarching American society despite all indubitable differences of region, section, culture, and class."¹⁵

Of crucial importance is the new attitude of Americans toward religion. "The object of devotion in the American religious culture is 'not God but religion.' . . . The faith is not in God but in faith. We worship not God but our own worshiping," says Herberg.¹⁶

9. Peter G. Trutza, *The Religious Factor in Acculturation, A Study of the Assimilation and Acculturation of the Roumanian Group in Chicago*. Unpublished Ph.D. dissertation, Department of Sociology, University of Chicago, 1956, p. 152.

10. *Ibid.*, pp. 153, 154.

11. Will Herberg, *Protestant-Catholic-Jew*, p. 88.

12. *Ibid.*, p. 93.

13. *Ibid.*, p. 92.

14. *Ibid.*, p. 94.

15. *Ibid.*, p. 90.

16. *Ibid.*, p. 98.

While one will be willing to go along with Herberg a part of the way, accepting his analysis and description of the faith and worship of the American people, it will be difficult to reconcile this diagnosis with the facts that more than 95 per cent of the American people profess to believe in God according to a number of recent polls¹⁷ and that church attendance is breaking all past records.

III

For the purpose of discovering the effects of the interaction between the American religious culture and a submerging immigrant culture the writer used as a sample, for intensive interviewing, 100 Roumanian Orthodox and Roumanian Baptists living in Chicago. The study was made in the year 1954-55. Some of the objectives of this study were:

a. "To establish whether or not each of a number of religious cultural traits is held mainly and significantly by males or females, Baptists or Orthodox, or those with the higher assimilation scores as over against those with the lower assimilation scores.

b. "To establish whether or not certain specific religious cultural beliefs and practices have been weakened or strengthened among either males or females, Baptists or Orthodox, or the more assimilated or the less assimilated as a result of movement from Roumania to the United States.

c. "To describe probable differences in the complexes of cultural traits, the religious traits in particular.

d. "To describe the social organization of several bilingual Baptist and Orthodox churches with a view of pointing out significant similarities and differences.

e. "To establish the extent to which Roumanians have adopted American customs and folk practices with a view of pointing out factors in both the American and Roumanian scenes that facilitated the adoption."¹⁸

We regarded the Roumanian Orthodox pattern as distinctly European since it originated in Europe and was the religion characteristic of a European country. The attempt was made to appraise the extent to which respondents had moved away from the most usual European Orthodox attitudes toward patterns represented by American Protestantism.

We found the Orthodox to favor formalism and the Baptists to oppose it. Both Baptists and Orthodox were found to be significantly in favor of less authority for the clergy; the majority, however, was much heavier among Baptists than among Orthodox, the Baptists coming closer to the American pattern. Concerning church discipline, and assuming that the right to censure individual church members is part of the American pattern, the Orthodox will be here at variance with the pattern. Both Baptists and Orthodox felt it unadvisable to belong to as many church organizations as possible. The majority among Orthodox

was much heavier than among Baptists. In this respect also, the Baptists show greater closeness to the American pattern than the Orthodox. Baptists feel strongly that separation of church and state should be adopted by all countries. A slight majority of Orthodox, however, showed less favorable attitudes toward such separation in all countries of the world. The majority of Baptists and Orthodox did not feel that historical argument was important for the purpose of proving the veracity of one's faith. The majority was much heavier among the Baptists than among the Orthodox. In the case of the Orthodox this finding indicates an interesting shift from the European to the American pattern. In Roumania it was held that the truth of Orthodoxy could be unquestionably proved by history and that no other proofs could be necessary or satisfactory. The Orthodox here have, therefore, taken an interesting step in the American direction.

Indication of a significant shift is found in the attitude of the Orthodox concerning the freedom of the individual to determine the course of his own religious life, showing that the Orthodox have moved away from the European toward the American pattern. Again, American Protestantism does not favor holy days dedicated to saints. Roumanian Orthodoxy is highly favorable to such days. A slight majority of Orthodox disfavored the observances of such days in America, indicating once more an interesting shift in opinion from the European to the American pattern. The vast majority of Baptists held that religion should be mixed into daily life. A strong majority of Orthodox disfavored such mixture. The great majority of Baptists favored dynamic, aggressive Christian action. The great majority of Orthodox disfavored this. Baptists show themselves in line with the American and Orthodox in line with the European pattern regarding singing in church. By a heavy majority Baptists favored missionary work and the Orthodox did not. Similarly, the majority of Baptists held that laymen should take greater responsibility in church work while the Orthodox did not hold so. Baptists favored also women taking such responsibilities. Orthodox disfavored women having interest in church work.

American Protestantism de-emphasized the ornate churches while the European pattern favored them. That Orthodox should show here the same pattern as the Baptists in the United States indicates an interesting shift from the European pattern. Both Baptists and Orthodox in about the same degree show themselves to disfavor aloofness and to favor greater social mixing on the part of clergymen, the Orthodox shift indicating highly significant change. The majority of

17. *Ibid.*, p. 104.

18. Peter G. Trutza, *The Religious Factor in Acculturation*, pp. 2, 3.

Orthodox still favor prayer for the dead, indicating their adherence to the European pattern.

It is evident that few of the respondents realize the extent to which their attitudes had changed during the years of residence in the United States.

We have amassed here some evidence that would seem to support Warner's thesis that a culture is essentially religious and would also seem to support a corollary to that thesis that individuals whose religion corresponds with the religion of the dominant group are more ready attitudinally to fit into the main values of the culture than are those whose religion differs from the religion dominant in the new country.¹⁹

Of great value to us will be a study which will endeavor to measure the impact upon the American religious culture of all the non-Protestant and non-Evangelical influences which have affected and continue to affect today American Christianity. The magnitude of such a task will require specialists, tools, techniques, controls, beyond the limits of today's knowledge. American Christianity is changing continually other religious faiths and is being changed continually by other religious faiths. Without change there is no progress but not all change is progress. This is true in the spiritual realm as well as anywhere else. We can be sure that some changes, and in all probability, serious changes, are effected in the American religious culture under the influence of Christian non-Protestant faiths.

IV

Now is the time to ask ourselves: What are the developments in the American religious culture which represent in a fuller measure the Scriptural ideals for a "divine society"? When we speak of a "fuller measure" it is our purpose to point out the fact that there are differences both in quality and in degree between various societies and cultures and that there are clearly distinguishable differences between various Christian communions.

"If the American Way of Life had to be defined in one word, 'democracy' would undoubtedly be the word, but democracy in a peculiarly American sense," says Will Herberg. "On its political side it means the Constitution; on its economic side, 'free enterprise'; on its social side, an equalitarianism which is not only compatible with but, indeed, actually implies vigorous economic competition and high mobility. Spiritually, the American Way of Life is best expressed in a certain kind of 'idealism' which has come to be recognized as characteristically American."²⁰ The American Way of Life is a political democracy, a societal democracy, an economic democracy, an educational democracy, a spiritual democracy which finds at its core the dignity, the rights, the freedoms, and the responsibilities of every member of human society.

The Scriptural ideals of the American Christianity are expressed in the spirit of tolerance, in the right to differ, in the multiplicity of religious denominations, in the spirit of independence, in evangelistic fervor and missionary interest, in the ministry of friendship, in concern for human welfare, and in individual freedom and human dignity. These Christian ideals have become a part of the American spiritual heritage because a large enough number of Christians in this country have believed in the private interpretation of Scriptures and in its corollary—the priesthood of all believers, and in the necessity of spiritual regeneration based on a vital experience with Christ—salvation by faith.

Present trends and developments in the American religious culture indicate clearly that there are potent forces and influences which tend to reduce the power and the vitality of evangelical Christianity in America. Once more, without discussing them—for reasons of brevity we will need rather to list such trends and developments.

The nonconformist and inner-directed American Christians are becoming fast conformist and other-directed. Individualism is retreating in the presence of unionism, collectivism, and authoritarianism. Simplicity of worship is slowly modified and replaced by impersonal, cold formalism. The fast urbanization of America poses serious consideration of the merits of the concept of "parish church" over against the merits of the concept of "gathered church." Highly technically trained ministry and the complexities of modern urban life predispose laity to adopt a passive role in their religious life. Rationalized indifference is taking the place of tolerance when we think about the spiritual condition of other people. The Bible is sold continually in larger numbers but is being read with decreasing and more superficial interest. The worship services are majoring in minors and minor-ing in majors as the "sermon" loses its significance and other services in the ministry are pushed to the front. The meaning of conversion and of church membership is not any more the same as twenty-five, fifty, or one hundred years ago. The horizontal fellowship wins wider acceptance with increasing disconcert for the vertical fellowship. John C. Bennett speaks about the Protestant churches as tending "to be clubs held together by feelings of congeniality. Even some denominations have this characteristic . . . it is also true that American churches are class churches,"²¹ some of them losing their contact with the working classes.

The alternatives which are being chosen are weakening the spiritual and the moral foundations

19. *Ibid.*, pp. 285-91.

20. Will Herberg, *Protestant-Catholic-Jew*, pp. 91, 92.

21. John C. Bennett, *Christian Ethics and Social Policy*. New York: Charles Scribner's Sons, 1956, p. 96.

upon which was built, in the past, in this country, the most dynamic form of Christian faith and witness.

To the above trends when we add the damaging effects of some current philosophies and theologies we become gravely aware of the perils American evangelical Christianity will face tomorrow.

God in His providence provides opportunities for spiritual awakening and rejuvenation. They are the hope for a purer Christianity and a better tomorrow.

We cannot forget the words of Christ as we think about American Christianity: "Salt is good: but if the salt have lost his savour, wherewith shall it be

seasoned? It is neither fit for the land, nor yet for the dunghill; but men cast it out. He that hath ears to hear, let him hear."²² We pray that American Christianity will never lose its flavor. We pray that American Christianity will become in the future even more than it was in the past the light of the world, just as Christ said: "Ye are the light of the world. A city that is set on an hill cannot be hid."²³

22. Luke 14:34, 35.

23. Matthew 5:14.

Motivation*

JOHN C. SINCLAIR**

I

The function of the brain can be illustrated by the gratifying experience we all enjoy three times a day at our meals. The sight, smell, and taste of food stimulate our brains and we are motivated to eat. If the nose is clogged up so that the odors do not

* Talk presented at the Fourteenth Annual Convention of the American Scientific Affiliation, June, 1959, Chicago, Illinois.

** Mr. Sinclair is a zoologist at the UCLA Medical School, Los Angeles. He is completing work toward a Doctor of Philosophy degree.

stimulate our olfactory nerves, the food will be unappetizing and "tasteless." The pleasure we derive from eating then, is dependent upon the electrical messages sent along our sense receptors to the brain. So the rewards of eating, except perhaps for a rise in blood sugar, are entirely incidental to the function they perform of providing nourishment for the body.

When the stomach becomes distended with food and exhaustion of digestive organs supervenes, the brain ceases to be stimulated by food and eating is inhibited and may even become punishing. But the fine balance between the excitation of food and the inhibition from the digestive organs is dramatically changed when dessert is served. We suddenly discover that we can eat some more after all!

FIG. 1

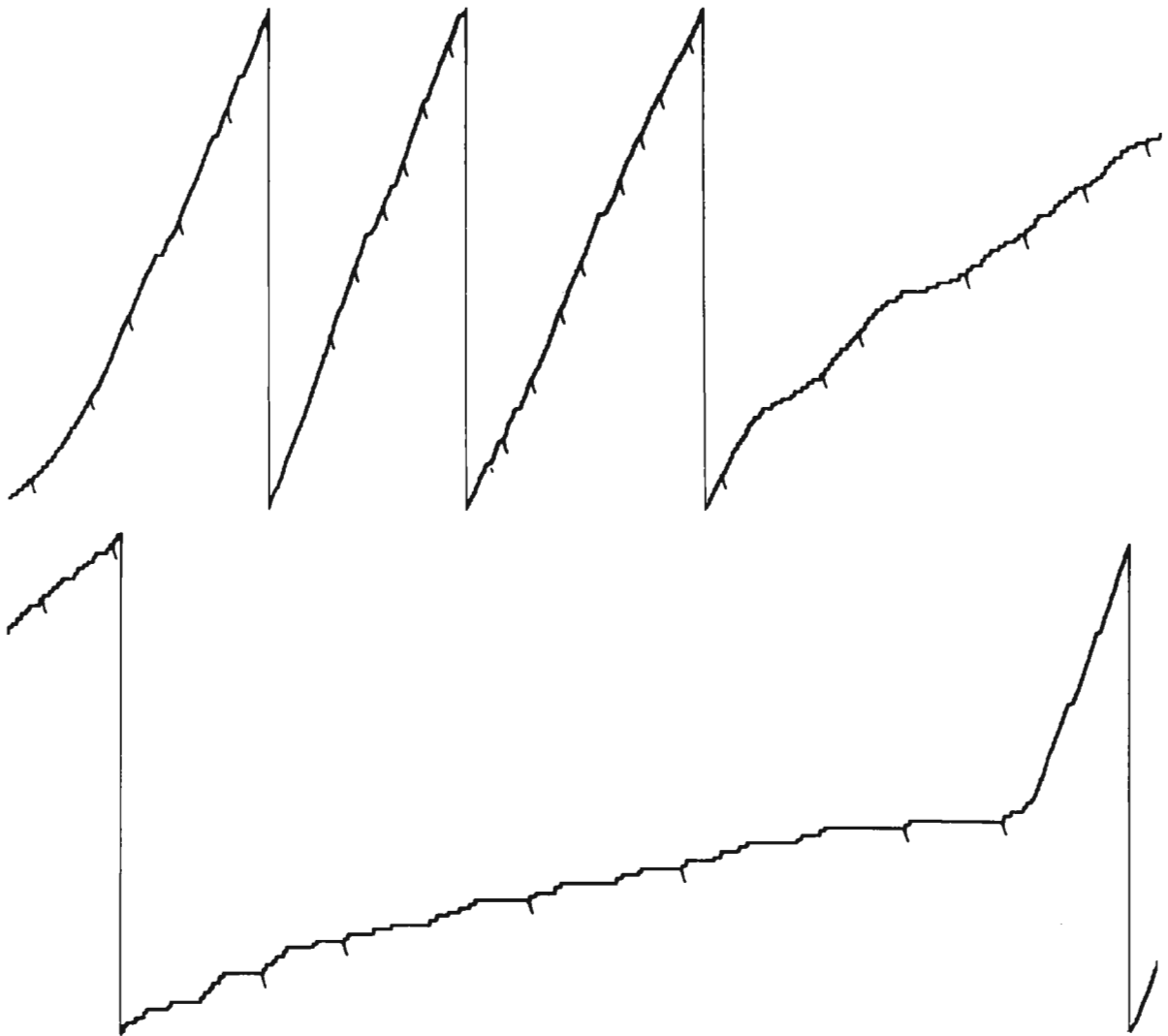


Figure 1. Shuttle-box response of a rat rewarded by brain stimulation. The first part of the curve becomes steeper (the rate of self-stimulation by the rat increases) as the stimulus to the brain increases. The rate of self-

stimulation slows down and becomes relatively infrequent as the shock strength to the grid increases. The final steep portion of the curve is a return of rapid self-stimulation when the foot shock on the grid is removed.

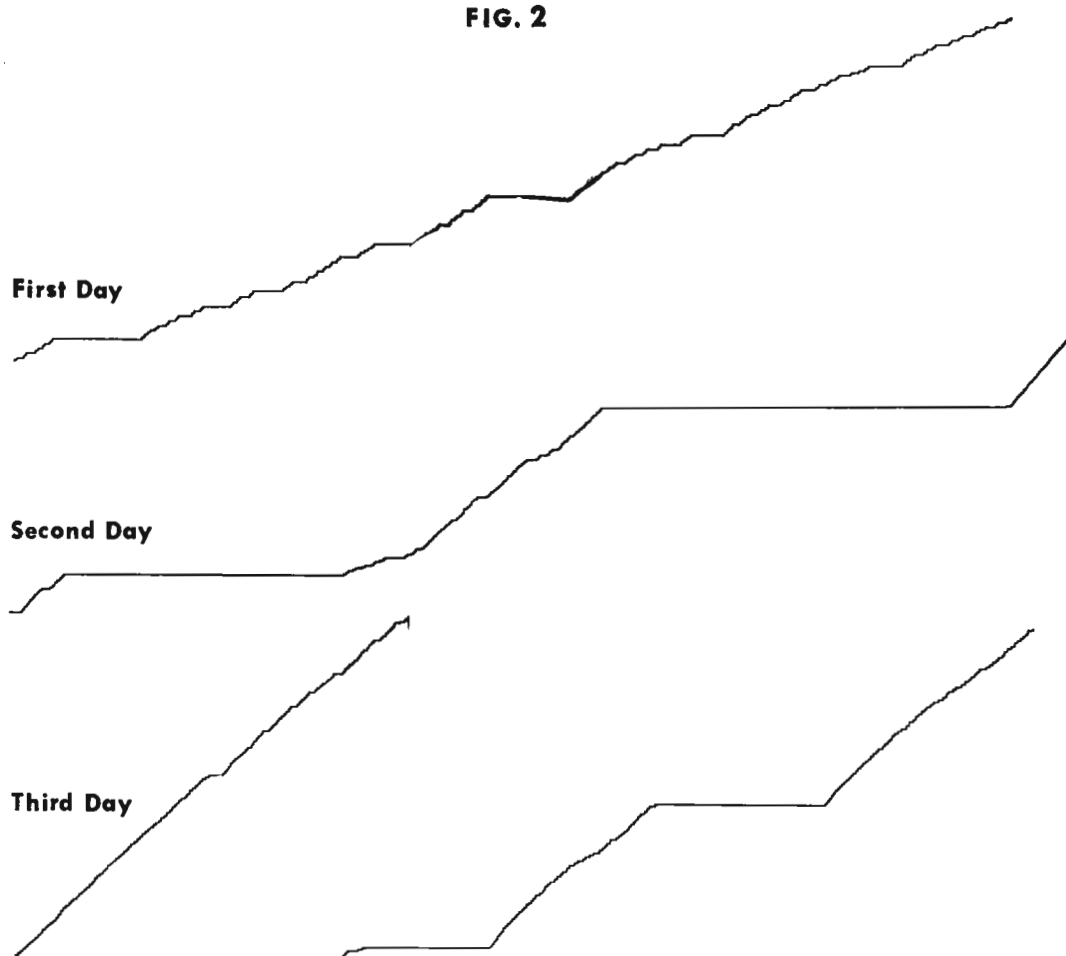
The balance between excitation and inhibition within the brain in motivated behavior can be inferred by recordings from it or by stimulating it artificially. A greater response from the pre-pyriform cortex of a cat can be evoked by a fish odor if the cat is hungry.¹ Rats which have been chronically implanted with electrodes in the brain can be induced to learn a maze, shuttle back and forth between two levers, and even cross a grid charged with electricity, in order to receive a stimulus through these electrodes.²

Figure 1 shows the response of a rat implanted in the hypothalamus. After pushing a lever three times at one end of a grid the animal must cross to the other end and push an identical lever for three more stimuli to the brain. A stepping relay requires the rat to shuttle back and forth after each three stimuli if it is to receive more of them. One vertical scale represents about 200 grid crossings. The horizontal distance represents two hours, one hour for each part. The increasing steepness of the line, or the response

rate, in the first part of the record is correlated with the increasing strength of the stimulus received, from 30 to 90 micro-amps of 0.3 sec. duration, A.C. current of about 0.5 volts. Thus the response rate is proportional to the strength of the rewarding stimulus, just as the amount of food we eat is proportional to how appetizing it is. The gradual slowing up of the response is proportional to the increasing strength of shocking current on the grid. It was necessary to raise the foot shock to 780 micro-amps to slow him down to this low rate. At the end of the run with no shock, the rate returns to approximately its initial level so the animal is not being satiated by self-stimulation. It is reasonable to suppose that the shock is inhibiting the self-stimulation behavior similar to the way a distended stomach inhibits eating.³

1. Freeman, Walter J., *The Physiologist* 1-4 (1958).
2. Olds, James, *Science* 127, 315-24 (1958).
3. Berkum, M. M., M. L. Kessen, and N. E. Miller, *J. Comparative and Physiological Psychology* 45, 550-54 (1952).

FIG. 2



Figures 2. These three curves are representative one hour sections of a continuous 72-hour self-stimulation experiment. The stimulus strength to the brain on the second and third day is about double that of the first day.

Note that the response rate has also increased. The flat portions of the curve could be time spent eating, drinking, or sleeping.

The three tracings of Figure 2 are representative portions of a continuous 72 hour record of a rat permitted day and night access to self-stimulation. The animal has food and water available. The breaks in the curve probably represent cat naps. The second day the stimulus strength was about doubled. It is evident that the rate has also increased. I show this record to illustrate how well integrated self-stimulation is with normal behavior, that is, with eating, drinking, and sleeping.

We can conclude from these examples that the brain must be stimulated if there is to be motivated behavior, and that the response is determined by the extent to which this behavior stimulates some parts of the brain and avoids the stimulation of other parts.

The desire to place sperm in a vagina is incidental to a fertilized ovum—though this is the normal result of it. So, gratification of hunger and thirst, that is, the stimulation of specific areas of the brain by odors and tastes, is an end in itself, though the normal consequence of the stimulation of these areas is food and water in the stomach. The strange paradox thus exists that behavior is motivated by a mechanism other than the function it serves.

Nature seems to reward the behavior that serves her ends and to punish behavior that frustrates her. Apparently, living things cannot sense and meet their needs directly, apart from this secondary push and pull mechanism. The intelligence of animal behavior then, does not lie in the way that biological ends are served by it, but in the ingenious pain and pleasure "herding" that motivates it.

II

The instinct of self-preservation is very strong. It is not easily exchanged for a group allegiance to society, tribe, or military unit. Yet techniques for accomplishing this change in attitude are ubiquitous in human cultures.⁴ The first episode of possession, trance, or speaking in tongues, associated with a change in attitude, may be gotten only by very severe emotional stress, but once experiencing it, a subsequent response to the beat of the drum, roar of the rhombos, suggestion of the minister or to hymn singing and hand clapping is gotten much easier. A few examples will be given of how effective emotional stress is in converting individuals to religious beliefs.

The following quotation is taken from the Journal of George Fox (Everyman's Edition, London, p. 106). "This Captain Drury, though he sometimes carried fairly, was an enemy to me and to Truth, and opposed it . . . he would scoff at trembling, and call us Quakers. But afterwards he once came to me and told me that, as he was lying on his bed to rest . . . he fell atrembling, that his joints knocked together, and his body shook so that he could not get off the bed; he was so shaken that he had not strength left, and cried to the Lord, and he felt His power was upon

him, and he tumbled off his bed, and cried to the Lord, and said he never would speak against the Quakers more, and such as trembled at the Word of God."

Maya Deren, who went to study and film Haitian dancing on a Guggenheim Fellowship in 1949, was too proud to leave when she felt herself responding to the drums; she thought she could fight it, but was overwhelmed. As she recovered from her first voodoo trance she enjoyed feelings of spiritual rebirth. This experience changed her plans for the future as well as her outlook on voodoo. This is what she says in the book, *Divine Horsemen*: "I would further say, that I believe that the principles which Ghede and other Loa represent are real and true. . . . It was this kind of agreement with, and admiration for the principles and practice of voodoo which was and is my conscious attitude towards it." (*The Living Gods of Haiti*. London & New York: Thames & Hudson, 1953, pp. 823, 824.)

John Wesley has this to say in his journal: "Some sunk down, and there remained no strength in them; others exceedingly trembled and quaked; some were torn with a kind of convulsive motion in every part of their bodies, and that so violently that often 4 or 5 persons could not hold one of them. I have seen many hysterical and many epileptic fits; but none of them were like these in many respects. I immediately prayed that God would not suffer those who were weak to be offended. But one woman was offended greatly, being sure they might help it if they would, no one should persuade her to the contrary; and was got 3 or 4 yards when she also dropped down, in as violent an agony as the rest." (Vol. II, pp. 221, 222, Friday, June 15, 1739.)

Once a person finds himself responding, in spite of himself, he is forced to rationalize his behavior, usually by embracing the creed he once rejected, because he *knows* now that there is something to it! There is something to it all right, but it is independent of the creed or religion involved; it is the response of the nervous system to suggestion and strong emotional stress. We may not be able to decide *whether* we will respond or not, but to a certain extent we can determine *how*. It is like falling in love. We *do* fall in love and we *should* fall in love, but to a certain extent we can decide to whom and the circumstances predisposing us to it. So with religion, we should examine the beliefs before allowing ourselves to be converted or possessed.

The after effects of "possession," religious excitement, or a trance give us some idea why they are sought again and again.

Christian: feelings of being freed from sin and evil dispositions, and starting life anew, love and

4. Sargant, William, *Battle for the Mind*. New York: Doubleday & Company, 1957.

compassion for others, communion with God, ecstasy.

Yogi: less involved or upset by mundane matters, i.e., living above them, a feeling of oneness with God and fellow man.

Voodoo: more sober, friendly, and co-operative, ecstasy.

Psychoanalytic abreaction: cleanses from pent up, unconscious conflicts; a release from fear and nervous and mental symptoms; is relaxing and sobering.

Peyotl: sobering, feelings of ecstasy and euphoria, gives new meaning to commonplace objects.^{5 6}

To a certain extent the physiological responses in the illustrations above were very similar, yet what the individual experienced in each case was quite different. Maya Deren thought she was possessed by the goddess Erzulie. Captain Drury thought he was in the hands of God. Yogi believe they unite with God when in a trance. In the Peyotist religion, the hallucinations are interpreted as visitations of God. They respond then as though coming into the presence of God. In Pentecostalism, involuntary muscular spasms are interpreted as the possession of the Holy Spirit of God. A person's attitude toward these experiences then is determined by what he thinks he has experienced and he responds the way he is told he should.

A feeling of the certainty or reality of a conviction you hold is no evidence of its truth, for after conversion one can hold just the opposite conviction just as tenaciously and be just as convinced of it. Even completely fictitious convictions can be instilled in the mind under hypnosis. For instance, a student was told under hypnosis that "All German men marry women who are two inches taller than they are." On awakening from hypnosis, the student stoutly defended this assertion and even quoted books, authorities, and personal examples to prove it.⁷

An objective test for the truth of our convictions is needed. But once we are convinced of our "faith," the conservative use of induced emotional states can help us to live an active, productive life in response to what we believe. Working at a job, friendship, marriage, or religious faith without motivation is like trying to drive a car with the brakes on. When employees, students, or members drag their feet it is because their brain is not being stimulated; they are lacking the necessary motivation.

We all chasten our children. We don't like it, they don't like it, but later they are better for it. A mental patient doesn't like having his repressed anxieties pulled out into the open, but if the psychoanalyst succeeds in doing just this, the patient's recovery can be truly dramatic. Military units with a stormy boot-camp and colleges that make it rough on the freshmen have an "esprit de corps" and loyalty that can't be matched by units which heed the per-

sonal resentment usually encountered. Our staid fundamentalists need nothing in the world worse than a revival that will impel them to shout and sing and love in spite of themselves, for the average Christian is dead on his feet; he is suffering from acute sensory deprivation. However, let me caution against using an emotional response as evidence of our faith.

An objective test for the truth of our convictions requires an adequate view of reality. I believe reality is entirely objective, including God. God is not natural law, though He established it and works through it. Hence my knowledge of God is dependent upon my awareness of God's use of natural processes as distinct from natural processes alone.⁸ Therefore, there can be no absolute knowledge of God, since it is based upon an awareness which is only relative. This does not exclude an *absolute* revelation of God in nature or in the Bible.

My conscious awareness of reality is variable and artifactual (Locke, Helmholtz^{9 10}). For example it is simpler to assume a single entity for light than to assume a separate entity for every unique interaction of light with my instruments, senses, and the "editing" of my brain. This does not prove the causal identity of the various sensory perceptions of an object, but it does make it *probable*, which is all science is concerned about. Absolute proof is a philosophic but not a scientific problem. Sensory events that always occur together are "linked" in perception and in memory as a single sensory pattern. Their identity, therefore, has a neurological basis. The relative validity of my awareness is subject to:

1. comparison with the various modalities of sense: touch, taste, sight, hearing, etc., at different times and under different circumstances.

2. comparison with the conscious perceptions of other people, currently and historically. If I were the only one to have a specific experience, I would question it.

Science can provide an objective reality we can all agree upon⁸ but philosophy can not if it is idealistic, that is, if it assumes that reality exists only in the mind (Hegel, Berkeley).¹⁰

Summary

An insight into the neurological basis of motivated behavior is given by experiments using rats that have been implanted with electrodes through which they can stimulate their own brains. The rat's rate of self-

5. Huxley, Aldous, *The Doors of Perception*. New York: Harper & Brothers, 1954.

6. De Ropp, Robert S., *Drugs and the Mind*. New York: St. Martin's Press, 1957.

7. Wolfe, B. and R. Rosenthal, *Hypnotism Comes of Age*. New York: Bobbs-Merrill Co., 1948.

8. Sinclair, John, *J.A.S.A.* 9-4, 12 (1957).

9. Crombie, A. C., *Scientific American* 198-3, 94-103 (1958).

10. Hull, L. W. H., *History and Philosophy of Science*. New York: Longmans, Green and Co., 1959.

stimulation is determined by the extent to which it stimulates some parts of the brain and avoids the stimulation of other parts. Self-stimulation behavior is well integrated with the normal gratification of the physiological needs of the animal by eating, drinking, and sleeping.

Religious motivation is considered from the point of view of how the brain is stimulated by religious experiences. The similar emotional response gotten from various religions makes it impossible to use this response as evidence of the reality of the beliefs of these religions, though the feeling of certainty or conviction of these beliefs is based on these experiences.

A test for the truth of our convictions requires an adequate view of reality. Science can provide an objective basis of reality we can all agree upon, but philosophy cannot if it is idealistic.

CHEMISTRY

Walter R. Hearn, Ph.D.

Recently the last issue of this column was read before a group of graduate students at a meeting of the Graduate Christian Fellowship sponsored by IVCF on a university campus, as an example of an approach to the presentation of the Gospel in the language of a particular scientific specialty, biochemistry. In the discussion which followed, one of the organic chemists in the group asked if every Christian in science should try to work out his own evangelistic approach based on his own field of study. His question is part of the larger question which each of us in the American Scientific Affiliation is seeking to answer with God's guidance: How can I integrate the practice of my scientific work and the practice of my Christian faith so that my life becomes one consecrated whole? Chemists seem to ask this question with particular earnestness, possibly because our daily work in the laboratory often seems more remote from philosophical or theological considerations than the work of a physicist, biologist, anthropologist, or psychologist.

Should we, as scientists, experiment also with the presentation of the Gospel in scientific language? It seems to me that there is already much unfortunate twisting of scientific ideas to serve Christian purposes, and that one should be very careful not to stretch analogies or to oversimplify a line of thought in any evangelistic presentation. On the other hand, at both the local and national level, the A.S.A. provides an excellent forum for testing an evangelistic approach before a group of Christians who speak the language of science, to refine our statements in the fires of constructive criticism. A most important factor in judging the adequacy of any evangelistic presentation is

the degree to which the language chosen actually conveys the message to the hearers. As scientists accustomed to precise expression, we should be particularly conscious of this problem.

It is not difficult to find fault with many evangelistic presentations on the basis of inadequacy of communication. There is a sentimental fondness for one's "own" language, which is the "Language of Zion" for many evangelical Christians. We have a tendency to use words which have cherished meanings to us because they are Scriptural words (though often restricted to a single Bible translation) or because they call up recollections of rich spiritual experiences from our own past. The more exclusively we associate with other Christians, particularly with those brought up in the same denominational tradition or on the same translation of the Bible, the more difficult it is for us to avoid using this esoteric language in trying to communicate the Gospel to non-Christians. The most effective medium for evangelism in my own experience has been the "dialogue" with a non-Christian, in which the Christian spends as much time listening as he does in speaking, and is asking questions as often as he is answering them. In this way our communication of the content of the Gospel can be tested, and when we hear it restated in terms of the other person's vocabulary our own understanding is deepened, no matter what the immediate outcome in the other person's life. It takes time to sow the Seed in this careful way, unless someone else has previously prepared the soil with the same degree of care.

Recently I have been reminded again of the almost incredible misunderstanding of spiritual issues which can exist in the mind of even a well-educated non-Christian, having had close contact over a long period of time with a declared atheist, a chemist with whom I eat lunch regularly. Hardly a day has gone by in the past nine months when we have not discussed the deepest things of the Christian faith and the impact of Jesus Christ upon my own life. My approach has been chiefly to try to clear up misunderstandings and to point out what a Christian means by the terms that my friend uses in distinctly different ways. Christians are at times impatient to "get on with the real business," often meaning by this merely the preaching of an evangelistic sermon, a form of discourse many of us cherish because we may have responded to it—although usually after years of preparation in Sunday school or by Christian parents or friends. Many of our colleagues in scientific work lack this preparation and the Gospel can hardly be presented intelligibly to them at all without taking time to lay a firm foundation of understanding through reciprocal communication.

A few years ago I tried an experiment in subtle evangelism among university students on my own campus. Every other Sunday afternoon an informal get-together we called "Coffee and Conversation" was held at our home. I sent written invitations to

each student to whom I had found some previous opportunity to witness, suggesting in the invitation a topic with which we might begin the conversation, the topics sometimes being directly related to Christian faith and sometimes only peripherally related. At various times the group included atheists, agnostics, Hindus, Roman Catholics of varying degrees of devoutness, recent converts to evangelical Christianity—a thoroughly random assortment of students, including some who came out of curiosity or because they had never been invited to a faculty member's home before. To season the conversation I would invite a few Christian students who I thought were prepared for this kind of evangelism, but I was often disappointed by their negative reaction to it or their failure to make the most of the opportunities. In the course of the discussion, a Christian would often contribute by reading or quoting verses of Scripture and then seem hurt that the message was not received enthusiastically by the others, not realizing that the context and often the very words he quoted were completely incomprehensible to them. Sometimes the reluctance of the Christian students to take a genuine interest in the ideas of the non-Christians became painfully obvious or even embarrassing. And sometimes the fact that the Christians were ill at ease or on the defensive in a forum where all sorts of ideas could be expressed and criticized gave a poor testimony to the validity of the Christian point of view. As it turned out, the "new" Christians were often most effective in spite of their immaturity in matters of Christian doctrine; they still expressed themselves in the language of non-Christians, and they still sympathized with the genuine difficulties in becoming a Christian which they themselves had so recently faced. Is not this a lesson for all of us, lest we end up talking only to ourselves rather than really communicating the Good News of Jesus Christ to others?

It seems to me that every chemist who is a Christian should think about his spiritual life in the language he uses every day, and that if he does it will become perfectly natural for him to talk about his faith to his colleagues in the language *they* use every day. Perhaps the reason we have not done enough of this among scientists in the past is that we have not had enough contact with other Christians who speak the language of science and particularly the language of our own specialty. This contact with others united in a strong bond of *both* spiritual and intellectual fellowship has come to me largely through the A.S.A. and is a major reason for my enthusiasm for our Affiliation. We are helping each other by providing the stimulus we have searched for and often found inadequate within the confines of our own church, our own campus or company, or our professional society. Having found it once within the A.S.A., we can then do more to provide it for others in these other associations.

In considering the integration of our scientific work and our Christian faith, what are some of the areas in which a chemist might find the greatest satisfaction as a *Christian* chemist?

Evangelism among our colleagues has already been mentioned. Are our contacts too limited to "specialize" in this way? If they are, here is a challenge to expand them! In a large university or industrial laboratory there is sufficient turnover to keep anyone constantly supplied with fresh opportunities to witness to colleagues. In a more thoroughly inbred Christian environment, there should be all the more incentive to make contact with non-Christian colleagues by taking an active part in the A.C.S., science teacher groups, or other associations beyond our own "in-group." If these horizons are limited for some reason, there is still the unlimited opportunity of correspondence. It should be perfectly natural for us to discuss our Christian orientation with professional acquaintances, former students, and even some complete strangers when carrying on correspondence with them. In the past week I have had opportunities to let my Christian position be known in a letter of reference for a student, in writing for a reprint, and even in replying to a high-school student who wrote to our department for some chemical information for a science project.

Along with direct evangelism there are always opportunities to witness indirectly by our willingness to put ourselves in a position of service. Being a chemist opens up some new possibilities of service not available to other Christians, and evangelicals are beginning to realize that we have too often left altruism and simple humanitarian motives to the theological liberals by default. Within the Christian community there are increasing avenues of service. A number of A.S.A. members are becoming associated with DATA International through its Technical Fellowship, which provides a source of technical information for evangelical missionaries on the foreign field. Recently a missionary asked DATA about the feasibility of converting abundant local limestone into cement for building purposes, and some chemist or chemical engineer was able to supply the answer. Within or without the Christian community, have we looked hard enough to find the needs of people which we as chemists could help to meet with our own training and experience? I think few of us have, but this is another area in which the A.S.A. can provide a stimulus. Could we, individually or collectively, devote some of our time to do research or development work with the conscious purpose of bringing immediate or long-range benefit to the underdeveloped countries of the world? To sufferers from disease? To the mentally ill? To others in some other kind of need? Can we not at least challenge each other to consider what we are doing with our scientific training and what we could be doing with it, so we will not overlook these

possibilities? Are we really peacemakers, for instance, or merely peace talkers?

Finally, I think each of us has a responsibility to deepen our own scholarship and to demonstrate the value of critical and objective thinking in all areas of our lives. Too many of us, particularly the chemists, have let the narrowness of our daily work narrow our entire outlook, having applied the gift of scholarship which God has given us to problems so limited that we pass on this gift to only a few students who know our technical work. We literally "bury our talents in the field"—the field in which we specialize. It is natural for young graduates to do this because this is the way *we* have been trained to make the most efficient use of our knowledge and our labor, and because this is the way the game is played; as we mature, however, we should be willing to expand our thinking and reading and association with scholars until we also become scholars in the deepest sense of the word. We need to break out of the confines of overspecialization, courageously, and even at the cost of some professional advancement perhaps, *because* we are Christians; evangelical Christianity urgently needs our best contribution as scholars and we must stir up this gift which we have been given. Chemists or engineers who are self-conscious about lack of emphasis on the humanities in their training and feel they have not been prepared to give scholarly thought to broader human problems may be interested in the comments of Sir Eric Ashby in his book, *Technology and the Academics* (Macmillan & Co. Ltd. of London), quoted in the current issue of the *American Scientist* (Vol. 48, No. 2, June, 1960). Sir Ashby argues that even the narrowest scientist can be "humanized" by contemplating first the *technological* implications of his own work, at first a rather surprising statement. The point made is that technology always involves human problems as well as scientific problems. For example, an organic chemist may proceed from the purely scientific aspects of his work to broad human concerns by first allowing himself to become thoroughly aware of the effects on society of developments which may arise from the work he is doing—as, for instance, the commercial availability of tranquilizing drugs, or oral contraceptives, or even of new plastics (and certainly of new fuels for ballistic missiles!). In my own experience, a growing fascination with history in general has been derived largely from digging into the history of science and of conflicts between science and theology—and this is another case of stimulation by my contact with the American Scientific Affiliation. The need to learn languages for technical reading purposes has broadened into an interest in linguistics and from there into cultural anthropology; writing reports and technical papers prepares one to write more skillfully about anything, etc. No matter how narrow our field, it touches human life in some way and can serve as a

starting point for the development of the wisdom and understanding which our Lord desires us to possess. "Wisdom is the principal thing; therefore get wisdom: and with all thy getting get understanding."

These are some of the ways, then, that our Christianity and our chemistry can interact so that we become more effective Christians for having been chemists, and more profound chemists for having been Christians.

PHILOSOPHY

Robert D. Knudsen, Ph.D.

The following contribution fulfills a long-felt desire for this column, to offer a glimpse of the work of Professor D. H. Th. Vollenhoven of the Free University of Amsterdam in developing a Christian approach to the history of philosophy. The contributor, Dr. Calvin Seerveld, recently completed his doctorate in philosophy under the supervision of Professor Vollenhoven. He is at present a professor of philosophy at the newly founded Trinity Christian College near Chicago.

Philosophical Historiography

The significant contribution of Professor D. H. Th. Vollenhoven of the Free University, Amsterdam, to the historiography of philosophy is practically unknown in America. This is especially unfortunate for the evangelical Christians here because Vollenhoven has much help to offer us in the studying and teaching of philosophy. To make him more than a name that rhymes with Dooyeweerd for those who read no Dutch, I should like to sketch briefly the basic idea of his method for writing the history of philosophy.

Working in terms of the Christian perspective developed by himself (*Calvinism and the Reformation of Philosophy*, 1932), Dooyeweerd (*Philosophy of the Law-Idea*, 1935),¹ and subsequent Reformed scholars in the Netherlands, Vollenhoven let certain ideas guide his approach to the historiography of philosophy: (1) The philosophical analysis of all men is concerned with and bound by the same actual reality. Since (2) reality is actually the ordered work of the Creator-God, a world dominated in time by fallen man, who along with his activity is able to be saved in Jesus Christ, therefore (3) all philosophical theory in its analysis of reality cannot help assuming some kind of stand toward the crucial matters of the structure, Origin, troubled state, and meaning of everything together "under the sun." (4) In the stand that various philosophies take on these fundamental matters lies the key to a critical understanding and comparison of their various contributions to the analysis of reality.

As this working hypothesis was already beginning to order his judgments of the many philosophies under his observation, Vollenhoven one day was struck

by the similarity in certain conceptions of Eddington, Einstein, and Archimedes. Why were they so closely alike? Soon the idea occurred to him that maybe there were definite types of philosophical conceptions, certain systematic philosophical interpretations of reality, which kept recurring throughout the history of thought. Vollenhoven went to find out empirically. So as not to get caught in the Hegelian trap of reading modern concepts and subsequent developments of thought back into earlier history, Vollenhoven began his investigation at the simple beginnings of early Greek philosophy. What do these pre-Socratic Greek philosophers analyze reality to be? Naturally he ordered what he found an individual philosopher had to say around what that philosopher said concerning the structure, Origin, troubled state, and meaning of reality; for these matters—this is the thesis hidden in Vollenhoven's working hypothesis—constitute the crux of a philosophy.

Two things gradually developed from Vollenhoven's pre-Socratic studies: (1) the main categories he has used to expound and judge Greek and all subsequent philosophy of Western civilization; and (2) unmistakable evidence that there are a number of basic philosophical positions which have won adherents generation after generation since the very beginnings of philosophical reflection.

One carefully defined category Vollenhoven works with is "Monism" and "Dualism." He discovered that these pagan, pre-Christian philosophers always eventually decided that reality was basically One or basically Two: one world, one stuff, or one pair of contrasts—in which diversity had to be explained; or at bottom two worlds, two stuffs, or two initially separate and independent realms—whose connection had to be explained. And he found that this decided Monism or Dualism of a philosophy determined to a surprising extent what kind of cosmology, anthropology, and theory of knowledge developed. This sounds somewhat like William James, who said that if you know whether a man is a monist or a pluralist, you probably know more about the rest of his opinions than if you classify him any other way. But Vollenhoven's "Monism" and "Dualism" penetrate much deeper than James's loose pragmatic ideas of the one and the many, mere mathematical analogies in social intercourse. To hold to Monism or Dualism, explains Vollenhoven, is to hold to a distorted view of reality. How so? Since these Greek philosophers did not know the faithful Creator-God, who rules the universe by the law of His sovereign will, and since Jesus Christ in whom everything created must live and move and have its meaning was not known to them, these Greek philosophers (who by nature were also inescapably and restlessly religious creatures) sought the Origin and meaning of things within the cosmic structure of reality—which cosmic structure their observation could not escape. But because they sought

and found within created reality what actually is not there, these Greek pre-Christian philosophers distorted the very cosmic reality they were trying to observe. Invariably they absolutized some part or aspect of created reality and made it the permanent Origin which gave meaning to all life and thought; and just as invariably, that part or aspect of created reality which did not get absolutized became disqualified and was considered the troubling factor to life and thought, i.e., something evil. The Dualists, for example, idolized a divine spirit realm of transcendence and lamented any captivity to the non-transcendent material realm, while Monists, for example, found their fragile cosmos constantly threatened with chaos by antagonistic higher and lower forces within the one world. And such a pagan schizo-fragmentized reality plagued Greek anthropology and theory of knowledge no less severely than Greek cosmology.

Vollenhoven's specialty is showing from the texts that a given monistic or dualistic philosophy occurs again and again throughout all history, sometimes due to the direct influence of one thinker upon another, sometimes arrived at independently a hundred years later, always modified by the peculiar personality of the new thinker and the changed spirit of a later era, but at bottom the same old attempted monistic or dualistic philosophical interpretation of reality. For example, the materialistic monism of Thales is a philosophical position essentially held by Leucippus and Democritus, Aristippus, Epicurus, Lucretius, and others all the way down to Gassendi and Sartre.² Again, a certain severe dualistic habit of thought first simply developed by Xenophanes has been virtually shared by such varied thinkers as Parmenides, Marcion, Arnobius, William of Ockham, and Karl Marx. Before one protests such results—there are, of course, other carefully delineated monistic and dualistic lines of thought extant—let him examine the convincing evidence Vollenhoven has assembled.

Ueberweg and other good historiographies of philosophy are mostly a series of responsible, incisive monographs. Windelband indeed attempted to trace the relation, show the influence, and suggest the kinship of various philosophies; but unfortunately he dealt principally with epistemological concepts, which are less basic to philosophies and are therefore less significant for their interrelation than the ontologies with which Vollenhoven works. In contrast, it seems to me that the terms Dooyeweerd uses in his historiography of philosophy—form-matter, nature-grace, nature-freedom—are more characteristic of a thinker's *Zeitgeist* than the peculiar systematic structure of his philosophical conception. The forte of Vollenhoven's method of writing the history of philosophy thus is this: the structural inheritance of a thinker is made embarrassingly clear upon laying bare his underlying position toward those few, crucial perennial problems of philosophy; and that same thinker's rela-

tion to contemporaries of different lines of thought can be shown precisely. Indeed, it can be almost graphically plotted.

As for the Christian shock in Vollenhoven's thorough method? His point is that without the forming light of God's Word-Revelation upon a man's philosophical conception, that man's philosophy always has and necessarily shall miss the glories of creation and distort reality in one of various reasonable ways. Also, Christian philosophers who seek to mediate and accommodate themselves to one or another of these distorted interpretations of reality must settle for a Christianized distortion and forfeit the insights and praise that a philosophy shaped and re-formed by revealed Truth affords. For example, evangelicals who profess to hold to a "contingent dualism" must face up to the possibility that they may be somewhere in the traditional, orthodox Roman Thomistic line of thought, where God gets pulled down into man's theoretical patterning of reality and where created reality itself is distorted into the ambiguously begrudged "material matters" below "the finer things in life." Such is the exact and critical historical consciousness Vollenhoven's historiography fosters.

1. The revision of this work has been published in English translation by the Presbyterian and Reformed Publishing Company, with the title, *A New Critique of Theoretical Thought*. (Ed.)

2. It is impossible here to go into the complex qualifications which would do justice to the richness and circumspection of Vollenhoven's historiographical analysis. Also, the temporary misjudgment of a certain thinker's thought would not invalidate the worth of Vollenhoven's method.

PSYCHOLOGY

Stanley E. Lindquist, Ph.D.

Sin and Psychoanalysis

When Freud developed his theory of Psychoanalysis, he posed a problem of prime importance for the thinking Christian. Never before had "science" (I use this word very loosely, as psychoanalysis is far from being scientific) come so close to the human personality, with respect to its concepts of right and wrong.

The application of this theory was deterministic, and in its ultimate expression removed personal responsibility for one's acts. Society, environment, parents, spouse, or children stood condemned, but not the individual, as he had no real choice. His action was predetermined by those that had affected his personality, either in its formation, or in its immediate expression.

Any psychoanalyst would object to the above statement, first on the grounds that this is not exactly what

Freud said; and second, neo-psychoanalysis has repudiated much that Freud presented along these lines.

It is obvious that such reasoning is circuitous, because the second reason would not be needed if the first were not true, and the fact that the second is given underscores the validity of the first.

While it is possible that one can separate Freud's personal philosophy and practice from his "school" philosophy, and that the first is less dogmatic than the second, the ultimate philosophical implications following rules of deductive logic must follow. To try to separate a "personal Freud" from his recorded statements is a problem similar to the one of trying to "hate the act, but not the child" in punishment. It is an impossible task.

The application of psychoanalysis to Christian life is disastrous. It has seemed a strange development that many ministers flock to this anti-Christian banner when studying pastoral counseling.

One of the most telling blows that has been brought up against these ideas has been published by O. Hobart Mowrer of the University of Illinois, and a former president of the American Psychological Association. In his position of prestige and prominence he has commanded a hearing which has gone beyond most. The articles noted in the bibliography should be read and studied in order to gain a more complete view.

Essentially, Freud's thesis was that in every human, there is a reservoir of instinctual drives and desires which he called "Id." These drives were primarily sexual in origin—at least most of the ones we have trouble with are.

As these come into the conscious, they are blocked, adjusted, or redirected by the "ego." The ego operates according to the realities of the situation, as the experiencing person sees it. This reality may be distorted in the individual by his training, or by neurotic or psychotic developments.

The ego operates only by principles of expediency. There is nothing necessarily moral about the decisions made. The only question: "Is this the right time, place, or condition for the expression of this desire?"

The desires that are not expedient are either repressed, or in some cases sublimated—changed—into socially acceptable ways of behaving.

The moral aspect of choice comes as the result of parental training, church schooling, and the expressed opinions of those the person looks upon as having proper authority. These ideas are internalized and make up what is called "super-ego" or what was called by others before Freud "moral-ego," and which may be loosely called "conscience." This super-ego not only is interested in what is called the reality of the ego, but further, the right and wrong of a given act, according to the internalized principle.

If one may use a physical analogy, the *id* is the large source of desires. The ego funnels this large

source to a smaller, according to the reality principle, and the super-ego further funnels and restricts behavior by the moral principle.

The process of restricting the behavior creates in the person many conflicts. These may result in neurotic or psychotic adjustments for which one might go to a psychologist, psychiatrist, or a psychoanalyst for psychotherapy. (A psychologist or psychiatrist may use psychoanalytic techniques in his therapy.)

It is at the point of psychotherapy where the big difference is noted. Psychoanalysis says that the super-ego is the result of your training. God is a projection of infantile wishes for an all-powerful father. Guilt is not real—only imagined. Therefore, the first step in getting well is to realize that it is “guilt-feelings” not guilt that must be removed. This is done through breaking down this learned “super-ego” so that we won’t need to “feel” guilty about what we do. The way we break it down is to express ourselves freely (but still according to reality—in other words, don’t get caught!) and eliminate the “feelings” that one has about it.

Mowrer’s telling critique emphasizes that guilt is not imagined or unreal. It is real and the only solution is to accept the reality of it. We are responsible, not only for our actions, but also for getting well. The way to get well is to confess our sins, receive forgiveness, and then do something constructive about it.

The above, as is true in any reduction of large quantities of material, is oversimplification. In essence, however, it should help us see that changes in concepts are in the offing.

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SOCIOLOGY

Russell Heddendorf, M.A.

The Christian’s Role: The Status Role-Set Frame

Part II

In the preceding article on this topic, the emphasis was upon the training of the Christian for efficient performance of his role. Such training implies a high degree of conformity to the expectations of the Christian society. The individual, however, does not act in a social vacuum. The pressures of daily living present stimuli which must be reacted to in either a positive or negative fashion. Such pressures impinge

themselves upon the individual through the media of status and role-set relationships.

At the root of all status and role theory is the social fact that each individual in society has multiple statuses. One may have parental responsibilities, an economic vocation, and avocational pursuits as well as church membership. In performing the routine tasks of life, one is constantly pushing mental buttons in order to provide the correct status response to fit a situation. Though an individual performing the duties of one status may, at times, revert to actions peculiar to another status, there is generally a minimum of error in this area. Seldom does a man treat his wife as an employee instead of a spouse. This is partly the result of the individual approaching a situation with a general attitude of co-operation or antagonism. Hence, many of our daily relationships result in consensus or dissensus. It is imperative for the Christian’s testimony here that a minimum of errors be made.

Consider the case of the Christian in one social system, namely, the church. As a member, the individual may have a number of roles, i.e., choir member, teacher, parishioner, etc. Generally, however, there is little confusion in the individual’s mind as to the proper role performance expected of him since the roles tend to provide for a great deal of consensus in action. Of course, we know that there are many factors motivating for dissensus (one need only count the “denominational splits”), but this is a problem which cannot be covered here.

It is necessary to remember, however, that the individual Christian has responsibilities which take him outside of the church and require him to relate to family groups, economic groups, military groups, etc. The individuals with whom he relates in these circumstances comprise his role-set. Since the values of the Christian often conflict with the values of the secular world, there is a built-in mechanism motivating for a certain degree of dissensus.

The area of the conflict between Christian standards and the ethics of a business society, for instance, provides a long history of study and concern. To merely state that a conflict exists, however, does not provide a clue as to the degree of tolerance which may be permissible. This problem is further complicated when one considers that all relationships in the economic sphere are not of equal qualitative importance to the individual. Hence, in witnessing to a client or employer, it is quite likely that a much smaller tolerance of antagonism could be permitted without adverse effects than when witnessing to a merchant or fellow employee.

Several basic queries may be relevant here. First, how far does a Christian go in presenting his religious standards to a secular role-set without critically affecting his secular status? Second, is it possible for one to determine when this degree of tolerance

is being exceeded? Third, how can a Christian maintain a strong witness in an antagonistic role-set without developing a hostility which would adversely affect a testimony?

If the possession of a Christian status has an effect upon one's relations with others in the secular world, the obverse situation is also true. The Christian brings to his religious role-set the attitudes and values of his many secular statuses. The benefits accruing from this transfer of secular values to the religious sphere are obvious; the church benefits from the various skills, talents, and training which can be learned only in the secular world. There are, however, mechanisms motivating for dissensus which exist in such relationships.

The Christian world does not, in all cases, have a clear statement concerning the acceptability of secular standards. Christian ethics probably vary as much as Christian doctrine. It is a well-known fact that manifestation of secular standards not acceptable to the religious world may harm a Christian's testimony, in the Christian as well as in the secular sphere. One must, however, also consider the reaction of one's particular role-set at any time of role performance. Hence, certain types of "fringe" Christian music may be acceptable in one role-set and rejected in another. The same would hold true for political views, economic practices, recreational pursuits, and so on.

Again, several basic queries may be raised. First, how far can a Christian deviate from Christian standards in the performance of secular statuses before he should become a matter of concern for the Christian community? Second, how does one interpret the Biblical understanding of "judging" in such circumstances? Third, how is it possible (or is it even desirable) to unify Christian ethics despite the divergences of doctrinal beliefs? Fourth, to what extent do Christian standards change as a result of the pressure, on the individual and group level, of the standards of secular statuses?

A more complete presentation of role theory and its implications for the Christian would have to note that an individual's actions in relationship to a role partner are often passed on to the role-set members of that partner. One need only be a member of a small church to realize the truth of this sociological phenomenon. Hence, a Christian's action in relation to a secular role partner may be passed on to a Christian who is within the role-set of the neighbor. Types of such relationships are represented below. Arrows represent action transferred.

	Role Partner	Role-Set
Christian	→ Christian	→ Secular
Christian	→ Christian	→ Christian
Christian	→ Secular	→ Christian
Christian	→ Secular	→ Secular

The possibilities for dissensus and consensus problems are too numerous to be discussed here. A re-

membrance of one's experiences should be sufficient to indicate that there is much opportunity for error in role performance here.

The foregoing discussion assumes that the Christian role is basically that of a deviant in the world. The problem for such efficient role performance is how to direct this deviancy into constructive rather than destructive lines. In further summation, the problem could be raised concerning the amount of deviancy which is acceptable or desirable in secular or religious relationships. Finally, the problem exists as to whether an adequate performance of a Christian role requires minimization of the mechanisms for dissensus or maximization within certain limits of tolerance.

BOOK REVIEWS

The Transformist Illusion, by Douglas Dewar; Dehoff Publications, Tennessee; 1957; 306 pp.

Reviewed by D. S. Robertson, Assistant Professor, Department of Genetics, Iowa State University, Ames.

In the spring of 1957 Douglas Dewar died before seeing this, his last book, in print. Although the publication date is 1957, the bulk of the material was completed in 1948, with some appendices added in 1951.

All of the main areas of evolution are discussed within a creationist framework. There are chapters dealing with the origin of life, the fossil record, macro-evolution, human evolution, geographical distribution, vestigial organs, embryology, etc.

I think that even the most militant evolutionist is willing to grant that there are many problem areas in applying the theory of evolution to nature as we find it. Many of these problems are underscored by the author of this book. He regards the presence of such problems as evidence against evolution. One of many examples cited is the case of the hymenopter, *Ibalia*, which parasitizes the larvae of the wood wasp, *Sirex*. The *Sirex* larvae usually bore deep in the wood. However, when parasitized by the *Ibalia* larva they burrow toward the surface where *Ibalia*, a relatively weak borer, does not have so far to go once it leaves the *Sirex* larva. Dewar concludes that the change of boring habit of *Sirex*, which is of no benefit to it, cannot be explained by natural selection. It is left for the reader to conclude that the only possible explanation is that God created it with this kind of behavior pattern. This is the type of argument that is frequently used. Where man cannot explain or where the missing pieces of the puzzle have not been found, Dewar assumes God. This reviewer would be the last to criticize this approach, since he has used it

himself, but one must remember that as science finds explanations, and as the fossil record becomes more and more complete, one's God, in a sense, becomes smaller and smaller.

It is fairly obvious that Dr. Dewar's chief field of interest was paleontology. Roughly half of the book is given to the discussion of the fossil record. Here he seems, to this novice at least, to have handled his material fairly well, but when he gets into other fields he does not always sound so convincing. For example, in the first chapter where the origin of life is discussed, he argues that the probability of a single protein molecule coming into existence by chance, if its constituent parts were shaken together, would be so low ($100^{100}:1$) as to be virtually impossible. I am sure that most modern biochemists would agree that this is a fair estimate of the probability of getting a protein under these conditions. However, he does not seem to be aware that modern biochemists do not suggest that proteins were first produced by such a milk-shake method. Again in the first chapter, he does not understand the principle of entropy as it relates to evolution, although in stating what he considers to be the main difficulty that the principle of entropy creates for the evolutionist, he actually gives a very adequate description of the relationship of life to the second law of thermodynamics. "If both groups of scientists be right, then within the great clock (the Universe) which is running down, is a tiny clock (the living world) which is winding itself up" (page 11). This is a good description of what is actually taking place. The sun's "winding down" has provided the energy for all past and present life on the earth.

In chapter 13, where blood precipitation tests are discussed, he reveals all too clearly that he does not understand the theory of modern immunology by such statements as, "The fact that the blood of some men is fatal if transfused into another man of the same race, should convince any unprejudiced person that blood precipitation tests are of no value in determining relationship" (page 183). In reality, since the inheritance of many of the blood types of man has been worked out, the incompatibility reactions have turned out to be quite dependable tools for determining kinship. Another obvious error in this chapter is the information that O type persons can have injected into them without harm blood of all other groups and that AB type individuals can donate to all types.

In his discussion of the fossil record he makes much of the sudden appearances of new forms and the gaps that separate many groups from their proposed ancestors. He feels that the fossil record is best explained by assuming that "... all the main types of living beings were brought into existence by one creative act in considerable numbers, each type in the parts of the earth that were then best suited to its

habits. . . . In the long course of the history of the earth this distribution underwent great changes in consequence of what Joly describes as 'great cycles of world-transforming events' which caused the extinction of many kinds of animals and plants and a vast amount of migration culminating in the survival of only the types now living and their present geographical distribution" (page 32). According to this view, all of today's plants and animals were present in the world during the Cambrian and subsequent periods of geological time but do not appear in the fossil record because they did not live in the regions where the fossil beds were formed. The orderly appearance of forms in the fossil record is explained by a series of migrations of various living things into regions where deposition was going on. To this reviewer, such a theory would be hard put to explain the more or less orderly progression of forms in the fossil record from the "lower" to the "higher." Even granting that what one calls higher or lower might be rather arbitrarily determined, there is, nevertheless, an obvious orderly sequence of forms in the fossil record that would not be expected upon a scheme of chance migrations from a population containing a mixture of "low" and "high" forms.

In summary, it can be said that if one wants a catalog of the difficulties confronting the theory of evolution, this book will supply an extensive one. However, if one is looking for a satisfying Christian philosophy of Biology, one will have to look elsewhere.

One final comment: the publisher has gone to some pains to put out a handsome book. The maroon cover with gold letters is very attractive. One could only wish that he had expended a little more effort on what is found within the covers. Sprinkled throughout the text is the most extensive collection of typographical errors this reviewer has ever encountered in a finished book. The worst error of this sort is found on page 181, where two lines from page 188, on the recapitulation theory, are inserted in the middle of a discussion of Tom Sawyer's ideas about incantations. Tom has certainly become erudite since my last encounter with him.

The Song of Life by Sara G. Blair, Pageant Press, Inc., New York, 1960 (\$3.50).

Reviewed by Francis D. Houghton, 27 Avenue E, Claymont, Delaware.

The book which is the subject for this review may seem to be a strange one for an evangelical scientist to report on for a journal such as this. However, the points of interest become obvious as we proceed, and the basic point of view of the book toward knowledge, wisdom, evolution, and many other subjects, is remarkably similar to our own.

"In the dawn of mankind there was only one science—Divine Science." This is the opening sentence of the introduction. It was this sentence that caught

the writer's attention so that he read the entire book with a great deal of interest.

Many will disagree with some of the chronology ("The Aryan Hindu is one million years old"), but in the science of the ancient East we find an unexpected ally in our differences with the evolutionists and those who would make science their god. "Only by a proper attitude of mind, a high regard for the handiwork of a tremendous Intelligence, a humility before this unknown mightiness as revealed by nuclear energy and all of nature, dare Man hope to share in the abiding peace which is his birthright. Long ago, the Hindus worshiped on the Ganges, the Egyptians on the Nile, the Chinese on the Yangtze Kiang, the Babylonians on the Euphrates. Did the Ancients know that all rivers flow to the sea, *that Man must approach wisdom with deep and sincere humility; that his motive must be pure?*" (Italics the reviewer's.) Miss Blair shows that in the ancient East all wisdom, power, and science came from above—from the Divine Being—who made heaven and earth.

Pointing out the thinking and the knowledge of the dim past, and how it relates to modern scientific marvels—and explains them—the author gives us a fascinating glimpse of a world little known, or even suspected, by twentieth-century science. She covers atomic science, the ether, life, space travel, and evolution in the first part of the book. The second—and largest—part consists of a "Correlation of Ancient Eastern Science and Modern Western Science." Admittedly, some of the scientific facts are a little weak, but Miss Blair's over-all grasp of modern physical science is to be admired, especially since she is a writer and a philosopher, and not possessed of a scientific background or training.

On the subject of evolution we find this interesting statement: "Man did not evolve from the ape or any like body, but he *degenerated* into it. Nor did Man

and the anthropoid ape have a common ancestor. Man has always been Man, and he was *first on the planet*. . . .

There are many more such interesting and illuminating statements, and we could repeat them all in connection with our own defense of spiritual things, and the spiritual nature of Man and his world, but we shall quote only one more: "In concluding this interpretation of the ancient Eastern physics, we might say that this is a plea for faith in our troubled times. The very fact that our universe has a spiritual genesis should make us all walk like kings."

Although the book is interestingly written and quite clear in many parts, the reviewer feels that many of the intricacies of the Eastern physics and metaphysics will prove confusing to the average reader. However, the author includes a Sanskrit glossary, and her frequent cross references make it possible for an interested person to acquire a fair background of the ancient system of things, outlining the flow of everything—matter, energy, wisdom, and life—from the Ultimate Reality—which is omnipresent, omniscient, and omnipotent—as the God of Christianity is all presence, all knowledge, and all power.

The "Correlation" is handled in a two-column, side-by-side style, which compares modern scientific concepts from biology, chemistry, physics, psychology, and theology with their oriental counterparts, most of which antedate our present knowledge by considerable periods of time. It must have been a very difficult job to gather the information and organize it into its present form. For this reason it is easy to overlook the deficiencies and to credit Miss Blair with an excellent attempt to open up an exceedingly obscure and fascinating field of study. Many a more prominent writer would never have dared to venture into this area, and we should give her our thanks for giving us much to think about.

A.S.A. Executive Council

Meeting

Saturday, March 26, 1960
Bethel College, St. Paul, Minnesota

The complete minutes, prepared by Secretary Hearn, have been considerably condensed here to include only the more general interest items.—Editor.

The meeting was held in the faculty lounge, beginning at 9:30 a.m. and continuing through lunch in the college cafeteria until 1:30 p.m., when adjournment allowed Council members to attend the afternoon program of the North Central Section held at the Coffman Memorial Union of the University of Minnesota, Minneapolis. Present: H. H. Hartzler, presiding, J. F. Cassel, D. N. Eggenberger, and W. R. Hearn; the president had also received a communication from H. D. Weaver, Jr., who could not attend. The meeting was opened with prayer led by J. F. Cassel.

W. R. Hearn announced that J. F. Cassel had been elected to the Executive Council by a vote of 62 to 35. In the subsequent election of officers for 1960, H. H. Hartzler was elected president, H. D. Weaver, Jr., vice-president, and W. R. Hearn, secretary-treasurer.

Old Business

The treasurer's report, covering the period November 10, 1959, to March 1, 1960, and showing a balance of \$640.67, was circulated. The secretary-treasurer explained that the unusually low balance was the result of delay in 1960 billing caused by membership reclassification. This is now complete and billing will begin immediately.

The minutes of the previous meeting of November 14 were read by W. Hearn. Brief comments on several of the items were as follows:

President Hartzler has corresponded with Mr. Suter about publicity folders for recruiting new members. W. Hearn reported that one inquiry has already been received concerning "Student Chapters" of A.S.A.; it was agreed that a Local Section could be established on any campus at which there were enough interested associates or members under the present provisions of the bylaws.

It was suggested that President Hartzler correspond with J. O. Buswell III for a recommendation for an appointee to the A.S.A.-E.T.S. Biennial Meeting Committee (Buswell is secretary of the committee.)

President Hartzler has received a copy of the manuscript prepared by Peter W. Stoner, but has not yet clarified the relationship of the A.S.A. to this project. It was suggested that he correspond with Stoner to make clear whether this is to be an A.S.A. publication and what disposition of royalties is intended.

1961 Convention Site

President Hartzler recommended that Houghton College, Houghton, New York, be chosen for the site of the 1961 Annual Convention. The Council voted to accept the invitation of Houghton College to hold the Annual Convention on their campus in the summer of 1961.

1962 Convention Site

It was agreed that the 1962 Convention should be in the Midwest, and that the A.S.A. should "cultivate" invitations for the summer of 1962 from the Midwest.

Change of Publisher for the Journal

A letter to Dr. Hartzler from H. Ralph Hernley, Production Manager of the Mennonite Publishing House, 610 Walnut Avenue, Scottdale, Pennsylvania, was circulated. The letter offered a quotation on printing the *Journal*. This bid is the only one received which approached the low price of Exchange Publishing Company, present publishers of the *Journal*. Galley proofs are promised for two weeks after receipt of copy and mailing of journals promised for two weeks after receipt of corrected galleys. The Council voted unanimously to change publishers of the *Journal* to the Mennonite Publishing House for better service promised at comparable cost, beginning with the June, 1960, issue. The editor was greatly encouraged by this action.

Appointment of Editorial Board for the Journal

It was decided to support the editor of the *Journal* by appointing an Editorial Board upon whom he could call for assistance of various kinds, and who would recommend *Journal* policies to the Executive Council. After discussion of possible candidates, the following were nominated:

Henrik J. Oorthuys (Book Review Editor)
John A. McIntyre
David O. Moberg
Robert F. DeHaan
Cordelia Barber
Lawrence H. Starkey

No term of office was designated for this trial period. The editor of the *Journal* is to be regarded as chairman of the Editorial Board; it is expected that the Board will try to meet during the Annual Conventions and submit a report to the Executive Council.

Appointment of Nominating Committee

The following committee was appointed by the Council to nominate two Fellows as candidates for election to the Executive Council for 1961:

Lawrence H. Starkey
Peter W. Stoner
John R. Howitt, Chairman

Appointment of Editorial Committee for Wayne Frair's Manuscript

Members of the Executive Council have received a draft of Wayne Frair's manuscript on problems of biology and Christian faith for high-school students. The Executive Council appointed the following committee to examine the manuscript carefully and make recommendations concerning its publication to the Executive Council:

J. Frank Cassel, Chairman
Alta Schrock
V. Elving Anderson

Nomination of New Fellows

It was recommended that the vice-president immediately prepare a list of possible candidates, with biographical information and indication of service to the A.S.A., to be circulated among the Executive Council for recommendation to the Fellows. The election of new Fellows by the Fellows is to take place as soon as possible after this recommendation by the Executive Council.

New Projects for A.S.A.

A list of ideas recorded at an A.S.A. "brainstorming" session was discussed at length. It was agreed that the Council should give more consideration to selection of the areas in which we wish to promote projects in the next few years, and to share ideas about this by correspondence before the Annual Convention. It was also proposed that H. Weaver, Jr., be appointed chairman of an *ad hoc* "Planning Commission" composed of members in the Midwest who could get together to discuss the same question, the

members being chosen to provide a variety of professional affiliations. The following were appointed to this "Planning Commission" in addition to Weaver:

Alfred C. Eckert
Robert B. Fischer
G. Douglas Young
Charles E. Hummel
David F. Busby

Publication of Directory and Revision of "Story of A.S.A."

The secretary-treasurer was instructed to proceed with publication of a 1960 Directory as soon as the information can be collected from the membership.

The editor was given the responsibility of revising "The Story of the A.S.A." as soon as possible, in a form that will fit conveniently into a business-size envelope. He was instructed to get several bids for printing 3,000 copies. It was also suggested that the names of the current Executive Council be omitted to avoid dating the pamphlet.

Success of "Evolution and Christian Thought Today"

The secretary-treasurer reported that Wm. B. Eerdmans Publishing Co. has written him that they are very pleased with the sales of our 1959 Darwin centennial volume. There is the possibility of a number of textbook adoptions; 1,000 sets of sheets have been sold to Paternoster Press of London. The Council felt that reviews and advertisements of the book could be pushed more aggressively and requested W. Hearn to write to Eerdmans to see what more could be done. Several hundred copies have been sold through the A.S.A.

NEW MEMBERS

Carlson, Philip R., 3432 Rhode Island, St. Louis Park 26, Minnesota, is an Instructor in Mathematics and Physics at Bethel College, St. Paul, Minnesota. He holds a B.A. degree from Bethel College in Philosophy and a B.S. degree from the University of Minnesota in Mathematics.

Larson, F. Wilmer, 2931 Portland Avenue, Minneapolis 7, Minnesota, is a Resident Physician, Department of Psychiatry at the University of Minnesota Hospitals. He has earned a B.S. degree in Chemistry, a B.S. degree in Medicine, and an M.D. degree from the University of Illinois.

Mishra, Vishwa M., 745 East 17th Street, Minneapolis, Minnesota, is Executive Director of the India for Christ, Inc. He holds the following degrees: M.A., B.A. Hon. B. Laws from Patna

University, M.A. from Georgia University. He is currently working on the Ph.D. in Communications Psychology at the University of Minnesota.

Pearson, James V., is an Instructor of Electrical Engineering at John Brown University, Siloam Springs, Arkansas. He holds a B.E.E. degree from the University of Minnesota.

Price, J. David, 355 East 20th Street, Upland, California, is a science teacher from Bonita Unified School District. He earned his B.A. degree in Biology from Occidental College and an M.A. from Claremont Graduate School in Education. He is now working on his Ph.D. in Science Education.

Swenson, Jack S., 617 East Geranium Avenue, St. Paul 1, Minnesota, is a Research Chemist at Minnesota Mining and Manufacturing Co. He holds a B.S. in Chemistry from the University of Washington and a Ph.D. in Organic Chemistry from the University of Minnesota.